

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**

**Affiliated to Bharathidasan University  
Nationally Accredited (3<sup>rd</sup> Cycle) with 'A' Grade by NAAC  
ISO 9001:2015 Certified  
Annamalainagar  
Tiruchirapalli-620018**



**Minutes of the Sixth Meeting of the Academic Council**

**Date: 16.06.2022**

**Time: 11.00 a.m.**



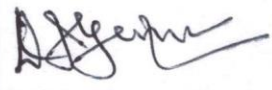


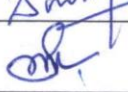
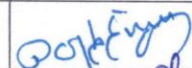
**Venue: Trust Meeting Hall**

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## THE MINUTES OF THE SIXTH MEETING OF THE ACADEMIC COUNCIL

The sixth meeting of the Academic Council was held on 16<sup>th</sup> June 2022, Thursday at 11.00 a.m. in the Trust Meeting Hall under the Chairmanship of **Dr. V. Sujatha**, Principal. The following members were present.

S.No	Members	Designation	Signature
<b>Chairman</b>			
1	Dr. V. Sujatha	Principal, Cauvery College for Women(A)	V. Sujatha 16.6.22
<b>University Nominees</b>			
2	Dr. P. Muruganandam	Professor & Head, Dept. of Physics, Bharathidasan University, Trichy.	
3	Dr. T. Sivasudha	Professor Dept. of Environmental Biotechnology, Bharathidasan University, Trichy.	T. Sivasudha
4	Dr. R. Kalidasan	Professor & Head, Dept. of Physical Education & Yoga, Bharathidasan University, Trichy.	R. Kalidasan 16/6/2022
<b>Academic Experts</b>			
5	Dr. S. Senthilnathan	Director (FAC), UGC-HRDC, Department of Educational Technology, Bharathidasan University, Trichy.	
6	Dr. K. Karunakaran	Chief Executive Officer, Hindustan Educational Institutions, Coimbatore.	Attended Online
7	Dr.D. I. George Amalarethinam	Bursar, Director (MCA), Associate Professor of Computer Science, Jamal Mohamed College (A), Trichy.	
<b>Industry Expert</b>			
8	Derrick Alex	AGM Operations, VDart Technologies. Pvt.Ltd.	
<b>Special Invitees</b>			
9	Dr V. Rajesh Kannan	Director Council for College & Curriculum Department Bharathidasan University, Trichy	
10	Dr. S.Sowmya	EDC Coordinator	S. Sowmya
11	Dr. R. Subha	EDC Coordinator	
12	Mr. P. Guhan Raj	Cultural Coordinator	
13	Dr. R. Vijayalakshmi	Hindi	R. Vijayalakshmi

14	Ms.Manjula	French	M.J.
<b>Internal Members</b>			
<b>Heads of the Departments</b>			
15	Dr. S. Ramalakshmi	Vice Principal & HoD of Tamil	S. Ramalakshmi 16/6/22
16	Dr. S. Jayashree Agarwal	HoD of English(UG)	S. Jayashree Agarwal 16/6/2022
17	Dr. S. Metilda Buvanewari	HoD of Social Work	S. Metilda Buvanewari 16/6/2022
18	Dr. J. Tamil Selvi	HoD of BBA	J. Tamil Selvi 16/6/22
19	Dr. N. Savithri	Dean of Arts & HoD of Commerce	N. Savithri 16/6/22
20	Dr. S. Premalatha	HoD of Mathematics	S. Premalatha 16/6/2022
21	Dr. G. Maheswari	HoD of Physics	G. Maheswari 16/6/22
22	Dr. P. Pungayee @ Amirtham	HoD of Chemistry	P. Pungayee @ Amirtham 16/6/22
23	Dr. R. Merlin Packiam	HoD of Computer Applications	R. Merlin Packiam 16/6/22
24	Dr. M. Parveen	HoD of Information Technology	M. Parveen 16/6/2022
25	Dr. B. Tamilmaraiselvi	HoD of Microbiology	B. Tamilmaraiselvi 16/6/22
26	Dr. R. Rameshwari	HoD of Biotechnology	R. Rameshwari
27	Ms. B. Thanuja	HoD of Food Service Management & Dietetics	B. Thanuja
<b>Senior Faculty in the College by Rotation</b>			
28	Dr. S. Shameem	Vice Principal	S. Shameem 16/6/22
29	Dr B Baby Shakila	Director of Physical Education	B. Baby Shakila 16/6/22
30	Ms. N. Girubagari	Head in Charge, Computer Science	N. Girubagari 16/6/2022
<b>Member Secretary</b>			
31	Dr. V. Sinthu Janita Prakash	Dean of Science, IQAC Coordinator, HoD of Computer Science	V. Sinthu Prakash 16/6/2022

THE FOLLOWING MEMBERS HAD EXPRESSED THEIR INABILITY TO ATTEND THE MEETING DUE TO THEIR PRE-OCCUPATION.

1	Mr.B.Varadan	Sanskrit
2	Dr.P.Urmila	HoD of English(PG)
3	Dr.V.Ramya	Controller of Examinations
4	Dr.H.Krishnaveni	Course Coordinator, B.Sc Computer Science with Cognitive Systems

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**Tiruchirapalli-620018**  
**SIXTH MEETING OF THE ACADEMIC COUNCIL**

DATE : 16.06.2022  
VENUE: Trust Meeting Hall

TIME: 11.00 a.m.

**MINUTES**

**MINUTES**

**WELCOME AND INTRODUCTORY REMARKS OF THE CHAIRMAN**

The Chairman of the Academic Council Dr. V. Sujatha welcomed the gathering to the VI Meeting of the Academic Council

**She briefed on the**

- Accreditations
- Registrations
- Faculty Details

**She also highlighted the achievements of the college from Oct 2021 to June 2022**

- IQAC Activities
- Academic Audit
- Administrative Audit
- Internal ISO Audit
- External NAAC Peer Team Visit
- Grants and Financial Assistance from the Government
- Grants and Financial Assistance from the Management
- MoUs
- Awards and Recognitions
- Project Proposal
- Seed Money
- Publications and Patents applied for
- SWAYAM NPTEL
- Faculty as Resource Person
- Faculty as members of BoS
- Internship and Training Programmes
- Extension Activities and Outreach Programmes
- Achievement of Entrepreneurial Development Cell
- CCAA-Cauvery College Alumnae Association
- Placement Details
- Infrastructure Upgradation

## **CONFIRMATION OF THE MINUTES OF THE PREVIOUS MEETING HELD ON 09.10.2021**

The Member Secretary Dr. Sinthu Janita Prakash read the minutes of the V Meeting of the Academic Council comprising of 19 Resolutions- (Resolution 05/01 to Resolution 05/19) of the V Meeting of the Academic Council pertaining to the introduction of a new programme BSc Computer Science with Cognitive Systems, Value Added Courses for 2021-2022, nomination of two subject experts from outside the Parent University for various BoS, Confirmation of the VI Semester Syllabus of all undergraduate programmes of 2019-2020 batch, amendment in the curriculum in previous semesters, retention period of answer scripts and declaration of examination results were confirmed.

### **RESOLUTION 06/01**

To consider and approve to follow the same regulations of (2021 – 2022) with the following amendments for the students admitted in Undergraduate and Postgraduate Programmes during the year (2022 – 2023) and onwards and the same be approved for

- a. Change in the eligibility criteria of B. Com, B. Com (CA)
- b. Change in the eligibility criteria of B. Sc Computer Science with Cognitive Systems.

*Considered and approved to follow the same regulations of (2021 – 2022) with the following amendments for the students admitted in Undergraduate and Postgraduate Programmes during the year (2022 – 2023) and onwards and the same be approved as given in **Annexure A** for*

- a. *Change in the eligibility criteria of B. Com, B. Com (CA)*
- b. *Change in the eligibility criteria of B. Sc Computer Science with Cognitive Systems.*

### **RESOLUTION 06/02**

To consider and approve the introduction of Learning Outcome based Curriculum Framework as per the UGC Guidelines and to approve the PEO, PO & PSO of all the Undergraduate and Postgraduate programmes for (2022-2023) batch and onwards.

*Considered and approved the introduction of Learning Outcome based Curriculum Framework as per the UGC Guidelines and to approve the PEO, PO & PSO of all the Undergraduate and Postgraduate programmes for (2022-2023) batch and onwards as given in **Annexure B**.*

### **RESOLUTION 06/03**

To consider and approve the Programme Structure of Arts & Science programmes in Undergraduate and Postgraduate levels for the Academic year (2022-2023) and onwards.

**Prof Muruganandam**, University Nominee, suggested to include Unit VI- Self Study for Enrichment in all courses which is exempted from external examination. Syllabus is modified to accommodate VI Unit.

**Prof Kalidasan**, University Nominee suggested to format text books and reference books according to the format required for that specific discipline. Department of English will follow Modern Language Association (MLA) format and other departments will follow American Psychological Association (APA) format.

**Prof Senthilnathan**, Academic Expert, suggested to remove the Wikipedia links from the web references given for the courses.

**Dr D I George Amalarethinam**, Academic Expert, advised to have the evaluation of Ability Enhancement Compulsory Courses (AECC)- Innovation and Entrepreneurship and Environmental Studies as activity based internal evaluation.

**Prof Murugandam**, University Nominee, advised to include electives in Core Courses in PG programmes. Core Elective Courses will be offered from the II Semester.

**Prof Kalidasan**, University Nominee, suggested to have Question Banks evaluated by outside experts to ensure whether Bloom's Taxonomy is followed.

Resolved to approve the Programme Structure of Arts & Science programmes in Undergraduate and Postgraduate levels for the Academic year (2022-2023) and onwards as given in **Annexure C**.

#### **RESOLUTION 06/04**

To consider and approve the introduction of Value Added & Extra Credit Courses for the Academic Year (2022-2023) onwards.

Considered and approved the introduction of Value Added & Extra Credit Courses for the Academic Year (2022-2023) onwards as given in **Annexure D**.

#### **RESOLUTION NO.06/05**

To consider and approve the Syllabi for (2022-2023) batch and onwards for

- a. Part I Language Tamil for Semesters I to IV for all Under Graduate Programmes
- b. Part III Core and Allied Courses for Semester I of B.A Tamil
- c. Core and Elective Courses for Semester I of M.A. Tamil

Resolved to approve the Syllabi for (2022-2023) batch and onwards for

- a. Part I Language Tamil for Semesters I to IV for all Under Graduate Programmes

- b. Part III Core and Allied Courses for Semester I of B.A Tamil
- c. Core and Elective Courses for Semester I of M.A. Tamil

as recommended by the Board of Studies in Languages and moved by the Chairman **Dr S Ramalakshmi** in the meeting and the same be approved as given in **Annexure E**

#### **RESOLUTION NO. 06/06**

To consider and approve the Part I Other Languages for Semesters I to IV for all Under Graduate Programmes of 2022-2023 batch and onwards for

- a. Hindi
- b. Sanskrit
- c. French

**Prof Senthilnathan**, Academic Expert suggested to rename the Value Added Course as Functional Hindi.

It is resolved to follow I to IV semesters syllabi of Hindi for 2022-2023 batch and onwards and the name of the Value Added Course Abiruchi Hindi to be renamed as Functional Hindi, as recommended by the Board of Studies in Other Languages-Hindi and moved by the Chairman **Dr R Vijayalakshmi** in the meeting and the same be approved as given in **Annexure F**

**Prof Senthilnathan**, Academic Expert suggested to rename the title of the courses. It has been renamed as Basic French-I, Basic French-II, Intermediate French-I & Intermediate French-II.

It is resolved to follow I to IV semesters syllabi of French with the change of titles for 2022-2023 batch and onwards as recommended by the Board of Studies in Other Languages-French and moved by Ms Manju in the meeting and the same be approved as given in **Annexure F**

It is resolved to follow I to IV semesters syllabi of Sanskrit for 2022-2023 batch and onwards as recommended by the Board of Studies in Other Languages-Sanskrit and moved by **Dr S Vijayalakshmi** in the meeting and the same be approved as given in **Annexure F**

#### **RESOLUTION 06/07**

To consider and approve the Syllabi for (2022-2023) batch and onwards for

- a. Part II English Language Course for Semesters I to IV for all Under Graduate Programmes

- b. Part III Core and Allied Courses for Semester I of B.A English
- c. Core and Elective Courses for Semester I of M.A. English

Considered and approved the Syllabi for (2022-2023) batch and onwards for

- a. Part II English Language Course for Semesters I to IV for all Under Graduate Programmes
- b. Part III Core and Allied Courses for Semester I of B.A English
- c. Core and Elective Courses for Semester I of M.A. English

*as recommended by the Board of Studies in English and moved by the Chairman **Dr S Jayashree Agarwal** in the meeting and the same be approved as given in **Annexure G***

### **RESOLUTION 06/08**

To consider and approve the Syllabi for (2022-2023) batch and onwards for

- a. Part III Core and Allied Courses for Semester I of B.S.W
- b. The syllabus of the UGC Jeevan Kaushal Life Skills Course -Universal Human Values (22UGVE) in Semester I for all the Under Graduate Programmes
- c. Core and Elective Courses for Semester I of M.S.W

***Dr. Kalidasan, University Nominee** gave the suggestion to change the name of UGC Jeevan Kaushal Life Skills Course -Universal Human Values (22UGVE) as either UGC Jeevan Kaushal or UGC Life Skills Course. The course has been renamed as UGC Jeevan Kaushal Course with the title Universal Human Values.*

*As per the suggestion given by the CCCD Director & Special Invitee **Dr Rajesh Kannan**, PG CC-I has been renamed as Philosophy of Social Work and Society.*

*Resolved to approve the Syllabi for (2022-2023) batch and onwards as given in **Annexure H***

- a. Part III Core and Allied Courses for Semester I of B.S.W
- b. The syllabus of the UGC Jeevan Kaushal Course -Universal Human Values (22UGVE) in Semester I for all the Under Graduate Programmes
- c. Core and Elective Courses for Semester I of M.S.W

*as recommended by the Board of Studies in Social Work and moved by the Head of the Department **Dr G Mettilda Bhuvanewari** in the meeting and the same be approved*

### **RESOLUTION 06/09**

To consider and approve the Syllabi of Part III Core and Allied Courses for Semester I of B.B.A for (2022-2023) batch and onwards



*Considered and approved the Syllabi of Part III Core and Allied Courses for Semester I of B.B.A for (2022-2023) batch and onwards as recommended by the Board of Studies in Business Administration and moved by the Chairman **Dr J Tamil Selvi** in the meeting and the same be approved as given in **Annexure I***

#### **RESOLUTION 06/10**

To consider and approve

- a. The Syllabi of Part III Core and Allied Courses for Semester I of B. Com for (2022-2023) batch and onwards
- b. The Syllabi of Part III Core and Allied Courses for Semester I of B. Com (CA) for (2022-2023) batch and onwards
- c. The Syllabi of Part III Core Courses, Allied Courses, Skill Based Elective Courses, Major Based Elective Courses from Semester III to VI of B. Com for (2021-2022) batch and onwards
- d. The inclusion of Project Work in the VI Semester Programme Structure for B.Com. and B.Com. CA (2020 – 2021) batch and onwards
- e. The Syllabi of Core and Elective Courses for Semester I of M. Com for (2022-2023) batch and onwards

*Considered and approved*

- a. *The Syllabi of Part III Core and Allied Courses for Semester I of B. Com for (2022-2023) batch and onwards*
- b. *The Syllabi of Part III Core and Allied Courses for Semester I of B. Com (CA) for (2022-2023) batch and onwards*
- c. *The Syllabi of Part III Core Courses, Allied Courses, Skill Based Elective Courses, Major Based Elective Courses from Semester III to VI of B. Com for (2021-2022) batch and onwards*
- d. *The inclusion of Project Work in the VI Semester Programme Structure for B.Com. and B.Com. CA (2020 – 2021) batch and onwards*
- e. *The Syllabi of Core and Elective Courses for Semester I of M. Com for (2022-2023) batch and onwards*

*as recommended by the Board of Studies in Commerce and moved by the Chairman **Dr N Savithri** in the meeting and the same be approved as given in **Annexure J***

#### **RESOLUTION 06/11**

To consider and approve the Syllabi of

- a. Part III Core and Allied Courses for Semester I of B. Sc Mathematics for (2022-2023) batch and onwards
- b. Part III Core, Allied, Non-Major Elective Courses Semester III & IV of B. Sc Mathematics for (2021-2022) batch and onwards
- c. Allied Courses of B. Sc Physics, Chemistry, Computer science, Computer science with Cognitive Systems, Computer Applications,

- d. Information Technology for (2022-2023) batch and onwards.  
Core Courses for Semester I of M. Sc Mathematics for (2022-2023) batch and onwards

*CCCD Director & Special Invitee **Dr Rajesh Kannan** suggested to rename the Allied courses offered for Physics & Chemistry and hence, Allied-I is renamed as Calculus and Fourier Series and Allied II is renamed as Algebra, Analytical Geometry of 3D and Trigonometry. Allied-I Course for BSc Computer Science with Cognitive Systems has been revised and renamed as Applied Mathematics.*

*As per the suggestion given in the Academic Council, the Elective Course-I is given in the first semester of I MSc Mathematics with the following electives Advanced Numerical Analysis / Mathematical Modelling / Boundary Value Problems*

*Considered and approved the Syllabi of*

- a. *Part III Core and Allied Courses for Semester I of B. Sc Mathematics for (2022-2023) batch and onwards.*
- b. *The Second Allied Courses of Semester III & IV of B. Sc Mathematics was changed from programming in C to Python Programming, Programming in C Lab to Python Programming Lab and Principles of IT to Internet of Things Core Course-VII (Methods in Numerical Analysis) & Skill Based Elective - I (Introduction to R) was shifted from Semester V to semester IV of B. Sc Mathematics for (2021-2022) batch and onwards.*
- c. *Allied Courses of B. Sc Physics, Chemistry, Computer science, Computer science with cognitive systems, Computer applications, Information Technology for (2022-2023) batch and onwards.*
- d. *Core Courses for Semester I of M. Sc Mathematics for (2022-2023) batch and onwards.*

*as recommended by the Board of Studies in Mathematics and moved by the Chairman **Dr S Premalatha** in the meeting and the same be approved as given in **Annexure K***

### **RESOLUTION 06/12**

To consider and approve

- a. The Syllabi of Part III Core and Allied Courses for Semester I of B. Sc Physics for (2022-2023) batch and onwards
- b. Ratification of SBE-II & SBE-III courses for B.Sc. of Physics Programme (2020-2021 batch and onwards) in Semester-V
- c. The Syllabi of Core Courses for Semester I of M. Sc Physics for (2022-2023) batch and onwards

*As per the suggestions given by **Prof Muruganandam**, University Nominee, the title of Core Practical-I is renamed as Properties of Matter, Waves and Acoustics Practical for of B. Sc Physics for (2022-2023) batch and onwards*

*As per the suggestion given in the Academic Council, the Elective Course-I is given in the first semester of I MSc Physics with the following electives Microprocessor and Microcontroller / Non- Destructive Evaluation Techniques / Astrophysics*

*Resolved to approve*

- a. *The Syllabi of Part III Core and Allied Courses for Semester I of B. Sc Physics for (2022-2023) batch and onwards.*
- b. *Ratification of Skill Based Elective-II Courses Physics concepts through Simulation (19UPH5SBE2A) with Physics concepts through Animation-Practical (19UPH5SBE2AP)/ Cell Phone Servicing (19UPH5SBE2B) with Household Appliances Servicing-Practical (19UPH5SBE2BP) and Skill Based Elective –III Courses Web Designing (19UPH5SBE3A) with Web Designing-Practical (19UPH5SBE3AP) / Electrical Wiring (19UPH5SBE3B) with Electrical Wiring-Practical (19UPH5SBE3BP) of B.Sc., Physics Programme (2020-2021batch and onwards) in Semester-V*
- c. *The Syllabi of Core Courses for Semester I of M. Sc Physics for (2022-2023) batch and onwards*

*as moved by the Chairman **Dr G Maheswari** in the meeting and the same be approved as given in **Annexure L***

### **RESOLUTION 06/13**

*To consider and approve*

- a. *The Syllabi of Part III Core and Allied Courses for Semester I of B. Sc Chemistry*
- b. *The ratification in the programme core structure of V and VI semesters of B.Sc., Chemistry 2020- 2021 batch and onwards*
- c. *Core and Elective Courses for Semester I of M. Sc Chemistry for (2022-2023) batch and onwards*

*CCCD Director & Special Invitee **Dr Rajesh Kannan** suggested to rename the Core Practical-I and hence it has been renamed as General Chemistry Practical.*

*Resolved to approve*

- a. *The Syllabi of Part III Core and Allied Courses for Semester I of B. Sc Chemistry.*
- b.
  - i. *Ratified Part III Major Based Elective-I course titled **Analytical Chemistry/ Chemistry of Biomolecules** bearing the Course Code **19UCH5MBE1A/19UCH5MBE1B** as Nuclear **and Industrial Chemistry/ Basics of Nanoscience and Nanotechnology** with Course Code **20UCH5MBE1A/20UCH5MBE1B** in Semester V of B.Sc., Chemistry Programme*

- (2020-2021) batch and onwards.
- ii. Renamed Part IV Skill Based Elective-III course titled **Water Treatment Technology (P)** bearing the Course Code **19UCH5SBE3AP** as **Water Analysis (P)** with Course Code **20UCH5SBE3AP** in Semester V of B.Sc., Chemistry Programme (2020-2021) batch and onwards.
  - iii. Ratification to change Part III Core Practical course titled **Gravimetric Analysis and Analytical Techniques (P)** bearing the Course Code **19UCH6CC6P** as **Gravimetric Analysis and Physical constant (P)** with Course Code **20UCH6CC6P** in Semester VI of B.Sc., Chemistry Programme (2020-2021) batch and onwards
  - iv. Ratification to change Part III Major Based Elective-II Theory course titled **Nuclear and Industrial Chemistry/ Basics of Nanoscience and Nanotechnology** bearing the Course Code **19UCH6MBE2A/ 19UCH6MBE2B** as Practical course of **Analytical Techniques (P)/ Chemistry of Nanoscience (P)** with Course Code **20UCH6MBE2AP/ 20UCH6MBE2BP** in Semester VI of B.Sc., Chemistry Programme (2020-2021) batch and onwards.
  - v. To implement Part III Project Work course titled **Dissertation** bearing the Course Code **20UCH6PW** in Semester VI of B.Sc., Chemistry Programme (2020-2021) batch and onwards.
- d. Core and Elective Courses for Semester I of M. Sc Chemistry for (2022-2023) batch and onwards

as recommended by the Board of Studies in Chemistry and moved by the Chairman **Dr P. Pungayee @Amirtham** in the meeting and the same be approved as given in **Annexure M**

#### **RESOLUTION 06/14**

To consider and approve the Syllabi of

- a. Part III Core and Allied Courses for Semester I of B. Sc Computer Science for (2022-2023) batch and onwards
- b. Part III Core and Allied Courses for Semester I of B. Sc Computer Science with Cognitive Systems for (2022-2023) batch and onwards
- c. Part III Core, Allied Courses and Part IV Non-Major Elective Course for Semester III of B. Sc Computer Science with Cognitive Systems for (2021- 2022) batch and onwards
- d. Allied Course-I and Allied Course-II offered by the department of Computer Science for (2021-2022) batch and onwards
- e. Core and Elective Courses for Semester I of M. Sc Computer Science for (2022-2023) batch and onwards

Considered and approved the Syllabi of

- a. Part III Core and Allied Courses for Semester I of B. Sc Computer Science for (2022-2023) batch and onwards
- b. Part III Core and Allied Courses for Semester I of B. Sc Computer Science

- c. *with Cognitive Systems for (2022-2023) batch and onwards*
- c. *Part III Core, Allied Courses and Part IV Non-Major Elective Course for Semester III of B. Sc Computer Science with Cognitive Systems for (2021-2022) batch and onwards*
- d. *Allied Course-I and Allied Course-II offered by the department of Computer Science for (2021-2022) batch and onwards*
- e. *Core and Elective Courses for Semester I of M. Sc Computer Science for (2022-2023) batch and onwards*

*as recommended by the Board of Studies in Computer Science and moved by the Chairman **Dr Sinthu Janita Prakash** in the meeting and the same be approved as given in **Annexure N**.*

### **RESOLUTION 06/15**

To consider and approve the Syllabi of

- a. Part III Core and Allied Courses for Semester I of BCA (2022-2023) batch and onwards
- b. Part III Core, Allied, Non-Major Elective Courses for Semesters III & IV of BCA (2021-2022) batch and onwards

Resolved to approve the Syllabi of

- a. Part III Core and Allied Courses for Semester I of BCA (2022-2023) batch and onwards
- b. Part III Core, Allied, Non-Major Elective Courses for Semesters III & IV of BCA (2021-2022) batch and onwards

*as recommended by the Board of Studies in Computer Applications and moved by the Chairman **Dr Merlin Packiam** in the meeting and the same be approved as given in **Annexure O**.*

### **RESOLUTION 06/16**

To consider and approve

- a. The Syllabi of Part III Core and Allied Courses for Semester I of B. Sc Information Technology (2022-2023) batch and onwards
- b. The Ratification of the syllabus of Major Based Elective course I in semester V and Core course IX in Semester VI of B. Sc Information Technology (2020-2021) batch and onwards

**Dr D I George Amalarethinam**, Academic Expert, suggested to have a common syllabus for the common courses offered for BSc Computer Science, BCA and BSc Information Technology. Hence a common syllabus is framed for the CC-I Programming in C and CP-I Programming in C Practical.

*Considered and approved*

- a. *The Syllabi of Part III Core and Allied Courses for Semester I of B. Sc Information Technology (2022-2023) batch and onwards*

- b. *The Ratification of the syllabus of Major Based Elective course I Software Engineering (19UIT5MBE1A) in semester V and Core course IX Mobile Application Development (19UIT6CC9) in Semester VI of B. Sc Information Technology (2020-2021) batch and onwards*

*as recommended by the Board of Studies in Information Technology and moved by the Chairman **Dr M Parveen** in the meeting and the same be approved as given in **Annexure P***

### **RESOLUTION 06/17**

To consider and approve the Syllabi for

- a. Part III Core and Allied Courses for Semester I of B. Sc Microbiology  
b. Core Courses for Semester I of M. Sc Microbiology for (2022-2023) batch and onwards

*CCCD Director & Special Invitee **Dr Rajesh Kannan** suggested to give common titles for Core Course and Core Practical and hence the title of CC-I is General Microbiology and CP-I is General Microbiology Practical, title of the Allied Course is Fundamentals of Biochemistry and Allied Practical is Fundamentals of Biochemistry Practical for I of B. Sc Microbiology.*

*As per the suggestion given in the Academic Council, the Elective Course-I is given in the first semester of I MSc Microbiology with the following electives Microbial Techniques / Organic Farming / Microbial Cytology*

Resolved to approve the Syllabi for

- a. Part III Core and Allied Courses for Semester I of B. Sc Microbiology  
b. Core Courses for Semester I of M. Sc Microbiology

for (2022-2023) batch and onwards as recommended by the Board of Studies in Microbiology and moved by the Chairman **Dr B Thamilmaraiselvi** in the meeting and the same be approved as given in **Annexure Q**

### **RESOLUTION 06/18**

To consider and approve

- a. The Syllabi of Part III Core and Allied Courses for Semester I of B. Sc Biotechnology (2022-2023) batch and onwards  
b. The ratification of Second Allied Course I and Second Allied Course II Practical in the III semester of B.Sc., Biotechnology for (2021 – 2022) batch and onwards

*Considered and approved*

- a. *The Syllabi of Part III Core and Allied Courses for Semester I of B. Sc Biotechnology (2022-2023) batch and onwards*  
b. *The ratification of Second Allied Course I – Biochemistry (19UBT3AC3), revised as Biomolecules and Basics of Nanotechnology (21UBT3AC3)*

*and Second Allied Course II practical – Lab in Biochemistry (19UBT3AC2P) revised as Biomolecules and Nanotechnology Practical (21UBT3AC2P) in the III semester of B.Sc., Biotechnology for (2021 – 2022) batch and onwards*

*as recommended by the Board of Studies in Biotechnology and moved by the Chairman **Dr R Rameswari** in the meeting and the same be approved as given in **Annexure R***

### **RESOLUTION 06/19**

To consider and approve the Syllabi for

- a. Part III Core and Allied Courses for Semester I of B. Sc Nutrition & Dietetics (2022-2023) batch and onwards
- b. Core Courses for Semester I of M. Sc Food Service Management & Dietetics of M.Sc Food Service Management & Dietetics (2022-2023) batch and onwards

*As per the suggestion given in the Academic Council, the Elective Course-I is given in the first semester of I MSc Food Service Management & Dietetics with the following electives Applied Physiology / Nutrition for Fitness / Nutrition in Clinical Critical Care.*

***Prof Sivasudha**, University nominee suggested to change the name of the CCIV and it has been renamed as Biochemistry and Metabolic Disorders and shifted to II Semester to accommodate the elective course.*

*Considered and approved the Syllabi for*

- a. Part III Core and Allied Courses for Semester I of B. Sc Nutrition & Dietetics (2022-2023) batch and onwards
- b. Core Courses for Semester I of M. Sc Food Service Management & Dietetics of M. Sc Food Service Management & Dietetics (2022-2023) batch and onwards

*as recommended by the Board of Studies in Food Service Management and Dietetics and moved by the Chairman **Ms B Thanuja** in the meeting and the same be approved as given in **Annexure S***

### **RESOLUTION 06/20**

Matters relating to the Conduct of End Semester Examinations and the Declaration of Result

*End Semester Examinations and the Declaration of Results of April 2022 were confirmed as given in **Annexure T***

### **RESOLUTION 06/21**

Ratification to retain the answer scripts for 1+2 semesters.

**RESOLUTION 06/22**

Thank the Members of the Academic Council.

On behalf of the Academic Council, the Member Secretary of the Academic Council, thanked the University Nominees of the Academic Council (2019-2022) for their valuable suggestions given in the meetings.

**RESOLUTION 06/23**

Any other matter of concern with the permission of the Chair

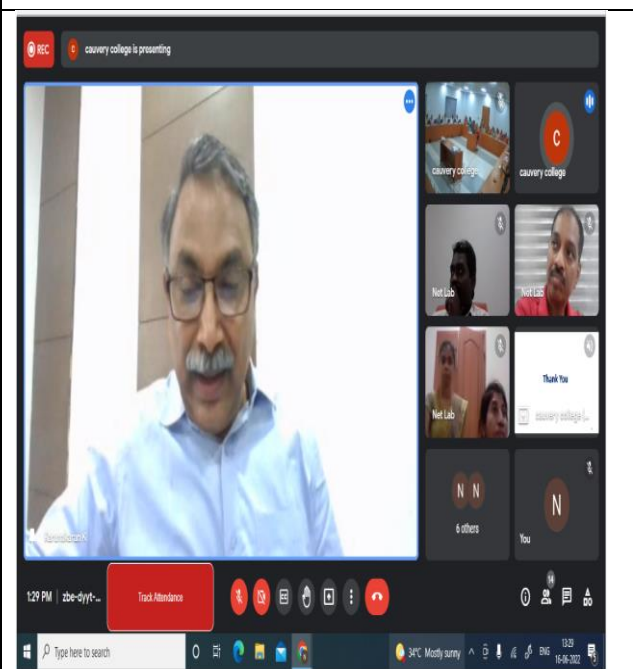
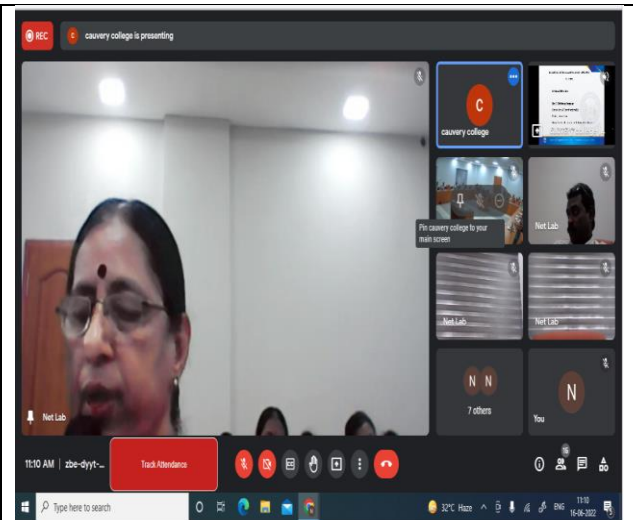
**Prof Karunakaran**, Academic Expert gave the following suggestions

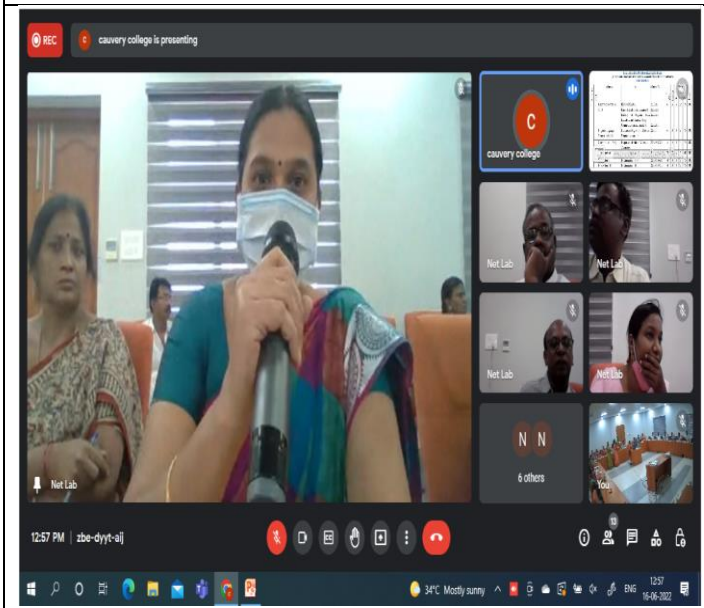
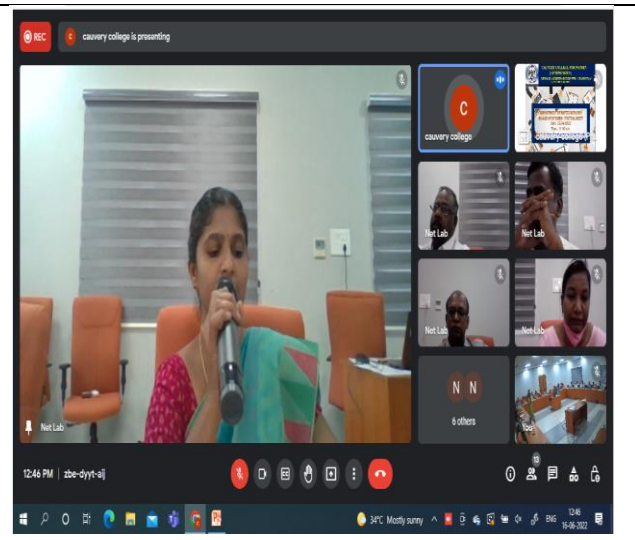
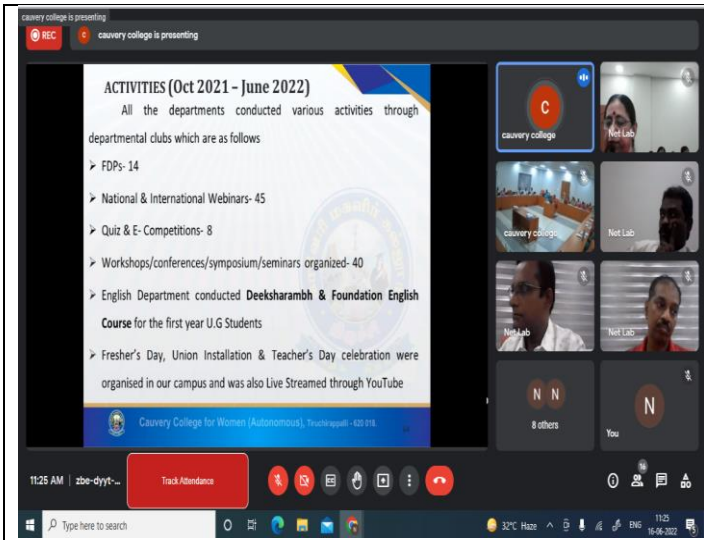
- To Introduce Fast track programme for Advanced Learners and permit them to complete the courses in advance in previous semesters, in- turn enabling them to go for industry internship in the last semester
- To collaborate with foreign universities to organise international conferences in foreign countries
- To apply online and get approval as a researchbased institution from Department of Scientific and Industrial Research (DSIR) for Scientific and Industrial Research Organization (SIRO) for getting funds in future
- To include Swayam courses into the curriculum and not as Extra Credit Course
- Motivate students to apply for free Google certification
- Design Thinking and Research Methodology course with 1 or 2 credits can be introduced for UG courses

-sd-

Dr V Sujatha  
(Chairman of the Academic Council & The Principal)











Annexure	Details	Page. No
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## **Annexure - A**

### **The eligibility criteria for B.Com & B.Com (CA)**

A Pass in 10 +2 with Commerce and Accountancy.

20% of seats may be reserved for vocational stream.

The candidate who has passed Diploma in Commerce or Modern Office Practice (3 Years) or equivalent awarded by Directorate of Technical Education / National Council of Vocational Training is eligible for lateral entry to 2nd year.

The students qualified with the Diploma in Commercial Practice / Diploma in Modern Office Practice (10+3(SSLC and Diploma)/10+2+2 (SSLC, HSC and Diploma)) are eligible for admission into lateral entry of all branches of UG Commerce Degree Programmes.

### **The eligibility criteria for B.Sc Computer Science with Cognitive Systems**

Student should have studied Computer Science/Maths/Physics/ Chemistry subject during their higher secondary.

Exceptions could be given to students who have studied Accounting & Commerce subjects with preferably Computer Science

## Annexure – B

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**

NATIONALLY ACREDITED (IICYCLE) WITH “A” GRADE BY NAAC

**ISO 9001:2015 Certified**

**TIRUCHIRAPPALLI**

### PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEOs	Statements
<b>PEO1</b>	<b>LEARNING ENVIRONMENT</b> To facilitate value-based holistic and comprehensive learning by integrating innovative learning practices to match the highest quality standards and train the students to be effective leaders in their chosen fields.
<b>PEO2</b>	<b>ACADEMIC EXCELLENCE</b> To provide a conducive environment to unleash their hidden talents and to nurture the spirit of critical thinking and encourage them to achieve their goal.
<b>PEO3</b>	<b>EMPLOYABILITY</b> To equip students with the required skills in order to adapt to the changing global scenario and gain access to versatile career opportunities in multidisciplinary domains.
<b>PEO4</b>	<b>PROFESSIONAL ETHICS AND SOCIAL RESPONSIBILITY</b> To develop a sense of social responsibility by formulating ethics and equity to transform students into committed professionals with a strong attitude towards the development of the nation.
<b>PEO5</b>	<b>GREEN SUSTAINABILITY</b> To understand the impact of professional solutions in societal and environmental contexts and demonstrate the knowledge for an overall sustainable development.

**PROGRAMME OUTCOMES FOR BA/BSW PROGRAMMES**

<b>PO NO.</b>	<b>PROGRAMME OUTCOMES</b> <b>On completion of BA/BSW Programmes, the students will be able to</b>
<b>PO 1</b>	Possess thorough knowledge of language and understand the concerns of the society in real situations and work environment. (Academic Excellence with Social Thinking)
<b>PO 2</b>	Express thoughts and ideas effectively using appropriate texts, media and evaluate practices, policies and theories by applying scientific and social approaches. (Skilled Proficiency)
<b>PO 3</b>	Acquire training skills in research, internships and foster team spirit in the global world and face the challenges in a multicultural society. (Team Building and Problem Solving)
<b>PO 4</b>	Relate and apply exemplary role models/writers and their values to elucidate different kinds of unknown problems. (Leadership Traits & Critical Thinking)
<b>PO 5</b>	Inculcate lifelong learning by fostering scientific attitude aimed at personal and societal development to meet the changing demands of work and career through knowledge and skills. (Situational Approach and Lifelong Learning)

**PROGRAMME SPECIFIC OUTCOMES FOR BA TAMIL  
BA TAMIL CURRICULAM (2022 – 2023 ONWARDS)**

<b>PSO NO.</b>	<b>On Completion, the Students of BA TAMIL will be able to</b>	<b>POs Addressed</b>
<b>PSO1</b>	Acquisition of knowledge of social thought and language skills through literature and grammar.	<b>PO1, PO2</b>
<b>PSO2</b>	Gain knowledge of literature and grammar and acquire the ability to create works and theories.	<b>PO2, PO4</b>
<b>PSO3</b>	Learning to know and apply to life the values expressed in literature and grammar.	<b>PO3, PO5</b>
<b>PSO4</b>	Improving personality through learning literature and grammar.	<b>PO3, PO4</b>
<b>PSO5</b>	Acquiring skills tailored to emerging work needs.	<b>PO5</b>



**PROGRAMME SPECIFIC OUTCOMES FOR BA ENGLISH**

**BA ENGLISH CURRICULUM [2022 -2023 ONWARDS]**

<b>PSO NO.</b>	<b>On Completion of BA English, the students will be able to</b>	<b>POs Addressed</b>
<b>PSO 1</b>	Gain competence and confidence in acquiring LSRW skills in English Language and Literature to face the realities of life.	<b>PO1</b>
<b>PSO 2</b>	Empower and appreciate knowledge of various genres of literature and develop an eclectic taste to appreciate the literary movements, cultural and social contexts in relation with the society and the world.	<b>PO2, PO3</b>
<b>PSO 3</b>	Explore and analyse the works of the writers from political, historical, ethical and sociological perspectives for higher learning and research.	<b>PO3</b>
<b>PSO 4</b>	Attain proficiency to solve the complexities of human life through various genres of literature till the present modern age and train them to be socially committed citizens.	<b>PO1, PO4</b>
<b>PSO 5</b>	Achieve in depth knowledge to comprehend communication skills, linguistics, journalism and literature in different modes of learning to gain job opportunities for a better self and society.	<b>PO5</b>

**PROGRAMME SPECIFIC OUTCOMES FOR BSW**

<b>PSO NO.</b>	<b>On completion of BSW Programme, the students will be able to</b>	<b>POs Addressed</b>
<b>PSO 1</b>	Demonstrate a comprehensive understanding of Social Work profession and understand the issues and problems that arise in the society.	<b>PO1</b>
<b>PSO 2</b>	Identify challenges in Health sectors, family and child settings, industries, rehabilitation centres, Correctional settings, etc. and use scientific approach in handling them.	<b>PO2, PO5</b>
<b>PSO 3</b>	Collaborate and coordinate with philanthropists, groups and organisations by applying professional social work skills, values and ethics through team work for the advantage of vulnerable sections of the society	<b>PO3, PO4</b>
<b>PSO 4</b>	Discover methods, techniques, models/approaches to deal with the emerging issues, problems and challenges through critical thinking.	<b>PO4</b>
<b>PSO 5</b>	Adapt to the changing situations by utilizing life skills and the desire for lifelong learning in their career and in day to life to achieve personal and professional goals.	<b>PO3, PO5</b>

## PROGRAMME OUTCOMES FOR B.COM., B.COM. CA, B.B.A. PROGRAMMES

<b>PO NO.</b>	<b>On completion of B.Com. /B.Com. CA / B.B.A. Programme, The students will be able to</b>
<b>PO 1</b>	<b>PROGRAMME KNOWLEDGE AND ENVIORNMENT SUSTAINABILITY</b> Acquire a strong foundation in the areas of Commerce, Management and Information Technology that needs to respond to the constantly changing Business and Legal environment.
<b>PO 2</b>	<b>CRITICAL THINKING AND DECISIONMAKING SKILLS</b> Analyse and develop solutions through various computational techniques for real time problems in all areas of Business Management specially Finance, Marketing, Human Resources and Operations.
<b>PO 3</b>	<b>ENTREPRENEURSHIP SKILLS AND COMPETENCY DEVELOPMENT</b> Apply the competencies and creativity required to undertake entrepreneurship as a desirable and feasible career option or be employed in various positions in industry, academia and Government.
<b>PO 4</b>	<b>TEAM WORK AND PROFICIENCY DEVELOPMENT</b> Imbibe professionalism to embrace new opportunities of emerging technologies, leadership and team work in a dynamic ethical business scenario.
<b>PO 5</b>	<b>PROFESSIONAL SKILLS AND EMPLOYABILITY</b> Internalize the learned concept of Business and Commerce that will enable them to become skilled professionals and to enhance the career prospects.

### PROGRAMME SPECIFIC OUTCOMES FOR BBA

<b>PSO NO</b>	<b>On completion of BBA Programme, the Students of Business Administration will be able to</b>	<b>POs Addressed</b>
<b>PSO1</b>	Apply frameworks and tools to arrive at informed decisions in profession and practice, remarkable balance between business and social dimensions.	PO1, PO3
<b>PSO2</b>	Solid foundation to pursue professional careers and take up higher learning courses.	PO2, PO5
<b>PSO3</b>	Function effectively as a member, leader, individual or group in diverse environment.	PO4
<b>PSO4</b>	Fostering entrepreneurship by providing understanding of the fundamentals of creating and managing innovation, new business development and high-growth potential entities.	PO3
<b>PSO5</b>	Apply ethical principles and commitment towards professional ethics and responsibility.	PO4, PO5

### **PROGRAMME SPECIFIC OUTCOMES FOR B.COM.**

<b>PSO NO</b>	<b>On completion, the students of B.Com. will be able to</b>	<b>POs Addressed</b>
PSO1	Acquire fundamental knowledge in the fields of Commerce, Management, Accounts, Finance and overall general legal framework of the business.	PO1, PO2
PSO2	Inculcate critical thinking and problem solving skills to excel in technologies and its services used ethically in various sector.	PO2
PSO3	Identify business opportunities to create and manage innovations and entrepreneurship.	PO3
PSO4	Become acquainted with commercial knowledge and professional skills to react the most appropriate way when faced with challenges.	PO4, PO5
PSO5	Obtain the knowledge and skills required for further professional education and research.	PO5

### **PROGRAMME SPECIFIC OUTCOMES FOR B.COM. COMPUTER APPLICATIONS**

<b>PSO NO</b>	<b>On completion of B.Com (CA), Students of. will be able to</b>	<b>POs Addressed</b>
PSO1	Understand the various concepts related to Commerce and Computer Applications.	PO1, PO2
PSO2	Inculcate critical thinking and problem solving skills to excel in technologies and its services used ethically in various sector.	PO2
PSO3	Adopt frameworks for sustainable development in their career with virtuous to become a successful entrepreneur and application developer.	PO3
PSO4	Become acquainted with commercial knowledge and professional skills to react the most appropriate way when faced with challenges.	PO4, PO5
PSO5	Exhibit proficiency in globally relevant multidisciplinary areas of computing with environmental considerations.	PO5

## PROGRAMME OUTCOMES FOR B.Sc., BASIC SCIENCE PROGRAMMES

PO No.	<b>On completion of BA/ B.Sc Programme, the students will be able to</b>
PO1	<b>Domain knowledge:</b> Analyse, design and develop solutions by applying firm fundamental concepts of basic sciences and expertise in discipline.
PO2	<b>Problem solving:</b> Ability to think rationally, analyse and solve problems adequately with practical knowledge to assess the environmental issues
PO3	<b>Creative thinking and Team Work:</b> Develop prudent decision-making skills and mobility to work in teams to solve multifaceted problems.
PO4	<b>Employability:</b> Self-study acclimatize them to observe effective interactive practices for practical learning enabling them to be a successful science graduate.
PO5	<b>Life Long Learning:</b> Assure consistent improvement in the performance and arouse interest to pursue higher studies in premium institutions.

## **PROGRAMME SPECIFIC OUTCOMES FOR B.Sc., MATHEMATICS PROGRAMME**

<b>PSO NO.</b>	<b>On completion , the Students of B.Sc Mathematics will be able to</b>	<b>POs Addressed</b>
<b>PSO1</b>	Procure a precise understanding of the mathematical concepts.	PO1, PO3
<b>PSO2</b>	Excel by enhancing interpersonal skills, overcoming procedural challenges and intending career paths.	PO3, PO4
<b>PSO3</b>	Recognize, strengthen and analyse mathematical problems in order to acquire better conclusion.	PO4, PO5
<b>PSO4</b>	Manipulate numerical abilities across a variety of domains.	PO2, PO5
<b>PSO5</b>	Develop and desire to learn more about advanced mathematics and its applications.	PO5

**PROGRAMME SPECIFIC OUTCOMES FOR B.Sc PHYSICS PROGRAMME**  
**B.Sc., PHYSICS CURRICULUM [2022-2023 Onwards]**

<b>PSO NO.</b>	<b>On completion, the Students of B.Sc Physics will be able to</b>	<b>POs Addressed</b>
<b>PSO1</b>	Intensify the students academic capability, unique qualities and transferable skills which will give them opportunity to evolve as responsible citizens.	PO1, PO2, PO4
<b>PSO2</b>	Explain the fundamentals laws involved in physics.	PO1, PO5
<b>PSO3</b>	Understand the theory and consequence of the various physical occurrence.	PO1, PO2, PO3, PO5
<b>PSO4</b>	Carryout experiments to interpret the laws and concepts of Physics.	PO1, PO2, PO5
<b>PSO5</b>	Relate the theories learnt and the skills procured to solve enduring problems.	PO1, PO2, PO3, PO5

**PROGRAMME SPECIFIC OUTCOMES FOR B.Sc. CHEMISTRY PROGRAMME**

<b>PSO NO</b>	<b>On completion, the Students of B.Sc., Chemistry will be able to</b>	<b>POs Addressed</b>
PSO1	Afford a firm foundation in Chemistry that stresses scientific reasoning, analytical problem solving with a molecular perspective	PO1, PO2
PSO2	Acquire knowledge in theoretical and practical tools to exemplify entirely in the working environment.	PO3, PO4, PO5
PSO3	Inculcate scientific temperament and create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.	PO3, PO4
PSO4	Scale up of chemical process after designing, optimization and analysis for developing products required for society.	PO4
PSO5	Expand the knowledge available opportunities related to chemistry in the government services through public service commission particularly in the field of food safety, health inspector, pharmacist etc.	PO4, PO5

**PROGRAMME OUTCOMES FOR B.Sc. Computer Science /**

**B.Sc. Computer Science with Cognitive Systems /BCA/**

<b>PO NO.</b>	On completion of B.Sc. Computer Science / B.Sc. Computer Science with Cognitive Systems / BCA/ B.Sc. Information Technology Programme, the students will be able to
<b>PO 1</b>	<b>Academic Skills &amp; Social Responsibility</b> Apply Computing, Mathematical and Scientific Knowledge in Various disciplines by understanding the concerns of the society.
<b>PO 2</b>	<b>Critical Thinking and Innovative Progress</b> Design the software applications with varying intricacies using programming languages for innovative learning in techno world to meet the changing demands.
<b>PO 3</b>	<b>Personality Development</b> Perceive Leadership skills to accomplish a common goal with effective communication and understanding of professional, ethical, and social responsibilities.
<b>PO 4</b>	<b>Lifelong Learning</b> Identify resources for professional development and apply the skills and tools necessary for computing practice to gain real life experiences.
<b>PO 5</b>	<b>Creativity and Holistic Approach</b> Create a scientific temperament and novelties of ideas to support research and development in Computer Science to uphold scientific integrity and objectivity.

**PROGRAMME SPECIFIC OUTCOMES FOR B. Sc COMPUTER SCIENCE**

<b>PSO NO.</b>	On completion , Students of B. Sc Computer Science will be able to	<b>POs Addressed</b>
PSO1	Identify, analyze, design an optimized solution using appropriate algorithms of varying complexity using cutting edge technologies	PO1, PO2, PO5
PSO2	Attain a solid foundation in the Programming languages and to formulate computational solutions to real life problems	PO1, PO2, PO4, PO5
PSO3	Equip the skills to utilize tools and technologies in computer science to meet the industrial needs and to communicate effectively among peers	PO3,PO4
PSO4	Develop skills in software and hardware so as to enable them to establish a productive career in industry, research, academia and also as an entrepreneur	PO1, PO4, PO5
PSO5	Implement independent projects of their own choice using latest tools and also work as an effective team member to attain the predefined goals.	PO3,PO4,PO 5

**PROGRAMME SPECIFIC OUTCOMES FOR**  
**B. Sc COMPUTER SCIENCE WITH COGNITIVE SYSTEMS**

<b>PSO NO.</b>	<b>On completion, the students of B. Sc Computer Science with Cognitive Systems will be able to</b>	<b>POs Addressed</b>
PSO 1	Gain knowledge in the core topics of Computer Science and to develop an equal appreciation of current industry standards.	PO 1, PO 2
PSO 2	Equip them as industry ready students and an entrepreneur with significant knowledge on digital ecosystem that provide values to business needs in the area of IT Infrastructure and IT Application, Maintenance & Service Support.	PO 2, PO 3, PO 4, PO 5
PSO 3	Apply appropriate techniques and skills in various domains of computer science to solve real world problems.	PO 1, PO 2, PO 4,
PSO 4	Create awareness on current issues and latest trends in technological development and thereby implement innovative ideas and solutions to existing problems in society.	PO 2, PO 4, PO 5
PSO 5	Implement independent projects of their own choice using latest tools and also work as an effective team member to attain the predefined goals.	PO 1, PO 3, PO 5

**PROGRAMME SPECIFIC OUTCOMES (BCA)**

<b>PSO NO</b>	<b>On completion, Students of BCA will be able to</b>	<b>POs Addressed</b>
PSO1	Understand the concepts of logical and critical thinking with adequate practical skills.	PO1, PO2 PO4, PO5
PSO2	Adopt necessary technical, scientific, managerial and financial knowledge to be employable or pursue higher education.	PO1, PO2, PO4
PSO3	Apply neoteric technology in various domains and evaluate the method of implementing it.	PO1, PO2, PO4
PSO4	Design and create innovative ideas that meet the requirements of an entrepreneur and software industry.	PO1, PO2, PO4, PO5
PSO5	Explore the ethical values, sustainability and productivity.	PO3, PO4, PO5

### PROGRAMME SPECIFIC OUTCOMES B.Sc., Information Technology

<b>PSO NO</b>	<b>On completion, Students of BSc., Information Technology will be able to</b>	<b>POs Addressed</b>
PSO1	To apply the knowledge of Science and Computing in Information Technology	PO1
PSO2	Analyze the local and global impact of computing on individuals, organizations, society and implant lifelong learning for professional development	PO4
PSO3	Improve the capability to apply the knowledge in interrelated domains and solve real world problems with modern technological tools	PO2
PSO4	To strengthen the academic quality, effective communication, good ethics and responsibilities during professional practice.	PO5
PSO5	Excel in job-oriented skills which are required to meet the current demand in the field of IT industry and to become an entrepreneur with confidence.	PO3

### PROGRAMME OUTCOMES FOR B.Sc., (LIFE SCIENCES) PROGRAMMES

<b>PO NO</b>	<b>On completion of B.Sc., Programme, the students will be able to</b>
<b>PO1</b>	<b>Academic Excellence and Competence:</b> Elicit firm fundamental knowledge in theory as well as practical for coherent understanding of academic field to pursue multi and interdisciplinary science careers in future.
<b>PO2</b>	<b>Holistic and Social approach:</b> Create novel ideas related to the scientific research concepts through advanced technology and sensitivity towards sustainable environmental practices as well as social issues.
<b>PO3</b>	<b>Professional ethics and Teamwork:</b> Explore professional responsibility through projects, internships, field trip/industrial visits and mentorship programmes to transmit communication skills.
<b>PO4</b>	<b>Critical and Scientific thinking:</b> Equip training skills in Internships, Research Projects to do higher studies in multidisciplinary path with higher level of specialization to become professionals of high quality standards.
<b>PO5</b>	<b>Social Responsibility with ethical values:</b> Ensure ethical, social and holistic values in the minds of learners and attain gender parity for building a healthy nation.



**PROGRAMME SPECIFIC OUTCOMES FOR B.Sc., MICROBIOLOGY**  
**PROGRAMME**

**B.Sc., MICROBIOLOGY CURRICULUM [2022 -2023 ONWARDS]**

<b>PSO NO.</b>	<b>On completion, Students of B.Sc., Microbiology will be able to</b>	<b>POs Addressed</b>
<b>PSO 1</b>	Enable to acquire expertise in the use and application of various methods used in microbiology.	<b>PO1, PO5</b>
<b>PSO 2</b>	Provide learning opportunity to be reflective about their role as are searcher.	<b>PO2, PO3</b>
<b>PSO 3</b>	Handle and independently work on lab protocols involving molecular techniques.	<b>PO3, PO5</b>
<b>PSO 4</b>	Awareness of ethical issues in Microbiology research and career options.	<b>PO4, PO1</b>
<b>PSO 5</b>	Production of substantial original research of significance and quality sufficient for publications.	<b>PO5, PO2</b>

**PROGRAMME SPECIFIC OUTCOMES FOR B.Sc., BIOTECHNOLOGY**  
**PROGRAMME**

<b>PSO NO</b>	<b>On completion of B.Sc., Programme, the students will be able to</b>	<b>POs Addressed</b>
PSO 1	Acquire the knowledge of biological sciences with the implementation of technology on different living systems like plants, animals and microbes.	PO1, PO2
PSO2	Explain the fundamental concepts and develop skills in Immunology, Developmental biology, Nanobiotechnology, Genomics, Proteomics, Bioinformatics, Agriculture and Medicine	PO1, PO2
PSO3	Apply the technical aspects related to improvement of microbes, plants and live-stocks for the welfare of human and environment.	PO2, PO4
PSO 4	Impart hands-on techniques in various thrust areas of biotechnology to meet the emerging demands in industry, academia and research.	PO2, PO4
PSO5	Gaining knowledge to transform theoretical concept to practical products/process to move ahead in entrepreneurship and apply the laws concerning to IPR and bioethics	PO2, PO3, PO5

**PROGRAMME SPECIFIC OUTCOMES FOR B.Sc., NUTRITION AND DIETETICS PROGRAMME`**

<b>PSO NO</b>	<b>On completion, Students of B.Sc Nutrition &amp; Dietetics will be able to</b>	<b>POs Addressed</b>
PSO1	Apply the knowledge of food science, nutrition and dietetics to resolve the scientific issues and problems.	PO1
PSO2	Assess the nutritional status and recommend nutritional support and therapeutic care as sustainable approach for better health and prevention of diseases.	PO1, PO2
PSO3	Associate physiological, biochemical and microbiological parameters with health and diseases.	PO1
PSO4	Develop technical and human relation skills in relation to food services, demonstrate professional attributes required to manage the hospitality industry and to communicate effectively in the context of nutrition and dietetics.	PO3, PO4
PSO5	Demonstrate critical thinking skills and analytical abilities to identify and solve problems through internships and projects.	PO4, PO5

**PROGRAMME OUTCOMES FOR MA /MSW PROGRAMMES**

<b>PO NO.</b>	<b>On completion of MA/MSW Programmes, the students will be able to</b>
<b>PO 1</b>	Exhibit comprehensive knowledge in confronting the issues and challenges that arise in the society and apply in life circumstances. (Social Responsibility)
<b>PO 2</b>	Achieve in-depth knowledge in various genres of literary texts to contribute the best for the society and to create a better world. (Exploring Success)
<b>PO 3</b>	Perceive leadership skills through higher learning and be a visionary to achieve the target. (Professional Competence)
<b>PO 4</b>	Identify appropriate resources required for research projects and explore novel ideas to gain real life experience through internships. (Discover Innovations)
<b>PO 5</b>	Create a scientific attitude and aptitude to undertake research studies for higher learning and career opportunities. (Build Scientific Temperament)

### **PROGRAMME SPECIFIC OUTCOMES FOR MA TAMIL**

<b>PSO NO.</b>	<b>On completion, Students of MA TAMIL will be able to</b>	<b>POs Addressed</b>
<b>PSO1</b>	Gaining social thinking and advanced language skills and the ability to handle language better.	<b>PO1, PO2</b>
<b>PSO2</b>	Ability to learn different approaches.	<b>PO5</b>
<b>PSO3</b>	Gaining research skills and leadership skills through fieldwork and research.	<b>PO3, PO4</b>
<b>PSO4</b>	Gaining the ability and ideas to be socially responsible to create new creations.	<b>PO2, PO4</b>
<b>PSO5</b>	Gaining knowledge to adapt to changing work environment and competitive exams	<b>PO2, PO3</b>

### **PROGRAMME SPECIFIC OUTCOMES FOR MA ENGLISH**

<b>PSO No.</b>	<b>On completion, Students of MA English will be able to</b>	<b>POs Addressed</b>
<b>PSO 1</b>	Evaluate literature through politics, environment, society, values, and sociological perspectives in reality	<b>PO1</b>
<b>PSO 2</b>	Analyze cognizance to classify the perspectives of English Language and Literature, genres and literary styles of various literatures across the society and the world.	<b>PO1, PO2</b>
<b>PSO 3</b>	Examine writers and their literary works through literary devices and theoretical approaches for professional growth.	<b>PO3</b>
<b>PSO 4</b>	Explore deep insights of literature through hands on experience in research studies enriching critical thinking and creativity.	<b>PO4, PO5</b>
<b>PSO 5</b>	Empower language, linguistics and literature for professional development, crack competitive examinations and to build employability skills.	<b>PO5</b>

**PROGRAMME SPECIFIC OUTCOMES FOR MSW PROGRAMME**

<b>PSO NO.</b>	<b>On completion of MSW Programmes, the students will be able to</b>	<b>POs Addressed</b>
<b>PSO 1</b>	Show knowledge in professional social work and apply the principles to the needs of the Government and Non-government organizations, Industries and Community development projects.	PO1, PO2
<b>PSO 2</b>	Analyze the issues and problems of the vulnerable sections of the society and ensure just and human conditions for a better world.	PO2
<b>PSO 3</b>	Demonstrate leadership skills and professional ethics in promoting communal harmony and Nation Building.	PO3
<b>PSO 4</b>	Design solution initiatives for complex problems through taking up research projects paving way for policy formulation and contribution to funds of knowledge through theory building.	PO1, PO4
<b>PSO 5</b>	Develop scientific attitude and behaviour in approaching social issues, problems and exhibit enhanced professional competence in social work practice.	PO5

**PROGRAMME OUTCOMES FOR M.COM. PROGRAMME**

<b>PO NO.</b>	<b>On completion, the students of M.Com. Programme, will be able to</b>
<b>PO 1</b>	<b>GENERIC AND DOMAIN KNOWLEDGE</b> Articulate, illustrate, analyse, synthesis and apply the knowledge of principles and frameworks of commerce and allied domains to the solutions of different business scenario.
<b>PO 2</b>	<b>CRITICAL THINKING AND PROBLEM SOLVING</b> Conduct investigation of multi-dimensional business problems using research based knowledge and provide innovative solutions frameworks to real world complex problems.
<b>PO 3</b>	<b>ENTREPRENEURSHIP AND EMPLOYMENT SKILLS</b> Identify entrepreneurial opportunities to create and manage startups as well as professionalizing and growing family businesses.
<b>PO 4</b>	<b>LEADERSHIP AND TEAM WORK</b> Collaborate in an organizational context and across organizational boundaries and lead themselves in the achievement of organizational goals and optimize outcomes for all stakeholders.
<b>PO 5</b>	<b>SOCIAL RESPONSIVENESS AND ETHICS</b> Exhibit a broad appreciation of the ethical and value sustaining of managerial choices in political, cross-cultural, globalized, digitized and socio-economic environment.

### PROGRAMME SPECIFIC OUTCOMES FOR M.COM.

<b>PSO NO</b>	<b>On completion, the Students of M.Com. will be able to</b>	<b>POs Addressed</b>
PSO1	Gain an in-depth understanding of core and functional management concepts, business environment and domain specific knowledge.	PO1
PSO2	Develop skills for analyzing of the business data, application of relevant analysis and problem solving in other functional areas such as marketing, finance, business strategy, human resources and information technology.	PO1, PO2
PSO3	Inculcate entrepreneurship and managerial skills to establish and manage the business efficiently.	PO3
PSO4	Ability to apply knowledge, skills and right attitude necessary to provide effective leadership in a global environment and to develop proactive thinking so as to perform efficiency in the dynamic socio-economic and business eco-system.	PO4, PO5
PSO5	Develop competent professionals with strong ethical values, capable of a pivotal role in various sectors of the Indian Economy and Society, aligned with the national priorities.	PO5

### PROGRAMME OUTCOMES FOR M.Sc., BASIC SCIENCE PROGRAMMES

PO No.	<b>On completion of M.Sc., (Maths, Physics &amp; Chemistry) Programme, the students will be able to</b>
PO1	<b>Problem analysis:</b> Provide opportunities to develop innovative design skills, including the ability to formulate problems, to think creatively, to synthesize information, and to communicate effectively.
PO2	<b>Scientific skills:</b> Create and apply advanced techniques and tools to solve the societal environmental issues.
PO3	<b>Environment and Sustainability:</b> Ascertain eco-friendly approach for sustainable development and inculcate scientific temper in the society.
PO4	<b>Ethics:</b> Imbibe ethical and social values aiming towards holistic development of learners.
PO5	<b>Life long learning:</b> Instill critical thinking, communicative knowledge which potentially leads to higher rate of employment and also for higher educational studies.

**PROGRAMME SPECIFIC OUTCOMES for M.Sc MATHEMATICS  
CURRICULUM [2022–2023 Onwards]**

<b>PSO NO</b>	<b>On completion, the Students of M.Sc Mathematics will be able to</b>	<b>POs Addressed</b>
PSO1	Make a significant contribution to society's development through mathematical study	PO1, PO2, PO3
PSO2	Provide an in-depth and extensive functional understanding of mathematical basics.	PO1
PSO3	Develop the experimental abilities in order to solve scientific and technical problems.	PO1, PO5
PSO4	Promote the learners and explore the potential in emerging fields.	PO4, PO5
PSO5	Enhance problem-solving, thinking, and creative skills through assignments and project work.	PO4, PO5

**PROGRAMME SPECIFIC OUTCOME FOR M.Sc., PHYSICS PROGRAMME**

<b>PSO NO.</b>	<b>On completion, the Students of M.Sc Physics will be able to</b>	<b>POs Addressed</b>
<b>PSO1</b>	Demonstrate proficiency in the mathematical concepts needed for a proper understanding of Physics	<b>PO1, PO2, PO5</b>
<b>PSO2</b>	Understand the basic concepts of Physics particularly concepts in classical mechanics, quantum mechanics, electrodynamics and electronics to appreciate how diverse phenomena observed in nature follow from a small set of fundamental laws.	<b>PO2, PO5</b>
<b>PSO3</b>	Learn numerous numerical problem-solving approaches and the fundamentals of curve fittings.	<b>PO1, PO2</b>
<b>PSO4</b>	Learn about microprocessors and microcontrollers, as well as practical microprocessor programming abilities	<b>PO1, PO2</b>
<b>PSO5</b>	Provide students with broad theoretical and practical knowledge in all specialization of Physics with required qualitative and quantitative techniques.	<b>PO1, PO2 PO5</b>
<b>PSO6</b>	Pursue research in the relevant areas of nano science, crystal growth spectroscopy and thinfilm Physics with the application of Materials characterization at the universities and academic institution	<b>PO3, PO4</b>

**PROGRAMME SPECIFIC OUTCOMES FOR M.Sc., CHEMISTRY PROGRAMME**

<b>PSO NO</b>	<b>On Completion, the Students of M.Sc., Chemistry will be able to</b>	<b>POs Addressed</b>
PSO1	Acquire knowledge in basic concepts, fundamental principles, and applications of chemical and scientific theories and their relevancies in the day-to-day life.	PO1, PO2
PSO2	Design experiments, analyze, synthesize and interpret data to provide solutions to different industrial problems by working in the pure, inter and multi-disciplinary areas of chemical sciences.	PO1, PO2, PO3
PSO3	Attain maneuver in diverse contexts with Global Perspective	PO3, PO4
PSO4	Gain a thorough Knowledge in the subject to be able to work in projects at different research as well as academic institutions.	PO1,PO2, PO5
PSO5	Afford Global level research opportunities to pursue Ph.D programme targeted approach of CSIR – NET examination	PO1,PO2, PO3,PO4, PO5

**PROGRAMME OUTCOMES FOR M.Sc COMPUTER SCIENCE PROGRAMME**

<b>PO NO.</b>	<b>On completion of M.Sc. Computer Science ,The students will be able to</b>
<b>PO 1</b>	<b>Domain Knowledge</b> Acquire the in-depth computing knowledge both conceptual and applied pertaining to the core discipline
<b>PO 2</b>	<b>Problem Solving</b> Procure knowledge-based skills to satisfy the needs of society and the industry by providing hands on experience of various technologies in Computer Science
<b>PO 3</b>	<b>Innovation and Critical Thinking</b> Critically evaluate global issues, recognize the need and identify sustainable solutions through research capabilities towards Nation building initiatives
<b>PO 4</b>	<b>Life Long Learning</b> Capable of upgrading and advancing knowledge through innovation and technology as evidenced by current developments
<b>PO 5</b>	<b>Leadership and Teamwork</b> Work in collaborative environment through applications of scientific reasoning and communicate effectively to the stakeholders

**PROGRAMME SPECIFIC OUTCOMES**  
**FOR M.Sc COMPUTER SCIENCE PROGRAMME**

<b>PSO NO.</b>	<b>On completion, Students of M.Sc Computer Science will be able to</b>	<b>PO s Addressed</b>
PSO 1	Identify, formulate and develop solutions for computational challenges	PO 1 PO 2
PSO 2	Inculcate broad knowledge in core areas of Computer Science and emerging technologies in related domains	PO 1 PO 2
PSO 3	Integrate computing knowledge on crafting innovative solutions and to provide a gateway for research.	PO 2 PO 3 PO 4
PSO 4	Develop analytical and technical skills to enhance employment potential and entrepreneurship	PO 3 PO 4 PO 5
PSO 5	Imbibe professional and ethical skills to become a competent citizen for the betterment of society	PO 3 PO 4 PO 5

**PROGRAMME OUTCOMES FOR M.Sc., (LIFE SCIENCES) PROGRAMMES**

<b>PO NO</b>	<b>On completion of M.Sc., Programme, the students will be able to</b>
<b>PO1</b>	<b>Scientific Management and Career Opportunities:</b> Master the scientific and applied aspects of the subject for employment opportunities.
<b>PO2</b>	<b>Explore Creativity and Intelligence:</b> Employ novel ideas with conceptual thinking to secure self-discipline and independence to foster scientific attitude by exploration of science.
<b>PO3</b>	<b>Team Building and Scientific Temperament:</b> Inculcate training, internships and team spirit with leadership skills through academic projects and transmit complex scientific and technical information and contribute to the scientific community.
<b>PO4</b>	<b>Innovative Learning and Technological Advancement:</b> Perceive research in the specialized areas and to engage in life-long learning to keep pace with emerging trends in academics, research and technology.
<b>PO5</b>	<b>Personality Development with Social Responsibility:</b> Achieve ethical, social and holistic values with social responsibility to develop a healthy life.



**PROGRAMME SPECIFIC OUTCOMES FOR M.Sc., MICROBIOLOGY**  
**PROGRAMME**

<b>PSO NO.</b>	<b>On completion, the students of M.Sc., Microbiology will be able to</b>	<b>POs Addressed</b>
<b>PSO 1</b>	Understand the applied sciences to engage them lifelong learning to foster their successful carrier and educational goals.	<b>PO1, PO5</b>
<b>PSO 2</b>	Focus perceptive in the subject of Microbiology to apply its principles and its applications by adding broad range of scientific knowledge.	<b>PO2, PO3</b>
<b>PSO 3</b>	Acquire contextual knowledge on basis and modern concepts in current areas with contemporary technologies and multidisciplinary domains	<b>PO3, PO4</b>
<b>PSO 4</b>	Instill to work independently identify appropriate resources, enable individual, institutional and national values to understand the impact of innovation and applications	<b>PO4, PO1</b>
<b>PSO 5</b>	Ability to imbibe moral and ethical values to formulate effective research grants and experimental designs	<b>PO5, PO2</b>

**PROGRAMME SPECIFIC OUTCOMES FOR M.Sc., FOOD SERVICE**  
**MANAGEMENT AND DIETETICS PROGRAMME`**

<b>PSO NO</b>	<b>Programme Specific Outcomes` Students of M.Sc., Food Service Management &amp;Dietetics will be able to</b>	<b>POs Addressed</b>
PSO1	Analyze scientific concepts in the area of Nutrition, Food Service Management and Dietetics.	PO1
PSO2	Apply critical thinking, technical skills and collaborative approach in food and nutrition, dietetics and managerial practices.	PO2, PO3
PSO3	Develop core competency skills through experimental work, internship and projects to support actions that promote social development	PO3, PO5
PSO4	Utilize local, national and global trends, emerging techniques and changes of legislation to enhance work performance.	PO4
PSO5	Establish entrepreneurial skills in designing innovative healthy food products and facility planning.	PO2,PO5



## Annexure – C

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18**

**UG – PROGRAMME STRUCTURE**

**(For the candidates admitted from the academic year 2022 – 2023**

**onwards)**

Semeste	Part	Course	Title	Subject Code	Hours	Credit	Exa m Ho	Marks		Total
								Internal	External	
I	I	Language Course - I (LC)	Ikkala Elakkiyam	22ULT1	6	3	3	25	75	100
			Hindi Literature & Grammar- I	22ULH1						
			History of Popular Tales, Literature and Sanskrit Story	22ULS1						
			Basic French – I	22ULF1						
	II	English Language Course - I (ELC)	Functional English for Effective Communication - I	22UE1	6	3	3	25	75	100
	III	Core Course - I (CC)		22UBA1CC1	6	5	3	25	75	100
		Core Course - II (CC)		22UBA1CC2	6	5	3	25	75	100
		Allied Course - I (AC)		22UBA1AC1	4	3	3	25	75	100
	IV	UGC Jeevan Kaushal Life Skills	Universal Human Values	22UGVE	2	2	3	25	75	100
	<b>Total</b>					<b>30</b>	<b>21</b>			

II	I	Language Course - II (LC)	Idaikkala Elakkiyamum, Pudhinamum	22ULT2	5	3	3	25	75	100
			Hindi Literature & Grammar - II	22ULH2						
			Poetry, Textual Grammar and Alakkara	22ULS2						
			Basic French – II	22ULF						
	II	English Language Course – II (ELC)	Functional English for Effective Communication - II	22UE2	6	3	3	25	75	100
	III	Core Course - III (CC)			6	5	3	25	75	100
		Core Course - IV(CC)			6	5	3	25	75	100
		Allied Course - II (AC)			5	3	3	25	75	100
	IV	Ability Enhancement Compulsory Course- I (AECC)	Environmental Studies	AECCI	2	2	3	25	75	100
	Extra Credit Course			Swayam Online Course		As per UGC norms				

		<b>Total</b>			<b>30</b>	<b>21</b>				<b>600</b>
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**15 Days INTERNSHIP during Semester Holidays**

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total	
								Internal	External		
III	I	Language Course- III (LC)	Kappiyamum Nadagamum	22ULT3	5	3	3	25	75	100	
			Hindi Literature & Grammar - III	22ULH3							
			Prose, Textual Grammar and Vakyarachana	22ULS3							
			Intermediate French – I	22ULF3							
	II	English Language Course III (ELC)	Learning Grammar Through Literature - I	22UE3	6	3	3	25	75	100	
	III	Core Course - V (CC)			5	5	3	25	75	100	
		Core Practical - I (CP)			5	5	3	40	60	100	
		Allied Course - III (AC)			5	3	3	25	75	100	
	IV	Ability Enhancement Compulsory Course – II (AECC)			AECII	2	1				100
		Generic Elective – I (GE)	Special Tamil		2	2	3	25	75	100	
Basic Tamil											
Extra Credit Course		Swayam Online Course		As per UGC norms							
<b>Total</b>				<b>30</b>	<b>22</b>					<b>700</b>	
IV	I	Language Course - IV (LC)	Pandaiya Elakkiyam	22ULT4	6	3	3	25	75	100	
			Hindi Literature & Functional Hindi	22ULH4							
			Drama, History of Drama Literature	22ULS4							
			Intermediate French – II	22ULF4							
	II	English Language Course-IV (ELC)	Learning Grammar Through Literature - II	22UE4	6	3	3	25	75	100	
	III	Core Course - VI (CC)			5	4	3	25	75	100	
		Core Practical - II (CP)			5	4	3	40	60	100	
		Allied Course - IV (AC)			4	3	3	25	75	100	
Internship					2				100		
Generic Elective –				2	2	3	25	75	100		

IV	(GE) II	Special Tamil								
		Basic Tamil								
	Skill Enhancement Course - I (SEC)			2	2	3	25	75	100	
Extra Credit Course		Swayam Online Course		As per UGC norms						
<b>Total</b>				<b>30</b>	<b>23</b>				<b>800</b>	

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total	
								Internal	External		
V	III	Core Course - VII (CC)			5	5	3	25	75	100	
		Core Course - VIII (CC)			5	5	3	25	75	100	
		Core Course - IX (CC)			5	5	3	25	75	100	
		Core Course - X (CC)			5	5	3	25	75	100	
		Discipline Specific Elective-I (DSE)			4	3	3	25	75	100	
	IV	Skill Enhancement Course-II (SEC)			2	2	3	40	60	100	
		Skill Enhancement Course-III (SEC)			2	2	3	40	60	100	
		UGC Jeevan Kaushal Life Skills	Professional Skills		2	1	3	25	75	100	
		Extra Credit Course		Swayam Online Course		As per UGC norms					
	<b>Total</b>				<b>30</b>	<b>28</b>				<b>800</b>	

VI	III	Core Course - XI (CC)			6	5	3	25	75	100
		Core Course - XII (CC)			5	5	3	25	75	100
		Core Course - XIII (CC)			5	4	3	25	75	100
		Discipline Specific Elective-II (DSE)			4	3	3	25	75	100
		Discipline Specific Elective-III (DSE)			4	3	3	25	75	100

	Core Project	Project work		5	3	-	-	-	100
	Gender Studies	Gender Studies		1	1	3	25	75	100
	Extension Activities			--	1	--	--	--	--
		<b>Total</b>		<b>30</b>	<b>25</b>				<b>700</b>
		<b>Grand Total</b>		<b>180</b>	<b>140</b>				<b>4200</b>

### Courses & Credits for UG Arts & Science Programmes

Part	Course	No of Courses		Credits		Total Credits
I	Tamil/ Other Language	4	4	12	12	12
II	English	4	4	12	12	12
III	Core (Theory & Practical)	15(14)	16(15)			98
	Project Work	1	1	3	3	
	Internship	1	1	2	2	
	First Allied	2	3	6	9	
	Second Allied	2	3	6	9	
	DSE	3(4)	3(4)			
IV	GEC	2	2	4	4	16
	SEC	3	3	6	6	
	Universal Human Values	1	1	2	2	
	AECC-I-Environmental Studies	1	1	2	2	
	AECC-II-Innovation and Entrepreneurship	1	1	1	1	
	Professional Skills	1	1	1	1	
V	Gender Studies	1	1	1	1	02
	Extension Activities	--	-	1	1	
		<b>4200</b>	<b>4500</b>			<b>140</b>

### Courses & Credits for PG Arts & Science Programmes

Course	No of Courses
Core Course (Theory & Practical)	14
Elective Courses (Can be placed anywhere from Semesters I to IV)	05
Project	01
Internship	01
Total Courses (Marks)	21(2100)
Total Credits	90

**Annexure – D**  
**Value Added Courses & Extra Credit Courses**

<b>CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)</b>			
<b>2022 – 2023 VALUE ADDED COURSES</b>			
<b>S.N O</b>	<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>Offered by</b>
1	21VATA01	Kalvettiyal	Tamil
2	21VATA02	KamarasarinAalumai	Tamil
3	21VATA03	KavithaiPunaithal	Tamil
4	21VATA04	<b>Pottithervu Tamil Ilakkanam</b>	Tamil
5	21VATA05	ThirupavaiThiruvembavai	Tamil
6	21VATA06	<b>Medaipechu</b>	Tamil
7	21VATA07	Electronic Media and Job Opportunity	Tamil
8	21VAHI01	Functional Hindi	Other Language
9	21VASA01	Sarala Samskrith Sikshak Part - I	Other Language
10	21VAFR01	Basic French Course	Other Language
11	21VAEN01	English Speaking Course	English
12	21VAEN02	Leadership for Professionals	English
13	21VAEN03	English Career Enrichment	English
14	21VAEN04	Celebration of Life	English
15	21VAEN05	Food, Travel and Culture	English
16	22VAEN06	<b>Business Communication</b>	English
17	21VASW01	Counselling for well being	Social Work
18	21VASW02	Photography for Documentation	Social Work
19	21VASW03	Human Resource Management	Social Work
20	21VASW04	Sustainability Management in Third Sector Organization	Social Work
21	21VASW05	Visual Arts – Painting	Social Work
22	21VASW06	Parenting	Social Work
23	21VABA01	Basics of Banking	BBA
24	21VABA02	Managing Event Venues	BBA
25	21VABA03	Stock Market Practices	BBA
26	21VACO01	Basic Concepts of Income Tax and GST	Commerce
27	21VACO03P	Tally ERP – 9	Commerce
28	21VACO04P	Art of Aari and Embroidery	Commerce
29	21VACO05P	Beauty Care	Commerce
30	21VAMA01	Vedic Mathematics – I	Maths
31	21VAMA02	Analytical Reasoning Skills	Maths
32	21VAMA03	Quantitative Aptitude – I	Maths

33	21VAMA04	Statistical Techniques using Excel	Maths
34	21VAPH01	Printed Circuit Board Designing	Physics
35	21VAPH02	Utilization of Solar Energy	Physics
36	21VAPH03	Scientific Training on Software Tools	Physics
37	21VACH01	Hands on Approach to UV-Visible Spectroscopy	Chemistry
38	21VACH02	Chemistry of Cosmetics	Chemistry
39	21VACH03	Homemade Herbal Medicine	Chemistry
40	21VACS01	Python Programming	Computer Science
41	21VACS02P	e-Content Development	Computer Science
42	21VACS03P	Introduction to worksheets	Computer Science
43	21VACA01P	Basic Mobile Application Development	BCA
44	21VACA02	Open Broadcaster Software	BCA
45	22VACA04P	Front End Development	BCA
46	22VACA05P	Presentation & Animation	BCA
47	21VAIT01	Data Analysis and Presentation Tools	IT
48	21VAIT02	Content Management Tools	IT
49	21VAIT03	Graphics and Basic Animation Tools	IT
50	21VAMB01	Entrepreneurial Microbiology	Microbiology
51	21VAMB02	Diagnostic Microbiology	Microbiology
52	21VAMB03	First Aid and Emergency Care	Microbiology
53	21VAMB04	Microbial Inoculant Production Technology	Microbiology
54	21VAMB05	Herbal Cosmetics	Microbiology
55	21VABT01P	Food Adulterants in everyday life	Biotechnology
56	21VABT02P	Water Quality Analysis	Biotechnology
57	21VABT03	Basic of Research for Undergraduates	Biotechnology
58	21VAFS01	Principles of Interior Design	FSM & D
59	22VAFS04	Food Preservation	FSM & D
60	22VAFS05	Value addition of Millets	FSM & D
61	21VAFS03	Nutritional Care for Pregnancy	FSM & D
62	21VAED01	Skin Care and Hygiene	EDC
63	21VAED02P	Bridal Makeover -Foundation Level	EDC
64	21VAED03P	Bridal Makeover-Advance level	EDC
65	21VAED04P	Hair Styling -Foundation Level	EDC
66	21VAED05P	Hair Styling- Advanced Level	EDC
67	21VAED06P	Tailoring-Basic Level	EDC
68	21VAED07P	Tailoring- Blouse Stitching	EDC
69	21VAED08	Zardosi Designing Level 1	EDC
70	21VAED09P	Mehandi- Traditional	EDC
71	21VAED10P	Mehandi-Modern Art	EDC

72	21VAED11	Baking Skills-Bread Making -I	EDC
73	21VAED12P	Baking Skills - Bread Making -I	EDC
74	21VAED13	Cake Decoration skill	EDC
75	21VAED14P	Bridal flower making	EDC
76	21VAED15P	Cake decoration skill decoration	EDC
77	21VAED16P	Pastry skill sets	EDC
78	21VAED17P	Self Grooming	EDC
79	21VAED18P	Silk Thread Jewellery	EDC
80	21VAED19P	Pedicure	EDC
81	21VAED20P	Manicure	EDC
82	21VAED21P	Nail art	EDC
83	21VAED22P	Tailoring – Cutting Skill	EDC
84	21VAED23P	Indian Snack Making	EDC
85	21VAED24P	Kitchen skills	EDC
86	21VAED25P	Herbal sanitary napkin	EDC
87	21VAED26P	DIY Crafts	EDC
88	21VAED27P	Zardosi Designing – Level II	EDC
89	21VAED28	Ardino Coding - Basics	EDC
90	21VAED29P	Pickle Making	EDC
91	21VAED30P	Jam Making	EDC
92	22VAED31P	3D Printing and IoT Techniques	EDC
93	22VAED32	Traditional Millet Recipes	EDC
94	21VAPS01	Introduction to Job Oriented Competitive Examination	EDC
95	21VANC01	NCC for Youth	EDC
96	22VAPE01	Fitness & Yoga	Physical Education
97	22VAFA01	Nattupura nadanangalin varalaru matrum nattupuraviyal	Wings Club

### Existing Courses to be discontinued for the Academic Year 2022 - 2023

S.NO	COURSE CODE	COURSE TITLE
1	21VAFS02	Dietary Counselling -Skills and Techniques
2	21VACA03	Mobile Repair and Trouble Shooting
3	21VACO02	Carnatic Music – Vocal



### Newly added Courses

<b>S.NO</b>	<b>COURSE CODE</b>	<b>COURSE TITLE</b>
1	22VAEN06	Business Communication
2	22VACA04P	Front End Development
3	22VACA05P	Presentation & Animation
4	22VAFS01	Food Preservation
5	22VAFS02	Value addition of Millets
6	22VAED31P	3D Printing and IoT Techniques
7	22VAED32	Traditional Millet Recipes
8	22VAPE01	Fitness & Yoga
9	22VAFA01	Nattupur anadanangalin varalaru matrum nattupuraviyal

**II and III Yr Strength** - 2227

**I UG & I PG Strength (Expected)** - 1168

**TOTAL** - 3395

**35 X 97 = 3395**

**Sanctioned Strength I UG** - 1600

**Sanctioned strength I PG** - 330

**NEWLY ADDED COURSE SYLLABUS**

**DEPARTMENT OF ENGLISH**

**VALUE ADDED  
COURSE**

**BUSINESS COMMUNICATION**

**HOURS: 30**

**COURSE CODE:  
22VAEN06**

**(Offered to the students of  
Commerce and BBA)**

**DATE OF  
INTRODUCTION  
09.06.2022**

**Preamble:**

To empower the learners with effective Business Communication Skills.

**Objectives:**

To develop global communication competency in learners

To develop effective communication skills to make them speak confidently, personally as well as in groups

**Course Outcomes:**

On the successful completion of this course, the students will be able to

<b>CO Number</b>	<b>CO Statement</b>	<b>Knowledge Level</b>
<b>CO1</b>	Identify clear and concise written business documents.	<b>K1</b>
<b>CO2</b>	Demonstrate the use of basic and advanced business writing skills.	<b>K2</b>
<b>CO3</b>	Employ proper public speaking techniques.	<b>K3</b>
<b>CO4</b>	Develop and deliver a formal presentation.	<b>K3</b>
<b>CO5</b>	Develop interpersonal communications skills that are required for social and business interaction.	<b>K3</b>

## SYLLABUS

### UNIT I: (6 hours)

Basics of Business Communication - Process of Communication – Methods and Modes of Communication – Barriers to Communication – Types of Barriers

### UNIT II: (6 hours)

Presentation Skills- Principles of Effective Communication - Business Proposal Format

### UNIT III: (6 hours)

Direct Speech and Indirect Speech, Active and Passive Voice

### UNIT IV: (6 hours)

Business Report – Drafting of Business letters: Sales letter, Request letter, Enquiry letter, Report Writing.

### UNIT V: (6 hours)

Group Discussion – Rules of Group Discussion – Types of Group Discussion – Process of Group Discussion

### Text Book:

S.No	Author	Title of the Book	Publisher	Year of Publication
1.	Raman Meenakshi and Singh Prakash	Business Communication	Oxford University Press	2007

### Books for Reference:

S.No	Author	Title of the Book	Publisher	Year of Publication
1.	Anima Chakraverty	Comprehensive Grammar and Composition	Pearson	2011
2.	<a href="#">Scott McLean</a>	Business Communication for Success	Nyack, NY: Flat World Knowledge	2010

**Pedagogy: Group Discussion, Team Building, Quiz, Assignment**

**Course Designers: Ms. Diana Betty Garrett & Ms. A. Edel Flora Mary**

DEPARTMENT OF COMPUTER APPLICATIONS		
<b>Value Added Course</b>	<b>Front End Development-HTML</b>	<b>30 Hours</b>
Course Code: VACA04P	(Offered to students of all Programme)	Date of Introduction 09.06.2022

### Objectives:

- To create web page
- To learn basic concepts of tags for formatting the web page
- To learn the concepts of forms and frames

### Course Outcome:

- On successful completion of the course, students will be able to

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	To create web page using various formatting tags	K2
CO2	To apply hyperlinks to navigate pages	K3
CO3	To apply images and tables for web page presentation	K3

### Lab Exercises:

1. Creation of Basic HTML elements
2. Change the background color of web page.
3. Format web page using Table tags
4. Create a web page which defines all text formatting tags of HTML in tabular format
5. Create webpage using list tags of HTML.
6. Navigate from page to page using Hyperlinks
7. Adding an E-mail address link.
8. Create HTML document using Image tags
9. Create web page using Frames
10. Create web document using Forms
11. **Frames:** Online news reader creation
12. **Forms:** Creation of Online Application Form

### Web References:

1. <https://www.jnec.org/labmanuals/cse/se/sem1/HTML-SY-PART-I.pdf>
2. [https://www.tutorialspoint.com/html/html\\_tutorial.pdf](https://www.tutorialspoint.com/html/html_tutorial.pdf)

3. <https://www.ramanacoachingcenter.com/programs/technology/html-css/>

### **Pedagogy:**

PPT, Live Demonstration, Youtube videos

### **Course Designer:**

Dr.K.Akila

<b>DEPARTMENT OF COMPUTER APPLICATIONS</b>		
<b>Value Added Course</b>	<b>Power Point –Presentation &amp; Animation</b>	<b>30 Hours</b>
Course Code: VACA05P	(Offered to students of all Programme)	

### **Objectives:**

- To create and manage presentation
- To learn basic concepts of designing slides, Formatting text, shapes & images
- To learn the concepts of Animations

### **Course Outcome:**

- On successful completion of the course, students will be able to

<b>CO NUMBER</b>	<b>CO STATEMENT</b>	<b>KNOWLEDGE LEVEL</b>
CO1	To create new presentation	K2
CO2	To create and modify text, images in various slides	K2
CO3	To apply animations for the presentation	K3

### **Lab Exercises:**

13. Create, insert and format Slides
14. Change presentation options and views
15. Configure and present a slide show
16. Insert and format shapes and Text Boxes
17. Insert and Format Images
18. Order and Group Objects

19. Insert Tables, charts, SmartArt and Media
20. Apply Slide Transitions
21. Animate Slide content
22. Adding and previewing Animations
23. Set Timing for Transitions and Animations
24. Sharing Presentation

### Web References:

4. <https://nutsandboltsspeedtraining.com/powerpoint-tutorials/how-to-make-a-powerpoint/>
5. <https://support.microsoft.com/en-us/office/create-a-presentation-in-powerpoint->
6. <https://support.microsoft.com/en-us/office/add-animation-to-slides>

### Pedagogy:

PPT, Live Demonstration, Youtube videos

### Course Designer:

Dr.LakshnaArun

<b>DEPARTMENT OF FOOD SERVICE MANAGEMENT AND DIETETICS</b>		
<b>VALUE ADDED COURSE</b>	<b>FOOD PRESERVATION</b>	<b>HOURS-30</b>
<b>COURSE CODE – 22VAFS01</b>	OFFERED TO STUDENTS OF ALL THE PROGRAMMES	<b>DATE OF INTRODUCTION</b>

### Objectives

- To understand the basic principles of food preservation.
- To acquire knowledge on various food preservation techniques.
- To conserve the food for future use.

### Course outcomes

On the successful completion of the course, students will be able to:

<b>CO Number</b>	<b>CO Statement</b>	<b>Knowledge Level</b>
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<b>CO1.</b>	Define food spoilage and preservation	K1
<b>CO2.</b>	Classify the different methods of preservation	K2
<b>CO3.</b>	Explain the range of processing operations used for food preservation	K2
<b>CO4.</b>	Illustrate the types of driers	K3
<b>CO5.</b>	Interpret the chemical preservatives and the materials used in packaging	K3

## Syllabus

### UNIT-I (5 Hours)

- a) **INTRODUCTION TO FOOD SPOILAGE**- Definition, types of spoilage, sources of spoilage and preventive measures.
- b) **FOOD PRESERVATION** – Definition, objectives, principles of food preservation and types of food preservation.

### UNIT-II (7 Hours)

- a) **PRESERVATION BY ADDITION OF SUGAR** – Principles, preparation of jams, jellies, fruit preserves and squashes.
  - b) **PRESERVATION BY ADDITION OF SALT**-Principles of pickling process, preparation of pickles.
- Related Experience** – Preparation of mixed fruit jam, guava jelly, papaya tutti frutti, grapes squash, garlic pickle.

### UNIT-III (6 Hours)

- a) **FOOD PRESERVATION BY USING HIGH TEMPERATURE** –Principles of sterilization, pasteurization and blanching.
- b) **FOOD PRESERVATION BY USING LOW TEMPERATURE** – Principles of refrigeration and freezing.

### UNIT-IV (6 Hours)

- a) **FOOD PRESEVATION USING DRYING, DEHYDRATION** - Principles of drying & dehydration and types of drying.
  - b) **IRRADIATION**- Principles and safety limits.
- Related Experience** – Preparation of cluster beans, bitter guard vathals and rice vadams.

### UNIT-V (6 Hours)

- a) **FOOD PRESERVATION USING CHEMICALS**- Principles, Classification, types of chemical Preservative.

b) **PACKAGING AND STORAGE** – Types of packaging, packaging materials, importance of storage.

**Related Experience** – Preparation of tomato sauce and tomato ketchup

**Text book**

S.No.	Author name	Year of publication	Title of the book	Publishers name
1	Sivasankar B	2007	Food Processing and Preservation	Phi Learning, New Delhi
2.	S.M Reddy	2015	Basic Food Science and Technology	New Age International (P) Ltd, Chennai

**Reference books**

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Triveni, Triveni, Prakash	2010	Food Preservation	Aadi Publications, New Delhi
2	Mc Williams	2000	. Modern Food Preservation	Surjeet Publications, New Delhi

**Web links**

<http://ecoursesonline.iasri.res.in/mod/page/view.php?id=4037>

<https://www.britannica.com/topic/food-preservation/Industrial-freezers>

**Pedagogy:** Lecture, Power point presentation, E-content, Demonstration, Assignment.

<b>DEPARTMENT OF FOOD SERVICE MANAGEMENT AND DIETETICS</b>		
<b>VALUE ADDED COURSE</b>	<b>VALUE ADDITION OF MILLETS</b>	<b>HOURS-30</b>
<b>COURSE CODE – 22VAFS02</b>	<b>OFFERED TO STUDENTS OF ALL THE PROGRAMMES</b>	<b>DATE OF INTRODUCTION</b>

**Course designers**

- Ms.S.Fathima



- Ms.M.Vinothini

### **Objectives**

- To able to understand millets and its types.
- To upgrade the nutritional and health benefits of millets.
- To acquire knowledge about value added millets.

### **Course Outcomes**

On the successful completion of the course, students will be able to:

<b>Co Number</b>	<b>CO statement</b>	<b>Knowledge level</b>
CO 1	Identify the various types of millet	K1
CO 2	Summarize the nutritional importance of different types of millets	K2
CO 3	Explain the health benefits of millets	K2
CO 4	Illustrate and makeconvenience processed millet food products	K3
CO 5	Impartthe millet based recipes	K3

### **Syllabus**

#### **UNIT-I**

**(5 Hours)**

#### **INTRODUCTION TO MILLETS**

An overview of millets,history, definition, types and its byproducts.

#### **UNIT II**

**(6 Hours)**

#### **NUTRITIONAL BENEFITS**

Nutritional composition of various millets: Macro and micro nutrients profile.

#### **UNIT III**

**(5 Hours)**

#### **HEALTH BENEFITS**

Importance of millets, role of millets in health aspects.

#### **UNIT IV**

**(7 Hours)**

#### **VALUE ADDITION OF MILLETS**

Ready to cook foods, millet products and its processing-instant health mix, sathumavuladdoo, millet pasta, millet cookies.

**UNIT-V****(7 Hours)****MILLET BASED RECIPES**

Demonstration of recipes using basic cooking techniques: thinaipongal, finger millet chocolate pudding, foxtail millet kheer.

**TextBooks****Reference Books**

S.No.	Author name	Year of publication	Title of the book	Publishers name
1	Srilakshmi B	2014	Dietetics	NewAge International, New Delhi.
2	Srilakshmi B	2018	Nutrition Science	NewAge International, New Delhi.

**Web links**

[https://www.milletres.in/m\\_recipes/Millet Recipes-A Healthy choice.pdf](https://www.milletres.in/m_recipes/Millet Recipes-A Healthy choice.pdf)  
<https://www.icrisat.org/PDF/Food-Booklet-Millet.pdf>  
<https://milletindia.org/wp-content/uploads/2019/03/Millet-Miracle.pdf>

**Pedagogy:** Lecture, Power point presentation, E-content, Demonstration, Assignment.

**Course Designers**

- Ms. E. Agalya
- Ms. T.R. Revathi

<b>ENTREPRENEURSHIP DEVELOPMENT CELL</b>		
<b>VALUE ADDED COURSE</b>	<b>3D PRINTING &amp; IOT TECHNIQUES</b>	<b>Hours- 30</b>
<b>COURSE CODE: VAED31P</b>	<b>OFFERED TO STUDENTS OF ALL DEPARTMENTS</b>	<b>DATE OF INTRODUCTION 09.06.2022</b>

**OBJECTIVES**

- To gain knowledge on basics of robotic operating system
- To empower the innovate idea into prototypes
- To enrich the prototypes into technology startups

**Course outcome**

**On the successful completion of the course, students will be able to**

CO	CO statement	Knowledge
CO1	To learn about the importance of sensors and actuators	K2
CO2	To create awareness on Node MCU open Microcontroller	K3
CO3	Design of ideas on 3D printing concept	K3
CO4	Impendent of prototypes in multidisciplinary approach	K5

**List of Experiments.**

1. Internet of things
2. Basics of sensors and actuators
3. Introduction to cloud computing
4. NodeMCU Open -Microcontroller platform-
5. NodeMCU Board Layout and Architecture
6. NodeMCU-Reading from Sensors
7. **Node MCU Programming** fundamentals
8. Interfacing sensors with Node MCU
9. NodeMCU with Mobile App
10. Send Text message to Node MCU using Mobile app
11. Introduction to 3D printers
12. Types of 3 D printer and its operation
13. How to operate 3D printer
14. Create and make your first design

**TEXTBOOKS**

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Vijaender Kumar Solanki	2019	Handbook of IOT and Big data	CRC Press
2	Bob Babson	2020	3 D printing-Idea, Design, Material and App	Abbott Propeties

**Pedagogy:** Lecture, Powerpoint Presentation, Videos, OHP Presentation,

**Course Designers**

1. Mr.Mohammed Ityhoos, Start up Founder, Robotics
2. Dr. S. Sowmya, Assistant Professor, Department of Commerce
3. Dr. R. Subha, Assistant Professor, Department of Chemistry

<b>ENTREPRENEURSHIP DEVELOPMENT CELL</b>		
<b>VALUE ADDED COURSE</b>	<b>TRADITION MILLET RECEPIES</b>	<b>Hours- 30</b>
<b>COURSE CODE: VAED32</b>	<b>OFFERED TO STUDENTS OF ALL DEPARTMENTS</b>	<b>DATE OF INTRODUCTION 09.06.2022</b>

### **OBJECTIVES**

- To gain knowledge on varieties of millets
- To impart health benefits from millets
- To improve the utilisation of millet based foods

### **Course outcome**

**On the successful completion of the course, students will be able to**

CO	CO statement	Knowledge
CO1	To create awareness on health disorders by lack of nutrients	K2
CO2	To identify the benefits ofmillet food processing	K3
CO3	To promote traditional millets into novel foods	K3

### **SYLLABUS**

#### **UNIT I Introduction to millets**

**(6 hours)**

Definition, Origin of millets, Scope of millets, Government measures to increase millet production, advantages of millet production

**UNIT II Millet and its components****(6 hours)**

Nutrition composition of millets, Types of millets in India with their common names, benefits of millets

**UNIT III Traditional recipes-Main course****(6 hours)**

Breakfast food: Idli, Dosa, Idiappam, Rotti, Pittu, Upma, Adai, Porridge, Khakra, Paniyaram and Chappathi.

**Unit IV Traditional recipes- Savouries****(6 hours)**

Sweets: Halwa, sweat kolukattai, Adhirasam, Kesari, Nutritious ball and Kheer.

Snacks: Vadai, Pakoda, Ribbon pakoda, Omapodi, Murukku, Thattu vadai, Hot kolukattai and Vadagam.

**UNIT V Bakery Products****(6 hours)**

Small millets were incorporated in different variations from 10% to 50% levels to standardize cake, cookies, savouries and soup stick replacing refined wheat flour.

**TEXTBOOKS**

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Anil kumar& Manoj kumar	2021	Millet and Millet technology	Springer
2	Indra Narayanan	2022	Millet's Kitchen	Notion Press

**Pedagogy:** Lecture, Powerpoint Presentation, Videos, OHP Presentation,

**Course Designers**

4. Dr.S.Sowmya, Assistant Professor, Department of Commerce
5. Dr.R.Subha, Assistant Professor, Department of Chemistry
6. Mrs. Jayashree suresh, Startup founder, First Craft, Trichy

**DEPARTMENT OF PHYSICAL EDUCATION**

**VALUE ADDED  
COURSE**

**FITNESS AND YOGA**

**HOURS – 30**

**COURSE CODE –  
VAPE01**

**OFFERED TO STUDENTS OF  
ALL DEPARTMENTS**

**DATE OF  
INTRODUCTION 16.06.2022**

## **OBJECTIVES**

- To understand the fundamental concept of yogic practice & Basic practice
- To Study the yogic techniques of asana, pranayama, meditation.
- To know basics of fitness, physical fitness & its types.
- To understand the fundamental concepts about physical fitness training and assessment.

## **COURSE OUTCOMES**

Upon successful completion of the course, the students will be able to

<b>CO Number</b>	<b>CO Statement</b>	<b>Knowledge Level</b>
CO 1	Illustrate about research and its classification.	K1
CO 2	Describe the cardio exercise training with gym Equipment	K2
CO 3	Summarise the Concept of Asanas	K1
CO 4	Relate the influences Pranayama for basic physical Well being	K1
CO 5	Explain the importance of Mudras	K2

## **SYLLABUS**

### **UNIT 1**

Basic Flexibility, Warming Up and Warm-Down Exercise - Aerobics–  
Anerobics -Walking–Running- Spot Running- High Knee- Fast Arms-  
Hopping-Skipping – Free Hand Exercises

### **UNIT 2**

Weight Training -Medicine Ball Exercise-Strength Training With Gym  
Equipment

### UNIT 3

Asanas - Basic Asanas-Padmasana, Bhujangasana, Vajrasana, Patchimathasana, Dhanurasana, Salabasana, Chakrasana, Halasana, Suryanamaskar

### UNIT 4

Pranayama –NadiSuddi, NadiSodhana, Surya Bhedhana, Chandra Bhedana, Bhastrika., Ugiyini, Bhramani, Sitali, Sitkari.

### UNIT 5

Hand Mudras -Types of Hand Mudras- Prithivi Mudras, Bairava Mudras, Hridhaya Mudra, Yoni Mudra, Agni Mudra, etc.

#### REFERENCE BOOKS:

S.No.	Author name	Title of the book	Publishername	Year of publication
1	Mariayyah P	Suriyanamaskar. Perunthurai	Jaya publishing House	2000
2	Chandrasekaran K	Sound health through Yoga, Sedapatti	PremKalyan	1999
3	Sandler, David. S	Fundamental Weight Training	Human Kinetics	2010
4	Singh, Hardayal	Science of Sports training	New Delhi, D.V.S Publications	1995
5	Tummers, Nanette E	Teaching Yoga for Life	Human Kinetics	2009

#### WEBLINKS:

➤ <https://www.ayush.gov.in/>

காவேரி மகளிர் கல்லூரி (தன்னாட்சி), திருச்சிராப்பள்ளி - 18

தாள் - 1 நாட்டுப்புற நடனங்களின் வரலாறு மற்றும் நாட்டுப்புறவியல்

#### நோக்கம் :

1. இந்திய மாநிலங்கள்தோறும் உள்ள ஏதேனும் ஒரு நடனத்தை அறிதல்.
2. சடங்குகளுக்கும் நடனங்களுக்கும் இடையேயுள்ள உறவுமுறைகளை அறிதல்

அலகு 1: நாட்டுப்புற நடனம்:

நாட்டுப்புற நடனம்: ஒரு பொது அறிமுகம் - நடனங்களின் உட்பொருளமைதிகள்  
 சடங்கு நடனங்கள் (Ritual Dances) பரவச நடனங்கள் (Trance Dances) விழாக்கால  
 நடனங்கள் (Ceremonial Dances) பருவகால நடனங்கள் (Seasonal Dances) வீளையாட்டு  
 மற்றும் போர் நடனங்கள் (Game and Martial Dances) பேரிதை கொட்டு நடனங்கள் (Drum  
 Dances) பொழுதுபோக்கு நடனங்கள் (Recreational Dances)

## அலகு 2: தமிழக நாட்டுப்புற நடனங்கள்:

தமிழக நாட்டுப்புற நடனங்கள் தமிழக நாட்டுப்புற நடனங்கள் பாட்டு ஆட்டங்கள்  
 கருவி இசை ஆட்டங்கள் - அரங்கக் கலைகள் - கதை கூறல் - போர்க்கலைக்கள் -  
 வித்தைகள் - ஆட்டங்கள் கரகாட்டம், தப்பாட்டம், பொய்கால் கட்டை ஆட்டம் - மயிலாட்டம்  
 - கரடியாட்டம் - காளி திருநடனம் - கொக்கலி கட்டை ஆட்டம் - வீரபத்ரசாமி ஆட்டம் -  
 புலியாட்டம் - தேவராட்டம் - குறவன் குறத்தியாட்டம் - கும்மி - கோலாட்டம் - தெருக்கூத்து  
 - பொம்மலாட்டம். தோல் பொம்மலாட்டம் - கயிறு பொம்மலாட்டம் - பகல் வேடம் -  
 இலாவணி - கண்கட்டு வித்தை - கத்திச் சண்டை - மான்கொம்பு - சிலம்பாட்டம் -  
 தொம்பாட்டம் - அனுமார் வேடம் - சடங்குமுறை நடனங்கள் - தொழில்முறை நடனங்கள் -  
 நாட்டுப்புற நடனங்களில் பண்பாடு.

## அலகு - 3- நாட்டுப்புற நடனங்களின் கூறுகள்:

நடன வடிவம் - நடன அடைவ - நடன இசை - நடனமும் இசைக்கருவிகளும் -  
 வட்டாரம் - சாதி - சடங்கு - கொண்டாட்டம்.

## அலகு - 4

தமிழக நாட்டுப்புறக் கதைகள் - நிகழ்த்துக் கலைகள் - நிகழ்த்தா கலைகள் -  
 வகைகள் - கருவி இசை ஆட்டங்கள் - பாட்டு ஆட்டங்கள் - அரங்கக் கலைகள் - கதைகூறல்  
 - போர்க்கதைகள் - வித்தைகள் - நாட்டுப்புறக் கலைஞர்கள் - இன்றை நிலையில் நாட்டுப்புற  
 நிகழ்த்துக் கலைகள்.

## அலகு - 5

நாட்டுப்புற சடங்குகளும் வாழ்வியல் சடங்குகளும் - வழிபாடுகளும் - வழிபாட்டுச்  
 சடங்குகளும் - நம்பிக்கைகள் - பழக்கவழக்கங்கள் - நாட்டுப்புற தெய்வங்கள் -  
 விளையாட்டுக்கள் - மருத்துவம் - கட்டடக்கலை - தொழில்நுட்பம் - பயன்பாட்டு  
 நாட்டுப்புறவியல் - நாட்டுப்புறத் திருவிழாக்கள்.

## பார்வை நூல்கள் :



1. நாட்டுப்புற நடனங்களும், கரு, அழ, குணசேகரன், நியூ செஞ்சரி புக ஹவுஸ் (பி) லிட் சென்னை, 2009
2. இந்திய கிராமிய நடனங்கள், கபிலவாத்ஸாயன் ரு சச்சிதானந்தவாத்ஸாயன் (இணை ஆர்)
3. தமிழக நாட்டுப்புறக் கலைகள் ஏ.என். பெருமாள் உலகத்தமிழாராய்ச்சி நிறுவனம். சென்னை. 1989
4. கரகட்டம். மா. நவநீத கிருட்டிணன். கே.ஏ. குணசேகரன் (இணை ஆர்) அகரம், சிவகங்கை, 1982
5. நாட்டுப்புறக் கலைகள். ஏ.என்பெருமாள், உலகத் தமிழாராய்ச்சி நிறுவனம், தரமணி சென்னை. 1980
6. தமிழக நாட்டுப்புற ஆட்டக்கலைகள் கு.முருகேசன். தேவி பதிப்பகம், சென்னை. 1987
7. அமைப்பில் நோக்கில் தமிழக நாட்டுப்புற நடனங்கள். தமிழ்ப் பல்கலைக்கழகம், தஞ்சாவூர் - 1989
8. தமிழ் மக்களின் மரபும் பண்பாடும், சோமலே, நேனல் புக் டிரஸ்டு. 1975
9. Folk lore and Folk life – An Introduction, Richard Dorson. The University of Chicago Press. 1972
10. Current Trends in Folklore. Javaharlal Handoo. Universty of Mysore. 1978.

**ENTREPRENEURSHIP DEVELOPMENT CELL**  
**COURSE OFFERED BY WADHWANI FOUNDATION –NEN**  
**IGNITE PROGRAM (FOR BATCH 2021-2022 ONWARDS)**

**ESSENTIALS OF ENTREPRENEURSHIP**      **Credits: 2**

**OBJECTIVES**

- Assess and analyse the current business model
- Articulate a compelling value proposition
- Identify risky assumptions , gaps and obstacles; iterate to a sustainable business model
- Practice, test and build a validated MVP in an efficient manner
- Select an appropriate Go-to-Market strategy
- Pitch the business idea to different stakeholders

**Course outcome**

**On the successful completion of the course, students will be able to**

<b>CO</b>	<b>CO statement</b>	<b>Knowledge</b>
CO1	Identify the different aspects that can impact their business	K2
CO2	Acquire in-depth knowledge about tools to build any business idea	K3
CO3	Acquire in-depth knowledge about the different growth tools to grow their business, using modern-day technology	K3
CO4	Create a financial plan for their business	K4
CO5	Create a pitch deck for their business and present it to different stakeholders	K5

**SYLLABUS**

**(38hours)**

**Unit I Business Identification**

**Sharpen the problem pitch-** re-visit the opportunity, RE-validate the problem , refine and sharpen the problem pitch; **Customer and Markets-** Market identification, Market segment and niche , Market size estimation, Market positioning, Creation of Customer persona;

**Sustainable Differentiation Strategy-** Crafting of Value proposition Canvas, Creation of sustainable differentiation strategy, Competition analysis.

### **Unit II Business plan Design**

**Business model and testing riskiest assumptions** - Testing of the business idea, Identification of riskiest assumptions in the business model; Minimum lovable product - Creation of a prototype, Conduct customer interviews, analyse feedback, build MLP

### **Unit III Business sustainability**

**Creation of a Sustainable Business plan** - Building Sales plan, People plan, financial plan and Unit Economics, Funding plan, Identify metrics that matter

### **Unit IV Business Branding**

**Go-to-market strategy/ Branding and positioning** - Identify the appropriate GTM channels, develop channel partners, analyse the market penetration strategy, build digital marketing plan; Managing growth and targeting scale - Devise a growth plan, Structuring of a scaling strategy, Customer acquisition, enhancing productivity, process improvements, operational excellence, money management.

### **Unit V Funding Strategy**

Creation of funding sources, Mapping of a startup lifecycle to funding options, Creation of a pitch deck.

### **Pedagogy**

Wadhvani Foundation's "Watch-Think-Do" pedagogy in a highly experiential learning format through real-life case studies and content

### **Course designers**

Wadhvani Team

Dr.S.Sowmya, Assistant Professor, Department of Commerce

Dr.R.Subha, Assistant Professor, Department of Chemistry

### **WRITE UP ABOUT THE COURSE**

Entrepreneurship Development Cell is offering a credit course as "Essentials of Entrepreneurship" part of the IGNITE PROGRAM offered by Wadhvani Foundation- NEN. This programme is offered to the second year students studying in III semester in the current academic year from June 2022. The course structure is a 14 week programme for 38 hours framed by the wadhvani foundation team. 2 credits will be offered for the students (any discipline) who enroll in this programme. After a selection process a final strength of 30 students comprising of 10 teams with 3 students per team will be selected for this course.

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY - 18****END SEMESTER EXAMINATION – APRIL 2022****ANNEXURE- T****RESULT ANALYSIS****I UG**

<b>S.N O.</b>	<b>DEPARTMENT</b>	<b>SE M</b>	<b>NUMBER REGISTERED</b>	<b>NUMBER APPEARED</b>	<b>NUMBER OF PASS</b>	<b>PASS %</b>
1	TAMIL	II	16	16	16	100
2	ENGLISH	II	38	38	36(37)	94.74(97.37)
3	BSW	II	11	11	8	72.73
4	BBA	II	44	44	32	72.73
5	B.COM	II	255	253	231	91.30
6	B.COM (CA)	II	65	65	63	96.92
7	MATHEMATICS	II	53	53	44	83.02
8	PHYSICS	II	20	20	17	85
9	CHEMISTRY	II	20	20	17	85
10	MICROBIOLOGY	II	52	52	48	92.31
11	BIOTECHNOLOGY	II	35	35	35	100
12	COMPUTER SCIENCE	II	78	78	57	73.08
13	COMPUTER APPLICATIONS	II	57	57	46	80.70
14	INFORMATION TECHNOLOGY	II	22	22	20	90.91
15	NUTRITION & DIETETICS	II	28	28	28	100
16	COGNITIVE SYSTEMS	II	36	36	34	94.44

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY - 18****END SEMESTER EXAMINATION – APRIL 2022****RESULT ANALYSIS****II UG**

<b>S.N O.</b>	<b>DEPARTMEN T</b>	<b>SE M</b>	<b>NUMBER REGISTER ED</b>	<b>NUMBER APPEAR ED</b>	<b>NUMB ER OF PASS</b>	<b>PASS PERCENTA GE</b>
1	TAMIL	IV	33	33	33	100
2	ENGLISH	IV	112	112	107	95.54
3	BSW	IV	35	35	34	97.14
4	BBA	IV	82	82	66(69)	80.49(84.15)
5	B.COM	IV	243	243	237	97.53
6	B.COM (CA)	IV	64	64	64	100
7	MATHEMATIC S	IV	79	79	78	98.73
8	PHYSICS	IV	44	44	42	95.45
9	CHEMISTRY	IV	49	49	39	79.59
10	MICROBIOLOG Y	IV	75	75	73	97.33
11	BIOTECHNOL OGY	IV	70	70	65	92.86
12	COMPUTER SCIENCE	IV	144	144	139	96.53
13	COMPUTER APPLICATION S	IV	117	117	106(111)	90.60(94.87)
14	INFORMATION TECHNOLOGY	IV	39	39	39	100
15	NUTRITION & DIETETICS	IV	37	37	36	97.30

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY - 18****END SEMESTER EXAMINATION – APRIL 2022****RESULT ANALYSIS****III UG**

<b>S.N O.</b>	<b>DEPARTMEN T</b>	<b>SE M</b>	<b>NUMBER REGISTER ED</b>	<b>NUMBER APPEAR ED</b>	<b>NUMB ER OF PASS</b>	<b>PASS PERCENTA GE</b>
1	TAMIL	VI	35	35	35	100
2	ENGLISH	VI	130	130	129(130)	99.23(100)
3	BSW	VI	43	43	41	95.35
4	BBA	VI	92	91	89	97.80
5	B.COM	VI	218	217	212	97.70
6	B.COM (CA)	VI	60	60	59	98.33
7	MATHEMATIC S	VI	110	110	102(103)	92.73(93.64)
8	PHYSICS	VI	107	107	96(99)	89.72(92.52)
9	CHEMISTRY	VI	82	82	74	90.24
10	MICROBIOLOG Y	VI	66	66	65	98.48
11	BIOTECHNOL OGY	VI	68	68	67	98.53
12	COMPUTER SCIENCE	VI	143	143	141	98.60
13	COMPUTER APPLICATION S	VI	98	98	97	98.98
14	INFORMATION TECHNOLOGY	VI	39	39	39	100
15	NUTRITION & DIETETICS	VI	34	34	34	100

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY -18**

**END SEMESTER EXAMINATION RESULTS – APRIL 2022**

**RESULT ANALYSIS**

**IPG**

<b>S.N O.</b>	<b>DEPARTMEN T</b>	<b>SE M</b>	<b>NUMBER REGISTER ED</b>	<b>NUMBER APPEAR ED</b>	<b>NUMBE R OF PASS</b>	<b>PASS PERCENTA GE</b>
1	TAMIL	II	10	10	10	100
2	ENGLISH	II	35	35	33	94.29
3	MSW	II	17	17	13	76.47
4	COMMERCE	II	15	15	12	80
5	MATHEMATI CS	II	44	44	33(35)	75(79.55)
6	PHYSICS	II	29	29	26	89.66
7	CHEMISTRY	II	23	23	13	56.52
8	MICROBIOLO GY	II	19	19	19	100
9	COMPUTER SCIENCE	II	35	35	35	100
10	FSM & D	II	24	24	21	87.50

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY -18****END SEMESTER EXAMINATION RESULTS – APRIL 2022****RESULT ANALYSIS****II PG**

<b>S.N O.</b>	<b>DEPARTMEN T</b>	<b>SE M</b>	<b>NUMBER REGISTER ED</b>	<b>NUMBER APPEAR ED</b>	<b>NUMBE R OF PASS</b>	<b>PASS PERCENTA GE</b>
1	TAMIL	IV	5	5	5	100
2	ENGLISH	IV	38	38	34(35)	89.47(92.11)
3	MSW	IV	24	24	24	100
4	COMMERCE	IV	23	23	22	95.65
5	MATHEMATI CS	IV	65	65	54	83.08
6	PHYSICS	IV	44	44	38	86.36
7	CHEMISTRY	IV	26	26	17	65.38
8	MICROBIOLO GY	IV	27	27	21	77.78
9	COMPUTER SCIENCE	IV	33	33	32	96.97
10	FSM & D	IV	28	28	28	100





காவேரி மகளிர் கல்லூரி (தன்னாட்சி)  
திருச்சிராப்பள்ளி- 18  
தமிழாய்வுத்துறை

காவேரி மகளிர் கல்லூரி, தமிழாய்வுத்துறை, இணைய வழியில் 2022 மே 6 அன்று நடத்திய 2022-2023 கல்வியாண்டு முதல் வழங்கப்படும் இளங்கலை பகுதி I தமிழ் பாடத்தின் நான்கு பருவங்களுக்குமானதும் இளங்கலைத் தமிழிலக்கியம், முதுகலைத் தமிழிலக்கியம் ஆகியவற்றின் முதல் பருவத்திற்கானதுமான பாடத்திட்டக்குழுக் கூட்டத்தின் குறிப்பு

பாடத்திட்டக்குழுக் கூட்டத்தில் பங்கேற்ற உறுப்பினர்கள்

- |                             |   |
|-----------------------------|---|
| 01. முனைவர் ச. இராமலட்சுமி  | தலைவர், பேராசிரியர்   |
| 02. முனைவர் இரா. காமராசு    | பாடத்திட்ட வல்லுநர்<br>தமிழ்ப்பல்கலைக்கழகம்,<br>தஞ்சாவூர்                       |
| 03. முனைவர் அ. ஜெஸிந்தாராணி | பல்கலைக்கழக நியமன உறுப்பினர்<br>புனித சிலுவைக் கல்லூரி (தன்னாட்சி),<br>திருச்சி |
| 04. திரு. க. விஜயன்         | வேலைவாய்ப்பு மற்றும் தொழில்துறை<br>பிரதிநிதி<br>பத்திரிக்கையாளர்                |
| 05. செல்வி ச. சரண்யா        | உறுப்பினர் - முன்னாள் மாணவி<br>வழக்கறிஞர்                                       |
| 06. முனைவர் அ. இரா. கோமதி   | உறுப்பினர்  |
| 07. முனைவர் அ. யசோதா        | உறுப்பினர்  |
| 08. முனைவர் ந. சுபா         | உறுப்பினர்  |
| 09. முனைவர் வி. கவிதா       | உறுப்பினர்  |
| 10. முனைவர் மு. ஜெயலெட்சுமி | உறுப்பினர்  |
| 11. முனைவர் தி. மணிமொழி     | உறுப்பினர்  |
| 12. முனைவர் பா. கவிதா       | உறுப்பினர்  |

13. முனைவர் மே.க. வசந்தி	உறுப்பினர்
14. முனைவர் இரா. வனிதா	உறுப்பினர்
15. முனைவர் வி. சத்யவதி	உறுப்பினர்
16. முனைவர் க. ராதிகா	உறுப்பினர்
17. முனைவர் மு. அனு	உறுப்பினர்
18. முனைவர் ப. சசிரேகா	உறுப்பினர்
19. முனைவர் மா. ஆசியாதாரா	உறுப்பினர்
20. முனைவர் ச. தீபா	உறுப்பினர்
21. முனைவர் க. அகல்யா	உறுப்பினர்
22. முனைவர் இர. கீர்த்தனா	உறுப்பினர்
23. திருமதி. செ. புனிதா	உறுப்பினர்
24. முனைவர் தெ. அகிலா	உறுப்பினர்
25. திருமதி. பெ. அபிராமி	உறுப்பினர்

**பாடத்திட்டக் குழுக்கூட்டத்திலிருந்து விலக்கு அளிக்கப்பட்டவர் :**

முனைவர் இரா. கருணாநிதி, பாடத்திட்ட வல்லுநர், இணைப்பேராசிரியர், தமிழாய்வுத்துறை, திருகொளஞ்சியப்பர் கலை மற்றும் அறிவியல் கல்லூரி, விருத்தாசலம்

**பாடத்திட்டக்குழுக்கூட்டத்தின் நிகழ்ச்சி நிரல் :**

**பகுதி எண் : பா.தி.கு./06/01**

தமிழாய்வுத்துறையில் 2022-2023 கல்வியாண்டு முதல் வழங்கப்படும் இளங்கலை பகுதி I தமிழிற்கான பாடநெறிக் கற்றல் முடிவுகள், நான்கு பருவங்களுக்குமான பாட வரையறை மற்றும் பாடத்திட்டத்தை ஆலோசித்து அங்கீகாரமளித்துத் திருச்சிராப்பள்ளி காவேரி மகளிர் கல்லூரி(தன்னாட்சி) கல்விக்குழுவுக்குப் பரிந்துரை செய்தல்.

**பகுதி எண் : பா.தி.கு./06/02**

தமிழாய்வுத்துறையில் 2022-2023 கல்வியாண்டு முதல் வழங்கப்படும் இளங்கலைத் தமிழிலக்கியத்திற்கான பாடநெறிக் கற்றல் முடிவுகள், முதல் பருவத்திற்கான பாட

வரையறை மற்றும் பாடத்திட்டத்தை ஆலோசித்து அங்கீகாரமளித்துத் திருச்சிராப்பள்ளி காவேரி மகளிர் கல்லூரி(தன்னாட்சி) கல்விக்குழுவுக்குப் பரிந்துரை செய்தல்.

**பகுதி எண் : பா.தி.கு./06/03**

தமிழாய்வுத்துறையில் 2022-2023 கல்வியாண்டு முதல் வழங்கப்படும் முதுகலைத் தமிழிலக்கியத்திற்கான பாடநெறிக் கற்றல் முடிவுகள், முதல் பருவத்திற்கான பாட வரையறை மற்றும் பாடத்திட்டத்தை ஆலோசித்து அங்கீகாரமளித்துத் திருச்சிராப்பள்ளி காவேரி மகளிர் கல்லூரி(தன்னாட்சி) கல்விக்குழுவுக்குப் பரிந்துரை செய்தல்.

**பகுதி எண் : பா.தி.கு./06/04**

தேர்வாளர்களை நியமிப்பதற்கான பெயர்ப் பட்டியலைத் திருச்சிராப்பள்ளி காவேரி மகளிர் கல்லூரி(தன்னாட்சி) கல்விக்குழுவுக்குப் பரிந்துரை செய்தல்.

**பகுதி எண் : பா.தி.கு./06/05**

பாடத்திட்டம் உருவாக்கிய குழுவினரைப் பாராட்டுதல்.

முதலில், முனைவர் அ.யசோதா, இணைப் பேராசிரியர், தமிழாய்வுத்துறை, காவேரி மகளிர் கல்லூரி, திருச்சி - 18, அவர்கள் பாடத்திட்டக் குழுக் கூட்டத்தில் பங்கேற்ற உறுப்பினர்களை இணையவழியில் அறிமுகம் செய்து வைத்தார். நிகழ்ச்சி நிரலில் உள்ளபடி இணையவழி கலந்துரையாடல் தொடங்கியது.

**பகுதி எண் : பா.தி.கு./06/01**

தமிழாய்வுத்துறையில் 2022-2023 கல்வியாண்டு முதல் வழங்கப்படும் இளங்கலை பகுதி I தமிழிற்கான பாடநெறிக் கற்றல் முடிவுகள், நான்கு பருவங்களுக்குமான பாட வரையறை மற்றும் பாடத்திட்டத்தை அதன் மாற்றங்களுடன் ஆலோசித்து அங்கீகாரமளித்துத் திருச்சிராப்பள்ளி காவேரி மகளிர் கல்லூரி(தன்னாட்சி) கல்விக்குழுவுக்குப் பரிந்துரை செய்தல்.

நான்கு பருவங்களுக்குமான பாடத்திட்டத்தில் பின்வரும் மாற்றங்கள் செய்யப்பட்டுள்ளன.

- முதல் பருவத்தில் அலகு 1, அலகு 2, அலகு 3இல் கவிதைகள் முற்றிலுமாக மாற்றம் செய்யப்பட்டுள்ளன. அலகு 4இல் சிறுகதைகள் முற்றிலுமாக மாற்றம் செய்யப்பட்டுள்ளன. அலகு 5இல் கடிதம் எழுதுதல் பகுதி இணைக்கப்பட்டுள்ளது.

- இரண்டாம் பருவத்தில் அலகு 1,2இல் பக்தி இலக்கியங்களும் அலகு 3இல் சிற்றிலக்கியங்களும் அலகு 4இல் புதினமும் முற்றிலுமாக மாற்றம் செய்யப்பட்டுள்ளன. அலகு 5இல் தமிழில் பிறமொழிச் சொற்கள் பகுதி புதிதாக இணைக்கப்பட்டுள்ளது.
- மூன்றாம் பருவத்தில் அலகு 1, அலகு 2, அலகு 3இல் காப்பியங்களும் அலகு 4இல் நாடகமும் முற்றிலுமாக மாற்றம் செய்யப்பட்டுள்ளன. அலகு 5இல் வாக்கிய வகைகள், மரபுத் தொடர்கள், கவிதை படைத்தல் ஆகியன புதிதாக இணைக்கப்பட்டுள்ளன.
- நான்காம் பருவத்தில் அலகு 1, அலகு 2இல் சங்க இலக்கியங்களும் அலகு 3இல் பதினெண்கீழ்க்கணக்கும் அலகு 4இல் உரைநடையும் மாற்றம் செய்யப்பட்டுள்ளன. அலகு 5இல் பத்தி எழுதுதல் புதிதாக இணைக்கப்பட்டுள்ளது.
- அனைத்துப் பருவங்களிலும் அவ்வவ் அலகுகளுக்குரிய இலக்கிய வரலாற்றுப் பகுதிகள் அவ்வவ் அலகுகளில் இணைக்கப்பட்டுள்ளன.

**கலந்துரையாடலின்போது கூறப்பட்ட ஆலோசனைகள் :**

- நான்காம் பருவப் பாடத்திட்டத்தில் பண்டைய இலக்கியப் பகுதிகள் அதிகமாக இருப்பதால் குறைத்துக்கொள்ளலாம்.

**பின்வரும் தீர்மானம் ஏற்கப்பட்டது :**

“தமிழாய்வுத்துறையில் 2022-2023 கல்வியாண்டு முதல் வழங்கப்படும் இளங்கலை பகுதி I தமிழிற்கான பாடநெறிக் கற்றல் முடிவுகள், நான்கு பருவங்களுக்குமான பாட வரையறை மற்றும் பாடத்திட்டமானது அதன் மாற்றங்களுடன் ஆலோசிக்கப்பட்டு அனுமதி வழங்கத் தீர்மானிக்கப்படுகிறது.”

பாடத்திட்டக்குழுவினர் கூறிய ஆலோசனைகளைத் தேவைக்கேற்ப ஏற்றுக்கொள்ளலாம் எனப் பரிந்துரைத்தனர்.

**பகுதி எண் : பா.தி.கு./06/02**

தமிழாய்வுத்துறையில் 2022-2023 கல்வியாண்டு முதல் வழங்கப்படும் இளங்கலைத் தமிழிலக்கியத்திற்கான பாடநெறிக் கற்றல் முடிவுகள், முதல் பருவத்திற்கான பாட வரையறை மற்றும் பாடத்திட்டத்தை அதன் மாற்றங்களுடன் ஆலோசித்து

அங்கீகாரமளித்துத் திருச்சிராப்பள்ளி காவேரி மகளிர் கல்லூரி(தன்னாட்சி) கல்விக்குழுவுக்குப் பரிந்துரை செய்தல்.

இளங்கலைப் பாடத்திட்டத்தில் பின்வரும் மாற்றங்கள் செய்யப்பட்டுள்ளன.

- நன்னூல் - எழுத்ததிகாரம் (காண்டிகையுரை) பாடத்தில் நான்காம் அலகில் உயிரீற்றுப் புணரியலுடன் மெய்யீற்றுப் புணரியல் இணைக்கப்படுகிறது. ஐந்தாம் அலகில் உருபு புணரியல் இடம்பெறுகிறது.
- இக்கால இலக்கியத்தில் அலகு 1, அலகு 2, அலகு 3இல் கவிதைகளும் அலகு 4, 5இல் உரைநடைகளும் முற்றிலுமாக மாற்றம் செய்யப்பட்டுள்ளன.
- தமிழ் இலக்கிய வரலாற்றில் அலகு 1இல் இறையனார் அகப்பொருள், அலகு 2இல் முத்தொள்ளாயிரம், அலகு 4இல் குறவஞ்சி, பரணி, பள்ளு ஆகியன புதிதாக இணைக்கப்பட்டுள்ளன.

கலந்துரையாடலின்போது கூறப்பட்ட ஆலோசனைகள் :

- இலக்கிய வரலாற்றுத் தாளில் பார்வை நூல்கள் மட்டும் இருக்கின்றன. பாட நூல்கள் வைக்கலாம்.

பின்வரும் தீர்மானம் ஏற்கப்பட்டது :

“தமிழாய்வுத்துறையில் 2022-2023 கல்வியாண்டு முதல் வழங்கப்படும் இளங்கலைத் தமிழிலக்கியத்திற்கான பாடநெறிக் கற்றல் முடிவுகள், முதல் பருவத்திற்கான பாட வரையறை மற்றும் பாடத்திட்டமானது அதன் மாற்றங்களுடன் ஆலோசிக்கப்பட்டு அனுமதி வழங்கத் தீர்மானிக்கப்படுகிறது.”

பாடத்திட்டக்குழுவினர் கூறிய ஆலோசனைகளைத் தேவைக்கேற்ப ஏற்றுக்கொள்ளலாம் எனப் பரிந்துரைத்தனர்.

பகுதி எண் : பா.தி.கு./06/03

தமிழாய்வுத்துறையில் 2022-2023 கல்வியாண்டு முதல் வழங்கப்படும் முதுகலைத் தமிழிலக்கியத்திற்கான பாடநெறிக் கற்றல் முடிவுகள், முதல் பருவத்திற்கான பாட வரையறை மற்றும் பாடத்திட்டத்தை அதன் மாற்றங்களுடன் ஆலோசித்து அங்கீகாரமளித்துத் திருச்சிராப்பள்ளி காவேரி மகளிர் கல்லூரி(தன்னாட்சி) கல்விக்குழுவுக்குப் பரிந்துரை செய்தல்.

முதுகலைப் பாடத்திட்டத்தில் பின்வரும் மாற்றங்கள் செய்யப்பட்டுள்ளன.

- தொல்காப்பிய எழுத்ததிகாரத்திற்கு இளம்பூரணர் உரை என இருந்தது முற்றிலுமாக நச்சினார்க்கினியர் உரை என மாற்றம் செய்யப்பட்டுள்ளது.
- புதுக்கவிதையும் நாடகமும் பாடத்தில் அலகு 1, அலகு 2, அலகு 3இல் கவிதைகளும் அலகு 3, அலகு 4, அலகு 5இல் நாடகங்களும் முற்றிலுமாக மாற்றம் செய்யப்பட்டுள்ளன.
- இரண்டாம் பருவத்தில் சமய இலக்கியம் என்றும் முதல் பருவத்தில் சித்தர் இலக்கியம் என்றும் தனித்தனி பாடங்களாக இருந்தவை சமய இலக்கியமும் சித்தர் இலக்கியமும் என இணைத்து ஒரு பாடமாக்கப்பட்டுள்ளன. பாடத்தில் அலகு 1, அலகு 2, அலகு 3இல் சமய இலக்கியங்களும் அலகு 4, அலகு 5இல் சித்தர் பாடல்களும் இடம்பெற்று முந்தையதிலிருந்து முற்றிலுமாக மாற்றம் செய்யப்பட்டுள்ளன.
- இலக்கிய உரையாசிரியர்கள் புதுப் பாடமாக இணைக்கப்பட்டுள்ளது. புதுப் பாடத்திட்டம் வடிவமைக்கப்பட்டுள்ளது.
- இரண்டாம் பருவத்தில் இருந்த கணினியும் இணையமும் பாடம் முதல் பருவத்திற்கு மாற்றப்பட்டுள்ளது. அலகு 1இல் தமிழ் எழுத்துருக்கள் நீக்கப்பட்டு நான்காம் அலகிலிருந்த தமிழ் ஒருங்குறியீட்டு எழுத்துக்கள் சேர்க்கப்பட்டுள்ளது. அலகு 2இல் தமிழ் எழுத்துரு உள்ளீடு, வகைகள், உள்ளிடும் முறை ஆகியனவும் அலகு 3இல் இணையதளம், மரபுசார் கற்பித்தல் முறைகள், நோக்கம், குறிக்கோள், சுவடிக்காட்சியகம் ஆகியனவும் அலகு 4இல் தீர்வு முயற்சிகள், தமிழ்ப்பூக்கள், மரத்தடி ஆகியனவும் அலகு 5இல் மனித வள மேம்பாட்டுத்துறை, தமிழ்நாடு மாநில உயர்கல்வி மன்றம் மற்றும் வேலைவாய்ப்பு இணையதளங்கள் ஆகியனவும் நீக்கப்பட்டுள்ளன.

**கலந்துரையாடலின்போது கூறப்பட்ட ஆலோசனைகள் :**

- நாடகங்களில் புராண நாடகங்கள் நூல் மாற்றலாம்.
- சமய இலக்கியத்தில் திருக்காவலூர் கலம்பகம் படிக்கக் கடினமாக இருக்கும் என்பதால் எளிமையான கிறித்துவக் காப்பியத்தை வைக்கலாம்.
- மக்கள் தகவல் தொடர்பியலில் பயிற்சிக் கட்டுரைகள் வைக்கலாம். வானொலி அறிவிப்பாளர் பயிற்சி தரலாம். வேலைவாய்ப்பு அதிகம் உள்ள செய்தி உள்ளடக்கம் எழுதும் பயிற்சி அளிக்கலாம்.

பின்வரும் தீர்மானம் ஏற்கப்பட்டது :

“தமிழாய்வுத்துறையில் 2022-2023 கல்வியாண்டு முதல் வழங்கப்படும் முதுகலைத் தமிழிலக்கியத்திற்கான பாடநெறிக் கற்றல் முடிவுகள், முதல் பருவத்திற்கான பாட வரையறை மற்றும் பாடத்திட்டமானது அதன் மாற்றங்களுடன் ஆலோசிக்கப்பட்டு அனுமதி வழங்கத் தீர்மானிக்கப்படுகிறது.”

பாடத்திட்டக்குழுவினர் கூறிய ஆலோசனைகளைத் தேவைக்கேற்ப ஏற்றுக்கொள்ளலாம் எனப் பரிந்துரைத்தனர்.

பகுதி எண் : பா.தி.கு./06/04

தேர்வாளர்களை நியமிப்பதற்கான பெயர்ப் பட்டியலைத் திருச்சிராப்பள்ளி காவேரி மகளிர் கல்லூரி(தன்னாட்சி) கல்விக்குழுவுக்குப் பரிந்துரை செய்தல்.

பின்வரும் தீர்மானம் ஏற்கப்பட்டது :

“தேர்வாளர்களை நியமிப்பதற்கான பெயர்ப் பட்டியலிற்கு அனுமதி வழங்கத் தீர்மானிக்கப்படுகிறது.”

பாடத்திட்டக்குழுவினர் கூறிய ஆலோசனைகளைத் தேவைக்கேற்ப ஏற்றுக்கொள்ளலாம் எனப் பரிந்துரைத்தனர்.

பகுதி எண் : பா.தி.கு./06/05

பாடத்திட்டம் உருவாக்கிய குழுவினரைப் பாராட்டுதல்

- பாடத்திட்ட வல்லுநர் குழுத்தலைவர் பாடத்திட்டங்களை உருவாக்க உறுப்பினர்கள் மேற்கொண்ட முயற்சிகளை விளக்கினார்.
- பாடத்திட்ட விளைவுகள், பாடநெறிக் கற்றல் முடிவுகள், பாடநோக்கம், பாடப் பயன்கள், பாடத்திட்டங்கள் ஆகியன மிக நேர்த்தியாக உருவாக்கப்பட்டுள்ளன எனச் சிறப்பாகப் பாராட்டப்பட்டது.

பின்வரும் தீர்மானம் ஏற்கப்பட்டது :

“பாடத்திட்டம் உருவாக்கிய உறுப்பினர்களுக்குப் பாராட்டு தெரிவிக்கத் தீர்மானிக்கப்பட்டது.”

தமிழாய்வுத்துறை உதவிப் பேராசிரியர் முனைவர் மு.அனு அவர்களின் நன்றியுடன்  
இணையவழி பாடத்திட்டக்குழுக்கூட்டம் நிறைவு பெற்றது.

தலைவர்

பாடத்திட்டக்குழுக்கூட்டம்



காவேரி மகளிர் கல்லூரி (தன்னாட்சி)

திருச்சிராப்பள்ளி – 620 018

தமிழாய்வுத்துறை

(2022 – 2023 ஆம் கல்வியாண்டு மாணவியர் சேர்க்கைக்கான  
பாடத்திட்டம்)



பகுதி I தமிழ் (நான்கு பருவங்கள்)

**காவேரி மகளிர் கல்லூரி (தன்னாட்சி)**

**தமிழாய்வுத்துறை  
UG**

**PO1 :** மொழியறிவைப் பெறுவதன் (வழியாக) வாயிலாக சமூகச் சூழலைப் புரிந்து கொள்ளுதல் (சமூக சிந்தனையுடன் கூடிய கல்வித்திறன்)

**PO2 :** தகுந்த நூல்கள் ஊடகங்களைப் பயன்படுத்தி சிந்தனைகளைத் திறம்பட வெளிப்படுத்துதல் மற்றும் சமூக அறிவியல் அணுகு முறைகளைப் பயன்படுத்தி கொள்கை மற்றும் கோட்பாடுகளை மதிப்பிடுதல் (தகுதியுடன் கூடிய திறன் பெறுதல்)

**PO3 :** பன்முகக் கலாச்சாரம் கொண்ட சமூகத்தை எதிர் கொள்வதற்கேற்ற வகையில் ஆராய்ச்சித்திறன் குழு மனப்பான்மை, பயிற்சிப் பணி ஆகிய திறன்களைப், பயிற்சிகளைப் பெறுதல் (மனப்பான்மையை உருவாக்குதல் மற்றும் சிக்கலைத் தீர்த்தல்)

**PO4 :** பல்வேறு வகையான சிக்கல்களைத் தீர்ப்பதற்கு முன்மாதிரிகள், எழுத்தாளர்களின் கருத்துகளைத் தொடர்புபடுத்திப் பயன்படுத்தும் திறன் பெறுதல் (தலைமைப்பண்பு, விமர்சனப் பகுப்பாய்வு)

**PO5 :** அறிவு மற்றும் திறன் வாயிலாக மாறிவரும் பணிச் சூழலை எதிர்கொள்ள, தனிப்பட்ட மற்றும் சமூக வளர்ச்சிக்கேற்ற அறிவியல் மனப்பான்மையை வளர்த்து, வாழ்நாள் கற்றலைப் பெறச் செய்தல்

**UG – PSO**

**PSO1 :** இலக்கியங்கள் மற்றும் இலக்கணங்கள் வாயிலாகச் சமூகச் சிந்தனைகள் மற்றும் மொழித் திறன் பற்றிய அறிவு பெறுதல்

**PSO2 :** இலக்கியம் மற்றும் இலக்கண உருவாக்கம் பற்றிய அறிவு பெற்றுப் படைப்புகள் மற்றும் கோட்பாடுகளை உருவாக்கும் திறன் பெறுதல்

**PSO3 :** இலக்கியங்கள் மற்றும் இலக்கணங்கள் வெளிப்படுத்தும் விழுமியங்களை அறிந்து வாழ்விற்குப் பயன்படுத்தக் கற்றல்

**PSO4 :** இலக்கியங்கள் மற்றும் இலக்கணங்களைக் கற்றல் வழி ஆளுமைத்திறனில் மேம்படுதல்

**PSO5 :** வளர்ந்து வரும் பணித் தேவைகளுக்கேற்ற திறன்களைப் பெறுதல்

காவேரி மகளிர் கல்லூரி (தன்னாட்சி), திருச்சி – 18  
(2022 – 2023 ஆம் கல்வியாண்டு முதல் சேர்க்கை பெறும் மாணவியருக்கு)  
**தமிழாய்வுத்துறை**  
**பகுதி I தமிழ்**

Sem	Part	Course	Title	Course Code	Ins. Hrs / Week	Credit	Exam	Marks		Total
							Hours	Internal	External	
I	I	Language Course – I	இக்கால இலக்கியம்	22ULT1	6	3	3	25	75	100
II		Language Course – II	இடைக்கால இலக்கியமும், புதினமும்	22ULT2	5	3	3	25	75	100
III		Language Course – III	காப்பியமும், நாடகமும்	22ULT3	5	3	3	25	75	100
IV		Language Course – IV	பண்டைய இலக்கியம்	22ULT4	6	3	3	25	75	100



**பாடத்திட்டம்**

**அலகு : 1 (20 மணி)**

- பாரதியார் - 1. எந்தையும் தாயும் மகிழ்ந்து குலாவி  
2. அச்சமில்லை அச்சமில்லை  
3. மனதில் உறுதி வேண்டும்
- பாரதிதாசன் - 1. தமிழ் வளர்ச்சி  
2. இயற்கைச் செல்வம்  
3. கொட்டு முரசே
- கவிமணி - 1. இயற்கை வாழ்வு  
2. கோவில் வழிபாடு
- சுரதா - 1. சிக்கனம்  
2. நம் நாடு
- இலக்கிய வரலாறு - மரபுக்கவிதை

**அலகு : 2 (15 மணி)**

- நாமக்கல் கவிஞர் - 1. புதிய சமுதாயம்  
2. சொல்
- வாணிதாசன் - 1. பாட்டாளி  
2. காந்தி
- கண்ணதாசன் - 1. ஆண்டவன் ஒருநாள் கடை விரித்தான்  
2. கேட்கிறேன் சொல்லுங்கள்
- பட்டுக்கோட்டை கல்யாணசுந்தரம் - 1. படிப்பும் உழைப்பும்  
2. வரும் காலம் உண்டு

**அலகு : 3 (20 மணி)**

- நாட்டுப்புறப் பாடல்கள் - 1. தாலாட்டுப் பாடல் - ஆராரோ ஆரிராரோ ஆறிரண்டும்  
காவேரி  
2. தெம்மாங்குப் பாடல் - காடுவெட்டிக் கல்பொறுக்கிக்  
கம்புசோளம்
- புதுக்கவிதைகள் - 1. இன்குலாப் - ஒரு பூவின் தன் வரலாறு கேட்பது  
2. அப்துல் ரகுமான் - சுயப்பிரசவம்  
3. மு. மேத்தா - ஒரு கடிதம் அனாதையாகிவிட்டது  
4. வைரமுத்து - வாரும் வள்ளுவரே  
5. மீரா - சுயநல அரசியல்  
6. ஈரோடு தமிழன்பன் - சொல்லில் உயர்வு தமிழ்ச் சொல்லே
- ஹைக்கூ கவிதைகள் - 1. அறிவுமதி

2. அமுதபாரதி
3. கபிலன்
4. மு. முருகேஷ்
5. நெல்லை ஜெயந்தா

இலக்கிய வரலாறு - புதுக்கவிதை, ஹைக்கூ, நாட்டுப்புறப் பாடல்கள்

**அலகு : 4 : சிறுகதை (20 மணி)**

- |                      |   |                        |
|----------------------|---|------------------------|
| 1. ந. பிச்சமூர்த்தி  | - | பலூன் பைத்தியம்        |
| 2. தி. ஜானகிராமன்    | - | முள் முடி              |
| 3. மு. வரதராசன்      | - | கட்டாயம் வேண்டும்      |
| 4. அறிஞர் அண்ணா      | - | செவ்வாழை               |
| 5. புதுமைப்பித்தன்   | - | தெரு விளக்கு           |
| 6. கல்கி             | - | கேதாரியின் தாயார்      |
| 7. கு. ப. ராஜகோபாலன் | - | கனகாம்பரம்             |
| 8. ஜெயகாந்தன்        | - | சோற்றுச்சுமை           |
| 9. கு. அழகிரிசாமி    | - | காற்று                 |
| 10. பி. எஸ். ராமையா  | - | நட்சத்திரக் குழந்தைகள் |

**அலகு : 5 : மொழிப்பயிற்சி (15 மணி)**

1. வலி மிகுதலும், மிகாமையும்
2. எழுத்து மாற்றத்தால் ஏற்படும் பொருள் மாற்றம்
3. கடிதம் எழுதுதல்

**அலகு : 6 : மனப்பாடப் பகுதி (சுய கற்றல்)**

1. பாரதியார் - புதிய ஆத்திச்சூடி - கடவுள் வாழ்த்து மட்டும்
2. பாரதிதாசன் - நூலைப்படி சங்கத்தமிழ் நூலைப்படி..
3. கண்ணதாசன் - பிறப்பின் வருவது யாதெனக் கேட்டேன்..
4. கா.மு.ஷெரீப் - மலர்களில் நீயே மணமாவாய்..

**கற்பித்தல் முறைகள்**

குழுக் கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, விவாதம்.

**பாடப்பகுதி வடிவமைப்பாளர்**

**முனைவர் க. ராதிகா**

**இரண்டாம் பருவம்**  
**இடைக்கால இலக்கியமும் புதினமும்**

பாடக்குறியீடு	பாடம்	Category	L	T	P	Credit
22ULT2	இடைக்கால இலக்கியமும் புதினமும்	I	71	4	-	3

**நோக்கம்**

1. பக்தி இலக்கிய உருவாக்கத்திற்கான வரலாற்றுப் பின்னணியை உணர்த்துதல்.
2. பக்தி இலக்கியங்களில் சைவ, வைணவ சமயங்களின் தனித்தன்மையை அறியச்செய்தல்.
3. பக்தி இலக்கியங்களின் வாயிலாகச் சமுதாய நிலையை அறிய வைத்தல்.

**COURSE OUTCOMES**

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Cognitive Level
CO1	இடைக்கால இலக்கியங்கள் உணர்த்தும் சமூகச் சூழலைக் கண்டறிதல்	K1
CO2	இடைக்கால இலக்கியங்களின் மொழிப் பயன்பாட்டினை விளக்கியறிதல்	K2
CO3	சமய இலக்கியங்கள் உணர்த்தும் வாழ்வியல் விழுமியங்களைக் கற்றுப் பயன்படுத்துதல்	K3
CO4	போட்டித் தேர்வுகளுக்கேற்ப இலக்கியம் மற்றும் இலக்கணக் கூறுகளைப் பகுத்தாராய்தல்	K4
CO5	புதினத்தின் வழி சமூகப் பண்பாட்டினை அறிவதுடன் படைப்பாக்க உத்தியினை ஆராய்ந்தறிதல்	K4

**Mapping of CO with Po and PSO**

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	3	3
CO2	2	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	2	3	3	3
CO4	2	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

**பாடத்திட்டம்**

**அலகு 1 : பன்னிரு திருமுறைகள் (15 மணி)**

1. திருஞானசம்பந்தர் : திருவாவடுதுறை பதிகம்

2. திருநாவுக்கரசர் : விடம் தீர்த்த பதிகம்
3. மாணிக்கவாசகர் : திருவாசகம் - திருச்சாழல்
4. இலக்கிய வரலாறு : சைவம்

**அலகு 2 : நாலாயிரத் திவ்யப் பிரபந்தம் (15 மணி)**

1. பெரியாழ்வார் திருமொழி : நான்காம் பத்து - ஒன்பதாம் திருமொழி - திருவரங்கச் சிறப்பு
2. நாச்சியார் திருமொழி : இரண்டாம் திருமொழி
3. குலசேகர ஆழ்வார் : எட்டாம் திருமொழி
4. நம்மாழ்வார் : திருவாய்மொழி - எட்டாம் திருவாய்மொழி
5. இலக்கிய வரலாறு : வைணவம்

**அலகு 3 : சிற்றிலக்கியம் (15 மணி)**

1. தமிழ் விடு தூது - தமிழின் சிறப்பு 17 முதல் 27 வரை
2. அபிராமி அந்தாதி - அன்னையிடம் வேண்டல் 21 முதல் 25 வரை
3. குற்றாலக் குறவஞ்சி - குறத்தி நாட்டுவளம் கூறுதல் :
  - அ) சூர மாங்குயிற் சின்னங்கள்
  - ஆ) நீங்கக் காண்பது
  - இ) ஓடக் காண்பது
4. முக்கூடற்பள்ளு - வித்து வகை
5. தனிப்பாடல்கள் - 1. காளமேகப் புலவர்
  - அ) சங்கரற்கு
  - ஆ) நீர்நிலைகளில்
2. இராமச்சந்திரக் கவிராயர்
  - அ) கல்லைத்தான் மண்ணைத்தான்
3. அவ்வையார்
  - அ) கொடியது கேட்கின்
  - ஆ) அரியது கேட்கின்
6. இலக்கிய வரலாறு : சிற்றிலக்கியம்

**அலகு 4 : புதினம், இலக்கிய வரலாறு (15 மணி)**

1. புதினம் - வாடி வாசல் - சி. சு. செல்லப்பா
2. இலக்கிய வரலாறு : புதினம்

**அலகு 5 : மொழிப்பயிற்சி (15 மணி)**

1. தமிழில் பிறமொழிச் சொற்கள்
2. கலைச் சொல்லாக்கம்
3. நூல் மதிப்புரை

**அலகு 6 : மனப்பாடப் பகுதி (சுய கற்றல்)**

1. திருவாசகம் - அறிவுறுத்தல் (முதல் 8 அடிகள்)



2. திருப்பாவை – முதல் 5 பாடல்கள்
3. கலிங்கத்துப்பரணி – போர் பாடியது (4 பாடல்கள்)
  - I. எடும் எடும் .... (பா.எண் 405)
  - II. வெருவர வரிசிலை .... (பா.எண் 406)
  - III. எறி கடலொடு .... (பா.எண் 407)
  - IV. கனவரையொடு .... (பா.எண் 408)

**கற்பித்தல் முறைகள்**

குழுக் கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, விவாதம்  
பாடப்பகுதி வடிவமைப்பாளர்

முனைவர் பா. கவிதா

**மூன்றாம் பருவம்  
காப்பியமும் நாடகமும்**

பாடக்குறியீடு	பாடம்	Category	L	T	P	Credit
22ULT3	காப்பியமும் நாடகமும்	I	71	4	-	3

**நோக்கம்**

1. தமிழ்க் காப்பியங்களின் செழுமைகளையும் அறக்கருத்துக்களையும் அறிந்து கொள்ளுதல்
2. சமய நல்லிணக்க உணர்வை வளர்த்தல்
3. நாடக இலக்கியத்திறன் அறிதல்

**COURSE OUTCOME**

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Cognitive Level
CO1	காப்பிய இலக்கியங்கள் உணர்த்தும் சமூகச் சூழலைக் கண்டறிதல்	K1
CO2	காப்பிய இலக்கியங்களின் மொழிப் பயன்பாட்டினை விளக்கியறிதல்	K2
CO3	காப்பிய இலக்கியங்கள் உணர்த்தும் வாழ்வியல் விழுமியங்களைக் கற்றுப் பயன்படுத்துதல்	K3
CO4	போட்டித் தேர்வுகளுக்கேற்ப இலக்கியம் மற்றும் இலக்கணக் கூறுகளைப் பகுத்தாராய்தல்	K4
CO5	நாடகம் வழி சமூகப் பண்பாட்டினை அறிவதுடன் படைப்பாக்க உத்தியினை ஆராய்ந்தறிதல்	K4

**Mapping of CO with PO and PSO**

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	3	3
CO2	2	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	2	3	3	3
CO4	2	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

**பாடத்திட்டம்**

**அலகு 1 : (15 மணி)**

1. சிலப்பதிகாரம் : இந்திர விழுவூரெடுத்த காதை
2. மணிமேகலை : பீடிகை கண்டு பிறப்புணர்ந்த காதை

3. சீவக சிந்தாமணி : நாட்டுப்படலம் – (30 – 38, 40)

4. இலக்கிய வரலாறு - காப்பியங்கள் தோற்றமும் வளர்ச்சியும்  
(ஐம்பெருங்காப்பியங்கள் )

**அலகு 2 : (15 மணி)**

1. பெரியபுராணம் : கோச்செங்கட் சோழ நாயனார் புராணம்

2. கம்பராமாயணம் : கையடைப்படலம் (24 பாடல்கள் )

3. திருவிளையாடற்புராணம் : தருமிக்குப் பொற்கிழி அளித்த படலம் - வெவ்விய  
வேலான் வீசும் ..... என்று தொடங்கும் பாடல் முதல் 29 பாடல்கள் (2511 – 2539)

4. இலக்கிய வரலாறு : பெரியபுராணம், கம்பராமாயணம், திருவிளையாடற்  
புராணம்.

**அலகு 3 : (15 மணி)**

1. சீறாப்புராணம் : விருந்தாட்டுப் படலம்

2. இயேசு காவியம் : வர இருந்தவர் வருகிறார்

3. பாஞ்சாலி சபதம் : திரௌபதி கண்ணனுக்குச் செய்யும் பிரார்த்தனை முதல்  
இறுதி வரை (88 – 104)

4. இலக்கிய வரலாறு : சீறாப்புராணம், இயேசு காவியம், பாஞ்சாலி சபதம்.

**அலகு 4 : நாடகம் : (15 மணி)**

1. ரௌத்திரம் பழகு – மு. இராமசாமி

2. இலக்கிய வரலாறு : நாடகத்தின் தோற்றமும் வளர்ச்சியும்

**அலகு 5 : (15 மணி)**

1. வாக்கிய வகைகள்

2. மரபுத் தொடர்கள்

3. கவிதை படைத்தல்

**அலகு 6 : மனப்பாடப் பகுதி (சுய கற்றல்)**

1. சிலப்பதிகாரம் – கானல் வரி (திங்கள் மாலை எனத் தொடங்கும் அடி முதல்  
வாழி காவேரி என்ற அடிவரை 24 வரிகள்)

2. கம்பராமாயணம் – அ) தண்டலை மயில்கள்.. (36, நாட்டுப்படலம் )

ஆ) பஞ்ச ஒளிர்.. (248, சூர்ப்பனகைப்படலம்)

இ) விடுநனி கடிது.. (60, கங்கைப்படலம்)

ஈ) வெய்யோன் ஒளிதன்.. (1926, கங்கைப்படலம்)

**கற்பித்தல் முறைகள்**

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழுவிவாதம்  
பாடப்பகுதி வடிவமைப்பாளர்

முனைவர் தெ. அகிலா

**நான்காம் பருவம்  
பண்டைய இலக்கியம்**

பாடக்குறியீடு	பாடம்	Category	L	T	P	Credit
22ULT4	பண்டைய இலக்கியம்	I	86	4	-	3

**நோக்கம்**

1. தமிழரின் வாழ்வியல் விழுமியங்களை உணர்த்துதல்
2. மொழித்திறன் வளர்த்தல்

**COURSE OUTCOME**

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Cognitive Level
CO1	பண்டைய இலக்கியங்கள் உணர்த்தும் சமூகச் சூழலைக் கண்டறிதல்	K1
CO2	பண்டைய இலக்கியங்களின் மொழிப் பயன்பாட்டினை விளக்கியறிதல்	K2
CO3	பண்டைய இலக்கியங்கள் உணர்த்தும் வாழ்வியல் விழுமியங்களைக் கற்றுப் பயன்படுத்துதல்	K3
CO4	போட்டித் தேர்வுகளுக்கேற்ப இலக்கியம் மற்றும் இலக்கணக் கூறுகளைப் பகுத்தாராய்தல்	K4
CO5	உரைநடை வழி சமூகப் பண்பாட்டினை அறிவதுடன் படைப்பாக்க உத்தியினை ஆராய்ந்தறிதல்	K4

**Mapping of CO with PO and PSO**

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	3	3
CO2	2	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	2	3	3	3
CO4	2	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

**பாடத்திட்டம்**

அலகு 1 : (20 மணி)

1. நற்றிணை

1. கபிலர் – அமுதம் உண்க ... பா.எண் 65
2. கணியன் பூங்குன்றனார் – மரம் சா மருந்தும் ... பா.எண் 226

## 2. குறுந்தொகை

1. திப்புத்தோளார் – செங்களம் படக்கொன்று ... பா.எண் 1
2. பாலை பாடிய பெருங்கடுங்கோ - நசை பெரிதுடையர் ...37
3. ஒக்கூர் மாசாத்தியார் – இளமைபாரார் பா.எண் 126
4. மதுரை நல்வெள்ளியார் – கோடர் இலங்குவளை பா.எண் 365

## 3. கலித்தொகை

1. கண்அகன் இருவிசும்பில் பா.எண் 102

## 4. ஐங்குறுநூறு : 1. அன்னாய் வாழிப் பத்து

## 5. புறநானூறு

1. கடலுள் மாய்ந்த இளம்பெருவழுதி - உண்டால் அம்ம... பா.எண் 11
2. நரி வெருஉத்தலையார் - பல் சான்றீரே பா.எண் 195
3. பாண்டியன் அறிவுடை நம்பி - படைப்பு பல படைத்து பா.எண் 188

## 6. இலக்கிய வரலாறு

1. சங்க இலக்கியம் (எட்டுத்தொகை)

## அலகு 2 : (15 மணி)

1. குறிஞ்சிப்பாட்டு (முழுமையும்)
2. இலக்கிய வரலாறு : சங்க இலக்கியம் (பத்துப்பாட்டு)

## அலகு 3 : (20 மணி)

### 1. திருக்குறள்

1. அதிகாரம் 2 : வான்சிறப்பு
2. அதிகாரம் 10 : இனியவை கூறல்

### 2. நாலடியார்

1. நல்லார் எனத்தாம் – பாடல் எண் 221
2. அறிவது அறிந்து – பாடல் எண் 74
3. யானை அனையவர் – பாடல் எண் 213

### 3. நாண்மணிக்கடிகை

1. கன்றாமை – பாடல் எண் 13
2. மலைப்பினும் – பாடல் எண் 25
3. ஈத்துண்பான், – பாடல் எண் 62

#### 4. இன்னா நாற்பது

1. அறமனத்தார் - பாடல் எண் 6
2. கல்லாதான் ஊரும் - பாடல் எண் 28
3. அடக்கம் உடையவன் - பாடல் எண் 40

#### 5. இனியவை நாற்பது

1. ஊரும் கலிமா - பாடல் எண் 8
2. நடடார்ப் புறங்கூறான் - பாடல் எண் 19
3. வெல்வது வேண்டின் - பாடல் எண் 24

#### 6. இலக்கிய வரலாறு - பதினெண் கீழ்க்கணக்கு

##### அலகு 4 : உரைநடை (20 மணி)

1. கி.வா.ஜகந்நாதன் - தமிழ்த்தாத்தா
2. இலக்கிய வரலாறு - உரைநடை

##### அலகு 5 : (15 மணி)

பத்தி, கட்டுரை எழுதுதல், செம்மொழி வரலாறு

##### அலகு 6 : மனப்பாடப் பகுதி (சுய கற்றல்)

1. குறுந்தொகை - கொங்கு தேர் வாழ்க்கை (பாடல் எண் -2)  
நிலத்தினும் பெரிதே (பாடல் எண் - 3)
2. புறநானூறு - உண்டாலம்ம (பாடல் எண் - 182)  
யாண்டு பலவாகியும் (பாடல் எண் - 191)
3. திருக்குறள் - அறிவுடைமை அதிகாரம்

##### கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழுவிவாதம்  
பாடப்பகுதி வடிவமைப்பாளர்  
திருமதி பொ. அபிராமி

காவேரி மகளிர் கல்லூரி (தன்னாட்சி)

திருச்சிராப்பள்ளி – 620 018

தமிழாய்வுத்துறை

(2022 – 2023 ஆம் கல்வியாண்டு மாணவியர் சேர்க்கைக்கான  
பாடத்திட்டம்)



இளங்கலைத் தமிழிலக்கியம்  
(முதற்பருவம்)

காவேரி மகளிர் கல்லூரி (தன்னாட்சி)

தமிழாய்வுத்துறை

இளங்கலைத் தமிழிலக்கியம் - UG PO

**PO1** மொழியறிவைப் பெறுவதன் (வழியாக) வாயிலாக சமூகச் சூழலைப் புரிந்து கொள்ளுதல் (சமூக சிந்தனையுடன் கூடிய கல்வித்திறன்)

**PO2** தகுந்த நூல்கள் ஊடகங்களைப் பயன்படுத்தி சிந்தனைகளைத் திறம்பட வெளிப்படுத்துதல் மற்றும் சமூக அறிவியல் அணுகு முறைகளைப் பயன்படுத்தி கொள்கை மற்றும் கோட்பாடுகளை மதிப்பிடுதல் (தகுதியுடன் கூடிய திறன் பெறுதல்)

**PO3** பன்முகக் கலாச்சாரம் கொண்ட சமூகத்தை எதிர் கொள்வதற்கேற்ற வகையில் ஆராய்ச்சித்திறன் குழு மனப்பான்மை, பயிற்சிப் பணி ஆகிய திறன்களைப், பயிற்சிகளைப் பெறுதல் (மனப்பான்மையை உருவாக்குதல் மற்றும் சிக்கலைத் தீர்த்தல்)

**PO4** பல்வேறு வகையான சிக்கல்களைத் தீர்ப்பதற்கு முன்மாதிரிகள், எழுத்தாளர்களின் கருத்துகளைத் தொடர்புபடுத்திப் பயன்படுத்தும் திறன் பெறுதல் (தலைமைப்பண்பு, விமர்சனப் பகுப்பாய்வு)

**PO5** அறிவு மற்றும் திறன் வாயிலாக மாறிவரும் பணிச் சூழலை எதிர்கொள்ள, தனிப்பட்ட மற்றும் சமூக வளர்ச்சிக்கேற்ற அறிவியல் மனப்பான்மையை வளர்த்து, வாழ்நாள் கற்றலைப் பெறச் செய்தல்

UG – PSO

**PSO1** – இலக்கியங்கள் மற்றும் இலக்கணங்கள் வாயிலாகச் சமூகச் சிந்தனைகள் மற்றும் மொழித் திறன் பற்றிய அறிவு பெறுதல்

**PSO2** – இலக்கியம் மற்றும் இலக்கண உருவாக்கம் பற்றிய அறிவு பெற்றுப் படைப்புகள் மற்றும் கோட்பாடுகளை உருவாக்கும் திறன் பெறுதல்

**PSO3** – இலக்கியங்கள் மற்றும் இலக்கணங்கள் வெளிப்படுத்தும் விழுமியங்களை அறிந்து வாழ்விற்குப் பயன்படுத்தக் கற்றல்

**PSO4** – இலக்கியங்கள் மற்றும் இலக்கணங்களைக் கற்றல் வழி ஆளுமைத்திறனில் மேம்படுதல்

**PSO5** – வளர்ந்து வரும் பணித் தேவைகளுக்கேற்ற திறன்களைப் பெறுதல்



## (2022 – 2023 ஆம் கல்வியாண்டு முதல் சேர்க்கை பெறும் மாணவியருக்கு)

தமிழாய்வுத்துறை  
இளங்கலைத் தமிழிலக்கியம்

Sem	Part	Course	Title	Course Code	Ins. Hrs / Week	Credit	Exam	Marks		Total	
							Hours	Internal	External		
I	I	Language Course – I (LC) – Tamil / other Languages	இக்கால இலக்கியம்	22ULT1	6	3	3	25	75	100	
			Hindi Literature & Grammar-1	22ULH1							
			Basic French-I	22ULF1							
			History of Popular Tales, Literature and Sanskrit Story	22ULS1							
	II	English Language Course – I (ELC)	Functional English for Effective Communication-1	22UE1	6	3	3	25	75	100	
	III	Core Course – I (CC)	நன்னூல் – எழுத்ததிகாரம் (காண்டிகையுரை)	22UTA1CC1	6	5	3			100	
			Core Course – II (CC)	இக்கால இலக்கியம் - I	22UTA1CC2	6	5	3	25	75	100
			Allied Course – I (AC)	தமிழ் இலக்கிய வரலாறு	22UTA1AC1	4	3	3	25	75	100
	IV	UGC Jeevan Kaushal	Universal Human Values	22UGVE	2	2		25	75	100	
	<b>TOTAL</b>					<b>30</b>	<b>21</b>			<b>600</b>	
II	I	Language Course – II (LC)	இடைக்கால இலக்கியமும், புதினமும்		5	3	3	25	75	100	
			Hindi								
			Basic French-II								
			Sanskrit								
	II	English Language Course – II (ELC)	English		6	3	3	25	75	100	
	III	Core Course – III (CC)	நன்னூல் – சொல்லதிகாரம் (காண்டிகையுரை)		6	5	3			100	
			Core Course – IV (CC)	இக்கால இலக்கியம் - II		6	5	3	25	75	100
			Allied Course – II (AC)	தமிழர் நுண்கலைகள்		5	3	3	25	75	100
	IV	Ability Enhancement Compulsory Course (AECC) -I	சுற்றுச்சூழல் கல்வி Environmental Studies		2	2		25	75	100	
	<b>TOTAL</b>					<b>30</b>	<b>21</b>			<b>600</b>	
III	I	Language Course – III (LC)	காப்பியமும், நாடகமும்		5	3	3	25	75	100	
			Hindi								
			Intermediate – French - I								
			Sanskrit								
	II	English Language Course – III (ELC)	English		6	3	3	25	75	100	
	III	Core Course – V (CC)	யாப்பு அணியும்		6	5	3			100	
			Core Course – VI (CC)	சிறுநிலக்கியம்		5	5	3	25	75	100
			Allied Course – III (AC)	தமிழக வரலாறும் பண்பாடும்		4	3	3	25	75	100
	IV	Ability Enhancement Compulsory Course (AECC)-II	Innovation and Entrepreneurship		2	1		25	75	100	
			Generic Elective (GE) I – for those who studied Tamil under Part I a) Basic Tamil for other language studies b) Special Tamil for those who studied Tamil upto 10 <sup>th</sup> +2 but opt for other languages in degree programme	ஆட்சித் தமிழ்		2	2		25	75	100
அடிப்படைத் தமிழ் - I											
<b>TOTAL</b>					<b>30</b>	<b>22</b>			<b>700</b>		

15 Days Internship during Semester Holidays

Sem	Part	Course	Title	Course Code	Ins. Hrs / Week	Credit	Exam	Marks		Total
							Hours	Internal	External	
IV	I	Language Course – IV (LC)	பண்டைய இலக்கியம்		6	3	3	25	75	100
			Hindi							
			Intermediate – French - II							
			Sanskrit							
	II	English Language Course – IV (ELC)	English		6	3	3	25	75	100
	III	Core Course – VII (CC)	நம்பியகப்பொருள்		5	4	3			100
		Core Course – VIII (CC)	சமய இலக்கியம்		5	4	3	25	75	100
		Allied Course – IV (AC)	கணிணித் தமிழ்		4	3	3	25	75	100
		Internship			-	2		25	75	100
	IV	Generic Elective (GE) II – for those who studied Tamil under Part I a) Basic Tamil for other language studies b) Special Tamil for those who studied Tamil upto 10 <sup>th</sup> +2 but opt for other languages in degree programme	அறிவியல் தமிழ்		2	2	3	25	75	100
			அடிப்படைத் தமிழ் - II Basic Tamil - II							
			திறப்புத்தமிழ் - II Special Tamil - II							
		Skill Enhancement Course (SEC) I	அ) படைப்புக்கலை ஆ) விளம்பரக்கலை		2	2		25	75	100
	<b>TOTAL</b>					<b>30</b>	<b>23</b>			
V	III	Core Course – IX (CC)	ஐம்பெருங்காப்பியங்கள்		5	5	3	25	75	100
		Core Course – X (CC)	பதினெண் கீழ்க்கணக்கு - அறம்		5	5	3	25	75	100
		Core Course – XI (CC)	மொழி வரலாறு		5	5	3	25	75	100
		Core Course – XII (CC)	நாட்டுப்புற இலக்கியங்கள்		5	5	3	25	75	100
		Discipline Specific Elective (DSE) – I	அ) கோயில் கலை		4	3	3	25	75	100
	ஆ) ஊடகத் தமிழ்									
	IV	UGC Jeevan Kushal Life Skills	Professional Skills		2	1	3	25	75	100
		Skill Enhancement Course (SEC) – II	அ) கடிதக்கலை		2	2	3	25	75	100
			ஆ) பேச்சுக்கலை							
	Skill Enhancement Course (SEC) – III	அ) பயன்பாட்டுத்தமிழ் ஆ) செய்தி சேகரித்தலும் செப்பணித்தலும்		2	2	3	25	75	100	
	<b>TOTAL</b>					<b>30</b>	<b>28</b>			
VI	III	Core Course – XIII (CC)	புறப்பொருள் வெண்பாமாலை		6	5	3	25	75	100
		Core Course – XIV (CC)	சங்க இலக்கியம் – அகம்		5	4	3			100
		Core Course – XV (CC)	சங்க இலக்கியம் – புறம்		5	5	3	25	75	100
		Discipline Specific Elective (DSE) II	அ) பயண இலக்கியம்		4	3	3	25	75	100
			ஆ) நாடகவியல்							
	Discipline Specific Elective (DSE) -III	அ) தொல்லியல் (அ)		4	3	3	25	75	100	
		ஆ) தன் வரலாற்று இலக்கியம் – உ.வே.சா.								
	V	Project Work			5	3				100
		Gender Studies	Gender Studies		1	1				100
		Extension Activity	Extension Activity		-	1	-	-	-	-
<b>TOTAL</b>					<b>30</b>	<b>25</b>				<b>700</b>
<b>OVER ALL TOTAL</b>					<b>180</b>	<b>140</b>				<b>4200</b>

**காவேரி மகளிர் கல்லூரி (தன்னாட்சி), திருச்சி – 18**  
**(2022 – 2023 ஆம் கல்வியாண்டு முதல் சேர்க்கை பெறும் மாணவியருக்கு)**  
**தமிழாய்வுத்துறை**  
**இளங்கலைத் தமிழிலக்கியம் - முதற்பருவம்**

Sem	Part	Course	Title	Course Code	Ins. Hrs / Week	Credit	Exam	Marks		Total	
							Hours	Internal	External		
I	I	Language Course – I (LC)	இக்கால இலக்கியம்	22ULT1	6	3	3	25	75	100	
			Hindi Literature & Grammar-1	22ULH1							
			Communication in French-I	22ULF1							
			History of Popular Tales, Literature and Sanskrit Story	22ULS1							
	II	English Language Course – I (ELC)	Functional English for Effective Communication-1	22UE1	6	3	3	25	75	100	
	III	Core Course – I (CC)	நன்னூல் – எழுத்ததிகாரம் (காண்டிகையுரை)	22UTA1CC1	6	5	3	25	75	100	
			Core Course – II (CC)	இக்கால இலக்கியம் - I	22UTA1CC2	6	5	3	25	75	100
			Allied Course – I (AC)	தமிழ் இலக்கிய வரலாறு	22UTA1AC1	4	3	3	25	75	100
	IV	UGC Jeevan Kaushal	Universal Human Values (உலகளாவிய மனித மதிப்புகள்)	22UGVE	2	2	3	25	75	100	
	<b>TOTAL</b>					<b>30</b>	<b>21</b>				<b>600</b>

பாடத்திட்டம்	பாடம்	Category	L	T	P	Credit
22UTA1CC1	நன்னூல் – எழுத்ததிகாரம் (காண்டிகையரை)	III	86	4	-	5

நோக்கம் :

1. தமிழின் ஐந்திலக்கணங்களுள் முதலாவதான எழுத்திலக்கணத்தை அறிவுறுத்தல்
2. தமிழ்மொழி மரபறிந்து பிழையற எழுதவும் பேசவும் வழிவகுத்தல்

### COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Cognitive Level
CO1	இடைக்கால இலக்கணச் சூழலையும், சமூகச் சூழலையும் கண்டறிதல்	K1
CO2	மொழிப் பயன்பாட்டினை விளக்கியறிதல்	K2
CO3	மொழிக்கோட்பாட்டினைக் கண்டறிந்து பயன்படுத்துதல்	K3
CO4	போட்டித் தேர்வுகளுக்கேற்ப இலக்கணக் கூறுகளைப் பகுத்தாராய்தல்	K4
CO5	செய்யுள் உருவாக்கத்திற்குரிய எழுத்திலக்கணக் கூறுகளைப் பகுத்தறிதல்	K4

### Mapping of CO with Po and PSO

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	1	3	3	3	3	3	3	3
CO2	3	3	1	3	3	3	3	3	3	3
CO3	2	3	2	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	1	3	2	3	3	3	3	3	3	3

பாடத்திட்டம்

அலகு : 1 (20 மணி)

பாயிரவியல் (1-55 நூற்பாக்கள்)

அலகு : 2 (20 மணி)

எழுத்தியல் (56-121, 127 நூற்பாக்கள்)

அலகு : 3 (20 மணி)

பதவியல் (128-145 நூற்பாக்கள்)

அலகு : 4 (20 மணி)

உயிரீற்றுப் புணரியல், மெய்யீற்றுப் புணரியல் (151-239 நூற்பாக்கள்)

அலகு : 5 (10 மணி)

உருபு புணரியல் ( 240 - 257 நூற்பாக்கள்)

அலகு : 6 (சுய கற்றல்)

சிறப்புப் பாயிரம், போலி (122 – 125), எழுத்துச்சாரியை (126), வடமொழியாக்கம் (146 – 150)

பாட நூல் :

வ.எண்	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	ஆறுமுக நாவலர் (ப.ஆ.)	நன்னூல் காண்டிகை உரை	ஆறுமுகநாவலர் வி.அச்சகம், 300, தங்கசாலைத் தெரு, சென்னை -1.	1966 (24ஆம் பதிப்பு)

பார்வை நூல்கள் :

வ.எண்	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	சங்கர நமச்சிவாயப் புலவர் (உ.ஆ.)	நன்னூல் விருத்தியுரை	கழக வெளியீடு, சென்னை	1968
2	சண்முகம், செ.வை.	எழுத்திலக்கணக் கோட்பாடு	உலகத் தமிழாராய்ச்சி நிறுவனம், சென்னை	2012

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடப்பகுதி வடிவமைப்பாளர்

முனைவர் மா. ஆசியாதாரா

Web Resources

<https://www.tamilvu.org/ta/library-I0900-html-I0900kan-118186>

பாடத்திட்டம்	பாடம்	Category	L	T	P	Credit
22UTA1CC2	இக்கால இலக்கியம் - I	III	86	4	-	5

### நோக்கம்

1. தமிழில் மரபுக் கவிதை புனையும் கவிஞர்களையும் மரபுக்கவிதைகளையும் அறிமுகம் செய்தல்
2. தமிழில் புதுக் கவிதை புனையும் கவிஞர்களையும் புதுக்கவிதைகளையும் அறிமுகம் செய்தல்
3. உரைநடை இலக்கியத்தின் பயனை எடுத்துரைத்தல்.
4. இக்கால இலக்கியத்தின் மீதான ஆர்வத்தைத் தூண்டுதல்
5. புதிய இலக்கியங்களைப் படைக்கச் செய்தல்.

### COURSE OUTCOME

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Cognitive Level
CO1	இக்கால இலக்கியங்கள் உணர்த்தும் சமூகச்சூழலைக் கண்டறிதல்	K1
CO2	இக்கால இலக்கியங்களின் மொழிப் பயன்பாட்டினை விளக்கியறிதல்	K2
CO3	இக்கால இலக்கியங்கள் உணர்த்தும் வாழ்வியல் விழுமியங்களைக் கற்றுப் பயன்படுத்துதல்	K3
CO4	போட்டித் தேர்வுகளுக்கேற்ப இக்கால இலக்கியக் கூறுகளைப் பகுத்தாராய்தல்	K4
CO5	இக்கால இலக்கியங்கள் வழி சமூகப் பண்பாட்டினை அறிவதுடன் படைப்பாக்க உத்தியினை ஆராய்ந்தறிதல்	K4

### Mapping of CO with PO and PSO

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	3	3
CO2	2	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	2	3	3	3
CO4	2	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

### பாடத்திட்டம்

#### அலகு 1 : கவிதை (15 மணி)

பாஞ்சாலி சபதம் – பாரதியார்

**அலகு 2 : கவிதை (20 மணி)**

புரட்சிக்கவி - பாரதிதாசன்

வணக்கம் வள்ளுவ - ஈரோடு தமிழன்பன்

**அலகு 3 : கவிதை (20 மணி)**

தமிழுக்கு நிறமுண்டு-வைரமுத்து

**அலகு 4 : உரைநடை (20 மணி)**

அறிவுரைக் கொத்து - மறைமலைஅடிகள்

முருகன் அல்லது அழகு - திரு.வி.க (முதல் 5 கட்டுரைகள்)

**அலகு 5 : உரைநடை (15 மணி)**

தமிழ் விருந்து - ரா.பி. சேதுப்பிள்ளை

**அலகு 6 : கவிதை, உரைநடை (சுய கற்றல்)**

கவிதை : கனவுகள் + கற்பனைகள் = காகிதங்கள் - மீரா

உரைநடை: புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும் - வல்லிக்கண்ணன்

பாட நூல்கள் :

வ.எண்	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1.	பாரதியார்	பாரதியார் கவிதைகள்	மணி வாசகர் பதிப்பகம்	2000
2.	பாரதிதாசன்	பாரதிதாசன் கவிதைகள்	மணி வாசகர் பதிப்பகம்	2000
3.	ஈரோடு தமிழன்பன்	வணக்கம் வள்ளுவ	பூம்புகார் பதிப்பகம் பிராட்வே சென்னை	2021
4.	வைரமுத்து	தமிழ்க்க நிறமுண்டு	திருமகள் பதிப்பகம் சென்னை	2010
5.	மறைமலை அடிகள்	அறிவுரைக் கொத்து	மணி வாசகர் பதிப்பகம்	2001
6.	திரு.வி.க	முருகன் அல்லது அழகு	மணி வாசகர் பதிப்பகம்	2001
7.	ரா.பி. சேதுப்பிள்ளை	தமிழ் விருந்து	பழனியப்பா பிரதர்ஸ்	1998
8.	மீரா	கனவுகள் + கற்பனைகள் = காகிதங்கள்	அகரம் பதிப்பகம், தஞ்சாவூர்	1971
9.	வல்லிக்கண்ணன்	புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும்	சீதை பதிப்பகம், சென்னை	2008

**கற்பித்தல் முறைகள்**

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழுவிவாதம்

பாடப்பகுதி வடிவமைப்பாளர்

முனைவர் வி. சத்யவதி

பாடத்திட்டம்	பாடம்	Category	L	T	P	Credit
22UTA1AC1	தமிழ் இலக்கிய வரலாறு	III	56	4	-	3

நோக்கம்

1. தமிழ் இலக்கிய வரலாற்றைக் கற்பித்தல்
2. தமிழ் இலக்கிய நூல்களின் தோற்ற வளர்ச்சியினை அறிதல்
3. தமிழ் இலக்கியங்களின் வடிவ மாற்றத்தினைத் தெளிவுபடுத்துதல்

### COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Cognitive Level
CO1	இலக்கியங்கள் உணர்த்தும் சமூகச் சூழலைக் கண்டறிதல்	K1
CO2	இலக்கியங்களின் மொழிப்பயன்பாட்டினை விளக்கியறிதல்	K2
CO3	இலக்கியங்கள் உணர்த்தும் வாழ்வியல் விழுமியங்களைக் கற்றுப் பயன்படுத்துதல்	K3
CO4	போட்டித் தேர்வுகளுக்கேற்ப இலக்கணக் கூறுகளைப் பகுத்தாராய்தல்	K4
CO5	இலக்கியங்கள் உணர்த்தும் சமூகப் பண்பாட்டினை அறிவதுடன் படைப்பாக்க உத்தியினை ஆராய்ந்தறிதல்	K4

### Mapping of CO with PO and PSO

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

பாடத்திட்டம் :

அலகு : 1 (15 மணி)

சங்கம் பற்றிய செய்திகள் - முச்சங்கங்கள் - அகத்தியம் - தொல்காப்பியம் - சங்க இலக்கியங்கள் - பத்துப்பாட்டு , எட்டுத்தொகை.

அலகு : 2 (10 மணி)



சங்கம் மருவிய கால இலக்கியங்கள் - இரட்டைக்காப்பியங்கள்  
பதினெண் கீழ்க்கணக்கு நூல்கள்

**அலகு : 3 (15 மணி)**

பக்தி இலக்கியங்கள் - சைவம், வைணவம் - காப்பியங்கள் - சீவகசிந்தாமணி,  
கம்பராமாயணம், சீறாப்புராணம், தேம்பாவணி, ஐஞ்சிறு காப்பியங்கள்.

**அலகு : 4 (10 மணி)**

சிற்றிலக்கியங்கள் - பிள்ளைத்தமிழ்- கலம்பகம் - உலா - தூது - குறவஞ்சி -  
பரணி - பள்ளு - தனிப்பாடல்கள்.

**அலகு : 5 (10 மணி)**

உரைநடை, மரபுக்கவிதை, புதுக்கவிதை, சிறுகதை , புதினம்.

**அலகு : 6 (சுய கற்றல்)**

இறையனார் அகப்பொருள் - முத்தொள்ளாயிரம் - பெரியபுராணம் - அந்தாதி -  
நாடகம்.

**பாட நூல்**

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1.	சு.ஆனந்தன்	தமிழ் இலக்கிய வரலாறு	கண்மணி பதிப்பகம் 23, சங்கரன் பிள்ளை சாலை, திருச்சி - 02	2002
<b>பார்வை நூல்கள்</b>				
1	மு.வரதராசன்	தமிழ் இலக்கிய வரலாறு	சாகித்திய அகாதெமி, சென்னை.	1970
2	முனைவர் பாக்கியமேரி	வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு	நியு செஞ்சூரி புக் ஹவுஸ் (பி) லிட், சென்னை.	2011

**கற்பித்தல் முறைகள்**

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழுவிவாதம்  
பாடப்பகுதி வடிவமைப்பாளர்

முனைவர் இரா. வனிதா

காவேரி மகளிர் கல்லூரி (தன்னாட்சி)

திருச்சிராப்பள்ளி – 620 018

தமிழாய்வுத்துறை

(2022 – 2023 ஆம் கல்வியாண்டு மாணவியர் சேர்க்கைக்கான  
பாடத்திட்டம்)



முதுகலைத் தமிழிலக்கியம்

(முதற்பருவம்)

காவேரி மகளிர் கல்லூரி (தன்னாட்சி)

தமிழாய்வுத்துறை

முதுகலைத் தமிழிலக்கியம் - PG PO

**PO1** சமுதாயத்தில் எழும் பிரச்சனைகள் மற்றும் சவால்களை எதிர்கொள்வதில் விரிவான அறிவை வெளிப்படுத்துதல் மற்றும் வாழ்க்கை சூழலில் அக்கல்வியறிவைப் பயன்படுத்துதல் (சமூகப் பொறுப்புணர்வு)

**PO2** சமுதாயத்திற்கு சிறந்த பங்களிப்பை வழங்கல், பல்வேறு வகையான இலக்கிய நூல்களில் ஆழமான அறிவைப் பெறுதல் (இலக்கை அடைதல்)

**PO3** மேம்பட்ட கற்றலின் மூலம் தலைமைத்துவத் திறன்களை உணர்ந்து இலக்கை அடைவதற்கான தொலைநோக்குப் பார்வை பெறுதல் (தொழில்முறைத் திறன்)

**PO4** ஆராய்ச்சித் திட்டங்களுக்குத் தேவையான ஆதாரங்களைக் கண்டறிதல் மற்றும் பயிற்சிப் பணியின் (Internship) மூலம் பெற்ற அனுபவத்தைக் கொண்டு வாழ்வியலுக்கான புதிய சிந்தனைகளைப் பெறுதல் (புதுமைகளைக் கண்டறிதல்)

**PO5** உயர்கல்வி மற்றும் தொழில் வாய்ப்புகளுக்கான ஆராய்ச்சிப் படிப்புகளை மேற்கொள்வதற்கான அறிவியல் மனப்பான்மை மற்றும் திறனை உருவாக்குதல் (அறிவியல் மனப்பான்மையை உருவாக்குதல்)

### PG – PSO

**PSO1** – சமூகச் சிந்தனைகள் மற்றும் மேம்பட்ட மொழித்திறன் பெற்று சிறந்த முறையில் மொழியைக் கையாளும் திறன் பெறுதல்

**PSO2** – பல்வேறு அணுகுமுறைகளைக் கற்றுத் திறனாயும் திறனைப்பெறுதல்

**PSO3** – களப்பணி, ஆராய்ச்சிப்பணி வாயிலாக ஆய்வுத்திறனையும் தலைமைத்துவத் திறன்களையும் பெறுதல்

**PSO4** – சமூகப் பொறுப்புணர்ந்து புதிய சிந்தனைகளைப் பெற்று புதிய படைப்பாக்கங்களை உருவாக்கும் திறன் பெறுதல்

**PSO5** – மாறிவரும் பணிச் சூழலுக்கேற்பவும் போட்டித் தேர்வுகளுக்கேற்பவும் அறிவுத்திறன் பெறுதல்.

**காவேரி மகளிர் கல்லூரி (தன்னாட்சி), திருச்சி - 18**  
**LOCF பாடத்திட்டம்**  
**(2022 - 2024 ஆம் கல்வியாண்டு முதல் சேர்க்கை பெறும் மாணவியருக்கு)**  
**தமிழாய்வுத்துறை - முதுகலைத் தமிழிலக்கியம்**

Sem	Course	Title	Course Code	Ins. Hrs / Week	Credit	Exam	Marks		Total	
						Hours	Internal	External		
I	Core Course – I (CC)	தொல்காப்பியம் – எழுத்ததிகாரம் (நச்சினார்க்கினியர் உரை)	22PTA1CC1	6	5	3	25	75	100	
	Core Course – II (CC)	புதுக்கவிதையும் நாடகமும்	22PTA1CC2	6	5	3	25	75	100	
	Core Course – III (CC)	சமய இலக்கியமும், சித்தர் இலக்கியமும்	22PTA1CC3	6	4	3	25	75	100	
	Core Course – IV (CC)	இலக்கிய உரையாசிரியர்கள்	22PTA1CC4	6	4	3	25	75	100	
	Elective Course – I (EC)		கணினியும் இணையமும் (அ)	22PTA1EC1A	6	4	3	25	75	100
			மக்கள் தகவல் தொடர்பியல் (அ)	22PTA1EC1B						
தமிழ் இலக்கண வரலாறு			22PTA1EC1C							
				<b>30</b>	<b>22</b>				<b>500</b>	
II	Core Course – V (CC)	தொல்காப்பியம் – சொல்லதிகாரம் (சேனாவரையர் உரை)		6	5	3	25	75	100	
	Core Course – VI (CC)	புனைகதையும் உரைநடையும்		6	5	3	25	75	100	
	Core Course – VII (CC)	காப்பியங்கள்		6	4	3	25	75	100	
	Core Course – VIII (CC)	இலக்கண உரையாசிரியர்கள்		6	4	3	25	75	100	
	Elective Course – II (EC)		ஆராய்ச்சி நெறிமுறைகள் (அ)		6	2	3	25	75	100
			கல்வெட்டியல் (அ)							
இலக்கிய இயக்கங்கள்										
Internship				-	2				<b>100</b>	
				<b>30</b>	<b>24</b>				<b>600</b>	
III	Core Course – IX (CC)	தொல்காப்பியம் – I பொருளதிகாரம் – முன் ஐந்து இயல்கள் (இளம்பூரணர் உரை)		6	5	3	25	75	100	
	Core Course – X (CC)	அற இலக்கியம்		6	5	3	25	75	100	
	Core Course – XI (CC)	போட்டித்தேர்வுத் தமிழ்		6	4	3	25	75	100	
	Core Course – XII (CC)	மொழிபெயர்ப்பு இலக்கியங்கள்		6	4	3	25	75	100	
	Elective Course – III (EC)		மொழியியல் (அ)		6	4	3	25	75	100
			அகராதியியல் (அ)							
ஒப்பிலக்கியம்										
				<b>30</b>	<b>22</b>				<b>500</b>	
IV	Core Course – XIII (CC)	தொல்காப்பியம் – II பொருளதிகாரம் – பின் நான்கு இயல்கள் (பேராசிரியர் உரை)		5	5	3	25	75	100	
	Core Course – XIV (CC)	சங்க இலக்கியம்		5	5	3	25	75	100	
	Elective Course – IV (EC)		இலக்கிய தினாய்வும் கொள்கையும் (அ)		5	4	3	25	75	100
			பண்பாட்டு மானுடவியல்							
	Elective Course – V (EC)		பாரதியம் (அ)		5	4	3	25	75	100
			பெண்ணியம் (அ)							
			கம்பன்							
திட்டக்கட்டுரை				10	4	3	-	-	100	
<b>TOTAL</b>				<b>30</b>	<b>22</b>				<b>500</b>	
<b>OVER ALL TOTAL</b>				<b>120</b>	<b>90</b>	-	-	-	<b>2100</b>	

காவேரி மகளிர் கல்லூரி (தன்னாட்சி), திருச்சி – 18

LOCF பாடத்திட்டம்

(2022 – 2024 ஆம் கல்வியாண்டு முதல் சேர்க்கை பெறும் மாணவியருக்கு)

தமிழாய்வுத்துறை

முதுகலைத் தமிழிலக்கியம் - முதற்பருவம்

Sem	Course	Title	Course Code	Ins. Hrs / Week	Credit	Exam	Marks		Total	
						Hours	Internal	External		
I	Core Course – I (CC)	தொல்காப்பியம் – எழுத்ததிகாரம் (நச்சினார்க்கினியர் உரை)	22PTA1CC1	6	5	3	25	75	100	
	Core Course – II (CC)	புதுக்கவிதையும் நாடகமும்	22PTA1CC2	6	5	3	25	75	100	
	Core Course – III (CC)	சமய இலக்கியமும், சித்தர் இலக்கியமும்	22PTA1CC3	6	4	3	25	75	100	
	Core Course – IV (CC)	இலக்கிய உரையாசிரியர்கள்	22PTA1CC4	6	4	3	25	75	100	
	Elective Course – I (EC)		கணினியும் இணையமும் (அ)	22PTA1EC1A	6	4	3	25	75	100
			மக்கள் தகவல் தொடர்பியல் (அ)	22PTA1EC1B						
			தமிழ் இலக்கண வரலாறு	22PTA1EC1C						
				<b>30</b>	<b>22</b>				<b>500</b>	

பாடத்திட்டம்	பாடம்	Category	L	T	P	Credit
22PTA1CC1	தொல்காப்பியம் – எழுத்ததிகாரம் (நச்சினார்க்கினியர் உரை)	CC	86	4	-	5

### நோக்கம்

- மாணவர்களுக்குத் தமிழ் எழுத்துக்கள் தொடர்பான புலமையை மேம்படுத்துதல்
- எழுத்திலக்கணக் கோட்பாட்டை உருவாக்கச் செய்தல்

### COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Cognitive Level
CO1	பண்டைக்கால இலக்கணச் சூழலையும் சமூகச் சூழலையும் கண்டறிதல்	K3
CO2	தமிழின் பண்டைக்கால மொழிப் பயன்பாட்டை விளக்கியறிதல்	K3
CO3	மொழிக்கோட்பாட்டினைக் கண்டறிந்து பயன்படுத்துதல்	K3
CO4	பணி வாய்ப்புகளுக்கும் போட்டித் தேர்வுகளுக்கும் ஏற்ப இலக்கணக் கூறுகளைப் பகுத்தாராய்தல்	K4
CO5	செய்யுள் உருவாக்கத்திற்குரிய எழுத்திலக்கணக் கூறுகளை ஆராய்ந்தறிதல்	K5

### Mapping with CO, PO & PSO :

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	3	3	3	3	3	3	3	3
CO2	1	2	3	3	3	3	3	1	1	3
CO3	1	1	3	3	3	3	3	3	3	3
CO4	1	1	3	3	3	3	3	2	2	3
CO5	1	3	3	3	3	3	3	1	3	3

### பாடத்திட்டம்

அலகு : 1 (20 மணி)

நூன்மரபு, மொழிமரபு (1-82 நூற்பாக்கள்)

அலகு : 2 (20 மணி)

பிறப்பியல், புணரியல் (83-142 நூற்பாக்கள்)

அலகு : 3 (20 மணி)

தொகைமரபு, உருபியல் (143-202 நூற்பாக்கள்)

**அலகு : 4 (20 மணி)**

உயிர்மயங்கியல், புள்ளிமயங்கியல் (203-382 நூற்பாக்கள்) (383 – 405 நீங்கலாக)

**அலகு : 5 (10 மணி)**

குற்றியலுகரப் புணரியல் (406-483 நூற்பாக்கள்)

**அலகு : 6 (சுய கற்றல்)**

முகர, ளகர ஈற்றுப்புணர்ச்சி (383 – 405 நூற்பாக்கள்)

**பாட நூல் :**

வ.எண்	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	நச்சினார்க்கினியர் (உ.ஆ.)	தொல்காப்பியம் - எழுத்ததிகாரம்	கழக வெளியீடு, சென்னை	1965

**பார்வை நூல் :**

வ.எண்	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	சண்முகம், செ.வை.	எழுத்திலக்கணக் கோட்பாடு	உலகத் தமிழாராய்ச்சி நிறுவனம், சென்னை	2012

**கற்பித்தல் முறைகள்**

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழுவிவாதம்  
பாடப்பகுதி வடிவமைப்பாளர்

முனைவர் மா. ஆசியாதாரா

பாடத்திட்டம்	பாடம்	Category	L	T	P	Credit
22PTA1CC2	புதுக்கவிதையும் நாடகமும்	CC	86	4	-	5

### நோக்கம்

1. கவிதையின் வடிவங்களையும் கவிதைக்கான களங்களையும் அறிமுகம் செய்வது
2. நவீனத் தமிழ்க் கவிதைகளின் போக்குகளை அறிவது
3. கவிதைகளின் உருவ உள்ளடக்க மாற்றங்களை அறிவது
4. நாடக இலக்கியத்தின் பன்முகத் தன்மையினை அறியச் செய்வது
5. நாடக இலக்கியம் காலந்தோறும் பெற்ற மாற்றங்களை அறியச் செய்வது

### COURSE OUTCOME

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Cognitive Level
CO1	இக்கால இலக்கியங்கள் உணர்த்தும் சமூகச்சூழலைப் பகுத்தறிதல்	K4
CO2	இக்கால இலக்கியங்களின் மொழிப்பயன்பாட்டினை விளக்கியறிதல்	K3
CO3	இக்கால இலக்கியங்கள் உணர்த்தும் வாழ்வியல் விழுமியங்களைக் கற்றுப் பயன்படுத்துதல்	K3
CO4	போட்டித் தேர்வுகளுக்கேற்ப இக்கால இலக்கியக் கூறுகளைப் பகுத்தாராய்தல்	K4
CO5	நாடகம் வழி சமூகப் பண்பாட்டினை அறிவதுடன் படைப்பாக்க உத்தியினை ஆராய்ந்தறிதல்	K5

### Mapping of CO with PO and PSO

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	3	3
CO2	2	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	2	3	3	3
CO4	2	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

### பாடத்திட்டம்

#### அலகு 1 : கவிதை

குயில் பாட்டு – பாரதியார்



குடும்ப விளக்கு - பாரதிதாசன்

**அலகு 2 : கவிதை**

சுட்டுவிரல் - அப்துல் ரகுமான்

கண்ணீர்ப் பூக்கள் - மு.மேத்தா

**அலகு 3 : கவிதை, நாடகம்**

இன்னொரு தேசியகீதம் - வைரமுத்து

வேலைக்காரி - அறிஞர் அண்ணா

**அலகு 4 : நாடகம்**

மனோன்மணியம் - பேராசிரியர் சுந்தரம்பிள்ளை

**அலகு 5 : நாடகம்**

ஆதி அத்தி - பெ.தூரன்

ஆதிரை - சிற்பி

**அலகு 6 : (சுய கற்றல்)**

கவிதை : வீரத்தாய் - பாரதிதாசன்

நாடகம் : தண்ணீர் தண்ணீர் - கோமல் சுவாமிநாதன்

**பாட நூல்கள் :**

வ.எண்	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1.	பாரதியார்	பாரதியார் கவிதைகள்	மணி வாசகர் பதிப்பகம்	2000
2.	பாரதிதாசன்	குடும்ப விளக்கு	மணி வாசகர் பதிப்பகம்	1992
3.	அப்துல் ரகுமான்	சுட்டுவிரல்	நேஷனல் பப்ளிஷர்ஸ் 2 வடக்கு உஸ்மான் சாலை திநகர் சென்னை	2018
4.	மு.மேத்தா	கண்ணீர் பூக்கள்	குமரன் பதிப்பகம் தி நகர் சென்னை	2009
5.	வைரமுத்து	இன்னொரு தேசியகீதம்	சூர்யா இலக்கியம் சென்னை	2013
6.	அறிஞர் அண்ணா	வேலைக்காரி	பூம்புகார் பிரசுரம் பிரஸ் 63 பிராட்வே சென்னை	1980
7.	பேராசிரியர் சுந்தரம்பிள்ளை	மனோன்மணியம்	நறுமலர்ப் பதிப்பகம் சென்னை	1992
8.	பெ.தூரன்	ஆதி அத்தி	நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை	2019
9.	சிற்பி	ஆதிரை	கோலம் வெளியீடு பொள்ளாச்சி	2003
10.	பாரதிதாசன்	பாரதிதாசன் கவிதைகள் (வீரத்தாய்)	மணிவாசகர் பதிப்பகம்	2000
11.	கோமல் சுவாமிநாதன்	தண்ணீர் தண்ணீர்	வானதி பதிப்பகம், சென்னை	1981

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழுவிவாதம்  
பாடப்பகுதி வடிவமைப்பாளர்

முனைவர் தி. மணிமொழி

பாடத்திட்டம்	பாடம்	Category	L	T	P	Credit
22PTA1CC3	சமய இலக்கியமும் சித்தர் இலக்கியமும்	CC	86	4	-	4

நோக்கம்

1. சமய இலக்கியங்கள் வழி பல்வேறு சமயங்களின் தனித்தன்மையை அறியச் செய்தல்.
2. சமய இலக்கியங்கள் வாயிலாக சமுதாய நிலையை அறியச்செய்தல்
3. மனித உடல் உள்ளம் சார்ந்த சித்தர்களின் கருத்துக்களைக் கற்பித்தல்
4. மனித வாழ்வியல் குறித்த சிந்தனைகளை எடுத்துரைத்தல்

## COURSE OUTCOME

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Cognitive Level
CO1	சமய ஒருமைப்பாட்டுச் சிந்தனைத்திறன் பெறுதல்	K1
CO2	அக்காலகட்ட மொழிப்பயன்பாட்டினை விளக்கியறிதல்	K2
CO3	சமய இலக்கியங்களின் வழி மனிதகுல மேம்பாட்டிற்கான விழுமியங்களைக் கற்றுப் பயன்படுத்துதல்	K3
CO4	சமயங்களுக்கு இடையேயான தனித்தன்மையையும் இறைக்கோட்பாடுகளையும், கொள்கைகளையும் மதிப்பிடல்	K4
CO5	சமய இலக்கியங்கள் மற்றும் சித்தர் பாடல்கள் வழி சமுதாய நிலையை ஆராய்ந்து அறிதல்	K5, K6

## Mapping with PO & PSO :

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	2	2
CO2	1	3	1	3	3	3	3	2	2	2
CO3	3	3	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	2	2	2
CO5	3	3	2	3	2	3	3	2	2	2

## பாடத்திட்டம்

### அலகு 1 : சைவம் (20 மணி)

திருஞானசம்பந்தர் : முதல் திருமுறை - திருச்சிராப்பள்ளி திருப்பதிகம் "நன்றுடையானை" (11 பதிகங்கள்)

திருநாவுக்கரசர் : நான்காம் திருமுறை - திருஅங்கமாலை "தலைவணங்காய்" (12 பதிகங்கள்)

சுந்தரர் : ஏழாம் திருமுறை - திருத்தொண்டர்தொகை - "தில்லைவாழ் அந்தணர்" (11 பதிகங்கள்)

மாணிக்கவாசகர் : சிவபுராணம் முழுவதும்

### அலகு 2 : வைணவம் (20 மணி)

ஆண்டாள் : திருப்பாவை (30 பாசுரங்கள்)

பெரியாழ்வார் : மூன்றாம் திருமொழி - கண்ணன் தாலாட்டு (10 பாசுரங்கள்)

தொண்டரடிப் பொடியாழ்வார் : திருப்பள்ளியெழுச்சி (10 பாசுரங்கள்)  
அலகு 3 : இஸ்லாமியமும் கிறித்தவமும் (20 மணி)

மு. மேத்தா : நாயகம் ஒரு காவியம் – கொள்கைப் போர்க்களம், மனையறம், அரவணைக்கும் கரங்கள், வரவேற்கும் இயற்கை, போர் முரசு

கண்ணதாசன் : இயேசு காவியம் – மலைப் பொழிவு

அலகு 4 : சித்தர் பாடல்கள் (15 மணி)

பாம்பாட்டிச் சித்தர் : பொருளாசை விலக்கல் (9 பாடல்கள்)

குதம்பைச் சித்தர் : 1 முதல் 20 பாடல்கள்

சிவவாக்கியர் : பாடல் எண் 43 முதல் 50, 52 முதல் 58 (15 பாடல்கள்)

பட்டினத்தார் : தாயாருக்குத் தகன கிரியை செய்யும்போது பாடியது (10 பாடல்கள்)

அலகு 5 : திருமந்திரம் (15 மணி)

முக்குற்றம் – முப்பலம் – முப்பரம் – முத்துரியம் – மும்முத்தி – முச்சொருபம் – முக்கரணம் – முச்சூனிய தொந்தத் தசி – முப்பாழ் (51 பாடல்கள்)

அலகு 6 : (சுய கற்றல்)

திருஞானசம்பந்தர் : முதல் திருமுறை – திருப்பிரம்மபுரம் திருப்பதிகம் “தோடுடைய செவியன்” (11 பதிகங்கள்)

குலசேகர ஆழ்வார் : பெருமாள் திருமொழி – “ஊனேறு செல்வத்து” (11 பாடல்கள்)

திருமூலர் : யாக்கை நிலையாமை (முதல் 10 பாடல்கள்)

பார்வை நூல்

வ.எண்	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1.	புலவர் வீ. சிவஞானம் (உ.ஆ.)	திருஞானசம்பந்தர் தேவாரம் மூலமும் உரையும்	விஜயா பதிப்பகம், சென்னை	2016
2.	புலவர் வீ. சிவஞானம் (உ.ஆ.)	திருநாவுக்கரசர் தேவாரம் மூலமும் உரையும்	விஜயா பதிப்பகம், சென்னை	2015
3.	புலவர் வீ. சிவஞானம் (உ.ஆ.)	சுந்தரர் தேவாரம் மூலமும் உரையும்	விஜயா பதிப்பகம், சென்னை	2011
4.	கா. சுப்பிரமணிய பிள்ளை (உ.ஆ.)	திருவாசகம் மூலமும் உரையும்	ராமையா பதிப்பகம், சென்னை	2014
5.	நாராயண வேலுப்பிள்ளை (உ.ஆ.)	நாலாயிர திவ்ய பிரபந்தம்	சாரதா பதிப்பகம், சென்னை.	2008
6.	மு. மேத்தா	நாயகம் ஒரு காவியம்	ரஹ்மத் பதிப்பகம், சென்னை.	பிப்ரவரி 2011

7.	கண்ணதாசன்	இயேசு காவியம்	கண்ணதாசன் பதிப்பகம், சென்னை.	2014
8.	இளமுனைவர் தமிழ்ப்பிரியன் (உ. ஆ.)	சித்தர் பாடல்கள் (மூலமும் உரையும்)	கற்பகம் புத்தகாலயம், சென்னை.	2019

**கற்பித்தல் முறைகள்**

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழுவிவாதம்

**பாடப்பகுதி வடிவமைப்பாளர்**

முனைவர் ப. சசிரேகா

பாடத்திட்டம்	பாடம்	Category	L	T	P	Credit
22PTA1CC4	இலக்கிய உரையாசிரியர்கள்	CC	86	4	-	4

நோக்கம்

1. தமிழ்மொழியின் வளர்ச்சிக்கு வித்திட்ட உரையாசிரியர்களின் பணிகளை எடுத்தரைத்தல்.
2. தமிழ் ஆராய்ச்சியின் வளர்ச்சிக்கு உரைகளின் பங்களிப்பை விளக்கியுரைத்தல்.
3. இலக்கியத்தில் உரைநடையின் பயனை எடுத்துரைத்தல்.
4. உரைகளின் சிறப்பு, உரையாசிரியர்களின் தனித்திறமைகளை இனங்காணல்.

COURSE OUTCOME

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Cognitive Level
CO1	உரையாசிரியர்கள் காலச் சமூகச்சூழல், மொழித்திறனை விவரித்தல்	K3
CO2	உரையாசிரியர்களின் உரைகளின் வழி ஆய்வு அணுகுமுறைகளை ஒப்பிட்டு நோக்குதல்	K3
CO3	பல்வேறு உரைகளைக் கற்பதன் வழி திறனாயும் திறன் பெறல்	K4
CO4	உரையாசிரியர்கள் உணர்த்தும் சமூக அடிப்படையிலான படைப்பாக்க உத்தியினை ஆராய்ந்தறிதல்	K5
CO5	போட்டித்தேர்வுகளுக்கேற்ற வகையில் உரையாசிரியர்களின் உரைத்திறனை வகைப்படுத்தி அறிதல்	K6

Mapping with CO, PO & PSO :

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	3	3
CO2	2	3	3	3	3	3	3	3	3	3
CO3	2	3	3	3	3	2	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

பாடத்திட்டம்

அலகு 1 :

உரைஅறிமுகம் - உரையின் தோற்றமும் வளர்ச்சியும் - உரையாசிரியர்கள் -  
உரையின் வகைகள் - உரையும் உரைநடையும் - உரையும் திறனாய்வும்

அலகு 2 :

இலக்கிய உரையாசிரியர்கள் - பத்துப்பாட்டு உரைகள்-எட்டுத்தொகை  
உரைகள் - பதினெண் கீழ்க்கணக்கு உரைகள் - புதிய உரைகள்

அலகு 3 :

காப்பிய உரையாசிரியர்கள் - அரும்பத உரையாசிரியர்கள் - அடியார்க்கு நல்லார்  
- சீவக சிந்தாமணி உரை - கம்பராமாயண உரை - நாலாயிர திவ்யப்பிரபந்த  
வியாக்யானங்கள்

அலகு 4 :

சமய நூல் உரையாசிரியர்கள் - திருமுறை உரைகள் - சைவ சித்தாந்த உரைகள் -  
சைவ சாத்திர உரைகள்.

அலகு 5 :

பதிப்பாசிரியர்கள் - மேற்கோள் பாடல்கள் - இடைச்செருகல் - உரையில்லாத  
நூல்கள் - மறைந்து போன உரை நூல்கள்

அலகு 6 : (சுய கற்றல்)

பத்தொன்பதாம் நூற்றாண்டு உரையாசிரியர்கள் - இருபதாம் நூற்றாண்டு  
உரையாசிரியர்கள்

பாட நூல் :

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1.	மு.வை.அரவிந்தன்	உரையாசிரியர்கள்	மணி வாசகர் பதிப்பகம்	1995

பார்வை நூல்கள் :

வ.எண்	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1.	ஆ.மணி	குறுந்தொகை உரைநெறிகள்	தமிழன்னை ஆய்வகம் புதுச்சேரி	2011
2.	இ.சுந்தரமூர்த்தி	பரிமேலழகர் திருக்குறள் உரைத்திறன்	மெய்யப்பன் பதிப்பகம் சிதம்பரம்	1977

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழுவிவாதம்  
பாடப்பகுதி வடிவமைப்பாளர்

முனைவர் மு. ஜெயலெட்சுமி

பாடத்திட்டம்	பாடம்	Category	L	T	P	Credit
22PTA1EC1A	கணினியும் இணையமும்	EC	86	4	-	4



## நோக்கம்

1. கணினியின் வரலாற்றையும் செயல்பாட்டையும் விளக்குதல்
2. கணினித்தமிழின் வளர்ச்சிநிலைகளை அறியச்செய்தல்
3. இணையத்தின் வரலாற்றினையும் முக்கியத்துவத்தினையும் உணர்த்துதல்
4. இணையத்தில் தமிழ்மொழி பெற்றுள்ள செல்வாக்கினைக் கண்டறிதல்

## COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Cognitive Level
CO1	கணினியின் வரலாற்றையும் செயல்பாட்டையும் அறிந்து, கணினி மொழித்திறனில் மேம்பாடு அடைதல்	K3
CO2	பல்வேறு தமிழ் எழுத்துருக்களை அறிந்து தட்டச்சு செய்யும் பயிற்சியைப் பெறுதல்	K4
CO3	கணினியில் கோப்பு உருவாக்கம் மற்றும் காட்சிவில்லை வடிவமைக்கும் முறையைக் கற்று ஆய்வேடு வடிவமைத்தல்	K5
CO4	போட்டித் தேர்வுகளுக்குப் பங்கேற்கும் வகையில் கணினித்தமிழ் குறித்த ஆழ்ந்த அறிவுபெறுதல்	K6
CO5	பணிச்சூழலுக்கு ஏற்ற வகையில் தகவல் தொடர்பு சாதனைங்களை கையாளும் திறன் பெறுதல்	K5

## Mapping with CO, PO & PSO :

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	3	3	3	1	1	3	3	3
CO2	1	1	3	3	3	3	1	3	3	3
CO3	1	2	3	3	3	1	1	3	3	3
CO4	1	2	3	3	3	3	1	3	3	3
CO5	1	1	3	3	3	3	2	3	3	3

## பாடத்திட்டம்

### அலகு 1 : (15 மணி)

கணினியின் வரலாறு - வளர்ச்சி - வகைப்பாடு - கட்டமைப்பு - செயல்படும் விதம்- வன்பொருள், மென்பொருள் - வகைகள் - கணினியும் பயன்பாடும் - கணினியும் தமிழும் - MS.WORD அறிமுகம் - தமிழ் எழுத்துகள், ஒருங்குறியீட்டின் சிறப்பு எழுத்துருக்கள், எழுத்துரு உள்ளீடு - ஆவணம் தயாரித்தல்- ஆய்வேடு தயாரித்தல் - பக்க அமைப்பு, வரி

இடைவெளி, பக்க ஒழுங்கு, பக்க எண்ணிடல், அட்டவணையிடுதல் - அச்செடுக்கும்போது கவனத்தில் கொள்ள வேண்டியவை.

அலகு 2 : (20 மணி)

MS. EXCEL அறிமுகம் - தமிழ்எழுத்துரு உள்ளீடு - கணக்கிடும் முறை - அட்டவணை தயாரித்தல், வரைபடம் தயாரித்தல் - வகைகள் - உள்ளிடும் முறை - MS. Powerpoint அறிமுகம் - திரைப்படங்களை வகைகள் - தேர்ந்தெடுத்தல் - எழுத்துருக்கள் உள்ளீடு - வண்ணங்கள் தேர்ந்தெடுத்தல் - படங்கள், வரைபடங்கள், அட்டவணைகள் தயாரித்து உள்ளிடும் முறைகள் - அனிமேசன்ஸ் - எஃபெக்ட் - திரைப்படங்களை தயாரிக்கும் முறை - காட்சிப்படுத்தல்.

அலகு 3 : (20 மணி)

சொற்பொருள் - வரலாறு - முதல் இணையதளம் - தமிழில் முதல் இணையதளம்- இணையத்தை வழிநடத்துவோர் - பயனர் வகைமை - கல்வித்திட்டம் - பயணியர் தமிழ் - இணைய வழித் தேர்வு - பாட வடிவமைப்பு - கணினித்தமிழ் பணிகள் - மின்னூல் - மின்னகராதி - மின் நூலகம் - இலக்கண நூல்கள் - இலக்கிய நூல்கள் - சிற்றிலக்கியங்கள் - நூலகம் .நெட்.

அலகு 4 : (15 மணி)

பிட் முறை - தமிழ்நெட் 97 - தமிழ் நெட் 99 - திண்ணை வார்ப்பு - பதிவுகள் - மரத்தடி - தமிழ் நெட் - மின் செய்தித்தாள் - மின்னிதழ்கள் - இணைய இதழ்களின் நிறைகுறைகள் - வலைப்பூவும், இணையதளமும் - உருவாக்கம்.

அலகு 5 : (20 மணி)

சமூக வலைத் தளங்கள் - தமிழ் வலையதள முகவரிகள் - தரவிறக்கமும், தரவேற்றமும் - தேடுபொறி - உலாவி - மின்னஞ்சல் - மின்னஞ்சல் முகவரி தயாரிக்கும் முறை - பயன்படுத்தும் விதம் - இணையவழிக் கல்வி - இணைய வானொலி - இணைய தொலைக்காட்சி - குறுஞ்செயலிகள் - தகவல்களை வழங்குபவை, விக்கிபீடியா.

அலகு 6 : (சுய கற்றல்)

சிறப்புக் குறியீடுகள் - படமிடுதல் - திரைப்படங்களை வரிசை மாற்றி அமைக்கும் முறை - உரைநடை - அகராதிகள் - கலைச் சொற்கள் - சுவடிக் காட்சியகம் - தமிழில் வலைப்பூக்கள் - தமிழ்ப்பூக்கள் - மனிதவள மேம்பாட்டுத்துறை.

பாட நூல்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
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1	முனைவர் துரையாசன்	இணையமும் இனிய தமிழும்	இசைப்பதிப்பகம், கும்பகோணம்	2009
2	முனைவர் இல. சுந்தரம்	கணினித் தமிழ்	விகடன் பிரசுரம், சென்னை	2015

**பார்வை நூல்கள்**

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	துரை. மணிகண்டன்	தமிழ்க் கணினி இணையப் பயன்பாடுகள்	கமலினி பதிப்பகம், தஞ்சாவூர் - 102	டிச. 2012
2	இராதா செல்லப்பன்	தமிழும் கணினியும்	கவிதை அமுதம் வெளியீடு, திருச்சி - 21	நவ. 2011
3	மு.பொன்னவைக்கோ	இணையத் தமிழ் வரலாறு	பாரதிதாசன் பல்கலைக்கழகம், திருச்சி - 24	2010

**கற்பித்தல் முறைகள்**

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழுவிவாதம், காணொளி காட்சி

பாடப்பகுதி வடிவமைப்பாளர்

முனைவர் ப. சசிரேகா

பாடத்திட்டம்	பாடம்	Category	L	T	P	Credit
22PTA1EC1B	மக்கள் தகவல் தொடர்பியல்	EC	86	4	-	4

நோக்கம்

1. தகவல் தொடர்பின் வளர்ச்சி நிலைகளை அறியச் செய்தல்.
2. ஊடக வேலை வாய்ப்புகளைப் பற்றி உணர்த்துதல்.
3. மாணவர்கள் வானொலி, தொலைக்காட்சிகளில் நிகழ்ச்சிகள் தயாரித்து வழங்குதல், பணி வாய்ப்பு பெறுதல்

### COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Cognitive Level
CO1	தகவல் தொடர்பின் முக்கியத்துவத்தினைக் கண்டறிதல்	K3
CO2	தகவல் பரிமாற்றத்திற்கு பயன்படும் தகவல் தொடர்பு சாதனங்களின் வரலாறு குறித்து விவரித்தல்	K4
CO3	தகவல் தொடர்பு சாதனங்களின் அமைப்பு மற்றும் அவை செயல்படும் விதத்தினை ஆராய்ந்தறிதல்	K3
CO4	சமூக வளர்ச்சிக்குத் தகவல் தொடர்பு சாதனங்களின் பங்களிப்பினை இணைத்தறிதல்	K4
CO5	பணிச்சூழலுக்கு ஏற்ற வகையில் தகவல் தொடர்பு சாதனங்களை கையாளும் திறன் பெறுதல்	K5

Mapping with CO, PO & PSO :

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	3	3	3	1	2	3	3	3
CO2	1	1	3	3	3	1	2	1	1	3
CO3	3	3	3	3	3	1	1	3	3	3
CO4	3	2	3	3	3	1	1	3	3	3
CO5	1	1	3	3	3	3	2	3	3	3

பாடத்திட்டம்

அலகு 1 : (15 மணி)

தொடர்பியல் - விளக்கம் - தகவல் தொடர்பியலின் இலக்கணம் - மக்கள் தொடர்பியல் விளக்கம் - மக்கள் தொடர்பு - அறிஞர்கள் கருத்து - தகவல் தொடர்பின் இன்றியமையாமை - தொடர்புச் சாதனங்களின் வளர்ச்சி - தொடர்பியல் சாதனங்களின் பாகுபாடுகள் - மரபுவழி, அச்சுவழி - வேறுபாடுகள் - மின்வழி

அலகு 2 : (15 மணி)

தகவல் தொடர்பியல் பணிகள் - அறிவித்தல் - கற்பித்தல் மகிழ்வித்தல் மக்கள் தகவல் தொடர்புச் சாதனங்களின் தரக்கட்டுப்பாடு வழிகாட்டும் நெறிகள் - நேர்மை - நம்பகத்தன்மை - குறிக்கோள் போன்றவை

அலகு 3 : (15 மணி)

வானொலி, தொலைக்காட்சி - வரலாறு, அமைப்புமுறை - நிர்வாகம் - நிகழ்ச்சி வழங்கப்படும் முறை - ஒலி, ஒளிபரப்பு நிகழ்ச்சிகள் - சமுதாய மாற்றத்தில் தொலைக்காட்சியின் பங்கு - தனியார் தொலைக்காட்சிகளின் பரவல் - வானொலி சுதந்திரம்

#### அலகு 4 : (15 மணி)

திரைப்பட வரலாறு - வளர்ச்சி - சமூகத்தில் ஏற்படுத்தும் தாக்கம் - இன்றைய தமிழ்த் திரைப்படத்தின் போக்கு - சமூகத்தின் மீது திரைப்படத்தின் மதிப்பு - பாதிப்பு - திரைப்படத் தணிக்கைகள்

#### அலகு 5 : (15 மணி)

தகவல் தொடர்பியலில் அறிவியல் தொழில் நுட்பம் - பயன்பாடு - கருவிகள் - கணிப்பொறி - இணையம் - இணைய தேடுபொறிகள் - செயற்கைக் கோள் - தொலைவரி அச்சு - தொடர்பியலிலும், இதழியலிலும் கணிப்பொறியின் பயன்கள் - மக்கள் தொடர்பு அலுவலரின் பணிகள்

#### அலகு 6 : (சுய கற்றல்)

தொலைக்காட்சியின் நிறைகள், குறைகள் - தொடர்பியலில் சாதனங்களும் மக்கள் கருத்தும்

#### பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	மா.பா. குருசாமி	இதழியல் கலை	குரு - தேமொழி, திருச்செந்தூர்	2017
2	முனைவர் கி. இராசா	மக்கள் தகவல் தொடர்பியல்	பாவணார் ஏடகம், சென்னை	2003
3	அ.ஆலிஸ்	மக்கள் தகவல் தொடர்புக்கலை	மதுமதி வெளியீடு, திருச்சி	1995

#### கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழுவிவாதம்  
பாடப்பகுதி வடிவமைப்பாளர்  
முனைவர் இர. கீர்த்தனா

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
22PTAIEC1C	தமிழ் இலக்கண வரலாறு	EC	86	4	-	4

#### நோக்கம்

- மாணவர்களுக்குத் தமிழ் இலக்கண நூல்கள் தொடர்பான அறிவை மேம்படுத்துதல்.

#### COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	திராவிட மொழியினக் கூறுகளைக் கணித்தல்	K3
CO2	மொழி தோற்றம் குறித்து விவரித்தல்	K4
CO3	தமிழ் இலக்கண நூற்பிரிவுகளை ஆராய்ந்தறிதல்	K4
CO4	தமிழ் இலக்கண நூல்களின் வளர்ச்சி நிலையினை மதிப்பிடல்	K5
CO5	தமிழ் இலக்கண நூல் கோட்பாட்டை உருவாக்குதல்	K6

Mapping with CO, PO & PSO :

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	3	3	3	3	3	3	3	3	3
CO2	1	1	3	3	3	3	3	3	3	3
CO3	1	2	3	3	3	1	1	3	3	3
CO4	1	1	3	3	3	2	2	1	3	3
CO5	1	1	3	3	3	3	3	3	3	3

பாடத்திட்டம்

அலகு 1 : (20 மணி)

மொழியின் தோற்றம் - மொழியினங்கள் - திராவிட மொழியினம் - தமிழின் செம்மொழிப் பண்புகள் - இலக்கணம் சொல்லாராய்ச்சி.

அலகு 2 : (20 மணி)

தமிழில் இலக்கண நூல்களின் தோற்றம் - ஐந்திலக்கணப் பிரிவுகள் - பாட்டியல் நூல்கள் - மறைந்து போன இலக்கண நூல்கள்.

அலகு 3 : (20 மணி)

அகத்தியம் - தொல்காப்பியம் - இறையனார் களவியல் - புறப்பொருள் வெண்பாமாலை - யாப்பருங்கலக் காரிகை.

அலகு 4 : (15 மணி)

வீரசோழியம் - நேமிநாதம் - வெண்பாப்பாட்டியல் - தண்டியலங்காரம் - நன்னூல் - பன்னிருபாட்டியல்

அலகு 5 : (15 மணி)

பிரயோக விவேகம் - இலக்கண விளக்கம் - இலக்கணக் கொத்து - தொன்னூல் விளக்கம் - முத்து வீரியம்

அலகு 6 : (சுய கற்றல்)

யாப்பருங்கலம் - மாறனலங்காரம் - சாமிநாதம்

பாட நூல்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	சோம. இளவரசு	இலக்கண வரலாறு	மெய்யப்பன் பதிப்பகம், சிதம்பரம்	2011

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	இளங்குமரனார்	இலக்கண வரலாறு	மணிவாசகர் பதிப்பகம், சென்னை	1988

### கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடப்பகுதி வடிவமைப்பாளர்

முனைவர் மா. ஆசியாதாரா

CAUVERY COLLEGE FOR WOMEN(Autonomous)

ANNAMALAI NAGAR, TRICHY-6210 018

B.A./B.Sc./B.Com./B.B.A./B.C.A.(3YEARS)

PART-I HINDI

(Applicable to the candidates to be admitted from the academic year 2022-2023 onwards)

Semester	Part	Subject Code	Course Title	Inst. Hours	Credit	Exam Hours	Internal	External	Total
I	I	22ULH1	HINDI LITERATURE & GRAMMAR -1	6	3	3	25	75	100
II		22ULH2	HINDI LITERATURE & GRAMMAR- II	5	3	3	25	75	100
III		22ULH3	HINDI LITERATURE & GRAMMAR- III	5	3	3	25	75	100
IV		22ULH4	HINDI LITERATURE & FUNCTIONAL HINDI	6	3	3	25	75	100

1.

3.

2.

4.



## CAUVERY COLLEGE FOR WOMEN(AUTONOMOUS), TRICHY-18

### HINDI LITERATURE & GRAMMAR-1

#### UNIT-1- Katha-Parikrama -1 (16 Hours)

- Hindi Story - An Introduction  
Takur ka Kuvan - Premchand  
Paramathma Aur Kuththa - Mohan Rakesh

#### UNIT-2-Katha-Parikrama II (16 Hours)

- Padaav - Suryabala  
Rahogi Thum Vahi - Sudha Aroda  
Sandhi Pathra - Deepthi Khandelval

#### UNIT-3 Hindi Sahithya ka Ithihas (20 Hours)

1. Kal Vibajan, 2. Adhikal Paristhithiyan  
3. Veeragathakal ki Paristhithiyan aur Visheshathayen, 4. Pramuk Rachanayen aur Kaviyon  
a..Ameer Kusro b. Vidhyapathi c. Prithviraj Rason

#### UNIT-4 – Grammar- Vikari Shabdh (18 Hours)

- 1.Noun 2. Pronoun 3.Adjective 4. Verb 5. Gender 6 Numbers 7. Case Endings

#### UNIT-5 – Anuvadh Abyas (Lesson-1-10 English to Hindi) (20 Hours)

- UNIT-6 – 1. Thapasya - Himanshu Joshi  
2. Kotari mein Ladki - Mrinal Pandey  
3. Jain, Nath, Bowdha Sahithya- Parichay, Besaldev Rason  
4. Anuvadh Abyas (Lesson 1-10 Hindi to English)

#### Text Books

S.No.	Book Name	Author/Editor	Publishers	Year of Publishing
01	Katha-Parikrama	Dr.Namadev M .Gowda	JawaharPusthakalay Mathura,U.P 281 001	2017
02	Hindi Sahithya ka Sanshipta Ithihas	---	Dakshin Bharat Hindi Prachar Sabha, Madras	2015
03	Rashtrabhasha Patya Pusthak	---	Dakshin Bharat Hindi Prachar Sabha, Madras	2022
04	Hindi Vyakaran Praveshika-1	---	Dakshin Bharat Hindi Prachar Sabha, Madras	2021

#### Reference Book:

Prayogic Hindi Vyakaran thatha Rachana, Kunji Sahith	Kumari N. Saradambal	Compurint, Chennai	2014
Saral Hindi Vyakaran	Dr. Smitha	Arpit Prakashan, Illahabad	2014

#### WEB References

- <https://www.study.com/hindi> ,
- [3. https://exambaaz.com/hindi-grammar/pdf/amp/](https://exambaaz.com/hindi-grammar/pdf/amp/)
- <http://rajeduboard.rajasthan.gov.in>

**Pedagogy:** Lecture, Black/White Board, PPT, You tube Presentation, Quiz, Discussion, Assignment.

**Course Designer :** Dr. R. VIJAYALAKSHMI

- ❖ Include more oral and written activities to develop the Communication and Translation Skill. Of the students.
- ❖ More MCQ's in the question paper.

Finally it was resolved as under

“ Resolved that to consider and approve the Internal and External Evaluation System to be noted.”

The meeting ended with a vote of thanks to the chair.

**Chairman  
Board of Studies**

1. (University Nominee)  
Dr. J. Senthamarai ,  
Associate Professor & Head,  
Seethalakshmi Ramasamy College,  
Trichy -2

*J. Senthamarai*  
7/5/2022

2. (Subject Expert 1)  
Dr. B. Kamakoti,  
Associate Professor & Head,  
Annamalai University,  
Chidambaram

*B. Kamakoti*  
Dr. B. KAMAKOTI  
Associate Professor & Head  
Department of Hindi  
Annamalai University  
Annamalai Nagar - 608 002.

3. (Subject Expert 2 )  
Dr. Pritilatha,  
Associate Professor & Head,  
Lady Doak College,  
Madurai-2

*Priti Latha*  
07/5/2022

4. (Student Nominee)  
Reddy Madhuwanti Bhasker,  
No.2, 3<sup>rd</sup> Cross Moogambigai Nagar,  
Reddiyarpalayam, Pondicherry-10.

**French Syllabus**  
**2022-2023 Onwards**  
**Cauvery College for Women**  
**(Autonomous)**  
**UG –French**  
**I Year- I Semester**

S.No	Part	Course Code	Course Title	Teaching Hours	Credits	Exam Hours	Marks		Total Marks
							CIA	ESE	
1.	I	22ULF1	Basic French-I	6	3	3	25	75	100
2.	I	22ULF2	Basic French-II	6	3	3	25	75	100
3.	I	22ULF3	Intermediate French-I	6	3	3	25	75	100
4.	I	22ULF4	Intermediate French-II	6	3	3	25	75	100



## French Syllabus

2022-2023 Onwards

**Cauvery College for Women**

**(Autonomous)**

**UG –French**

**I Year- I Semester**

S.No	Part	Course Title	Teaching Hours	Credits	Exam Hours	Marks		Total Marks
						CIA	ESE	
1.	I	Communication in French-I	6	3	3	25	75	100
2.	I	Communication in French-II	6	3	3	25	75	100
3.	I	Communication in French-III	6	3	3	25	75	100
4.	I	Communication in French-IV	6	3	3	25	75	100

### **Vision**

To make language learning a worthwhile endeavor as in the age of increasing globalization, today's world is shrinking and getting smaller.

To develop a positive outlook towards the French Language among the students and create Language Proficiency and Communication Skill among the students.

### **Mission**

To help the students realize their full potential and help them get started on their way to having a successful career and to inspire them to lifelong language learning, and do it ethically and exceedingly well.

## **Programme Outcomes for French (POs)**

### **PO1: Disciplinary Knowledge**

Students will identify the nuances and ability of language in formal and informal context, describe the grammatical and lexical subtleties in language and apply them in the fields of performing arts, visual arts, literature, hospitality and translation.

### **PSO2: Communication Skills & Cooperation/ Teamwork**

Students will distinguish different communication strategies to express themselves both orally and verbally and demonstrate their ability with the LSRW skills to communicate with confidence, coherence, clarity, open-mindedness and exhibit their team spirit.

### **PO3: Critical thinking, Problem Solving, Reflective thinking & Leadership Qualities**

Students will display necessary knowledge in fields of performing arts, visual arts, literature, hospitality and translation and develop projects and start-ups with decisiveness, integrity and problem solving skills.

### **PO4: Professionalism, Moral and ethical awareness**

Students will internalize human values embedded in cultural, social, historical and literary texts to deal with various problems in life with confidence, reasoning and responsibility displaying moral and social values with sensitivity to gender, age, caste, race, religion and nationality.

### **PO5: Impact of Education on society and the environment & Ethics and Equity**

Students will recognize the values of a clean environment and sustainability of natural resources for society and practice equity and equality in society and thereby develop social responsibility.

## **Program Specific Outcomes (PSO) For French**

<b>PSO NO</b>	<b>Programme Specific Outcomes</b>
<b>PSO 1</b>	Express themselves clearly enough in both oral and written French to be generally understood by the average native speaker of the language
<b>PSO 2</b>	Use varied and appropriate vocabulary, as well as circumlocution when required, to discuss a variety of topics.
<b>PSO 3</b>	Demonstrate a good knowledge of the fundamental grammatical structures of French; discuss a variety of topics.
<b>PSO 4</b>	Identify basic grammatical errors, as well as many of those common to Anglophone speakers of French.
<b>PSO 5</b>	Demonstrate a basic knowledge of the history and culture of France.

<b>Semester I</b>	<b>Internal Marks: 25</b>		<b>External Marks:75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hrs / Week</b>	<b>CREDITS</b>
	<b>COMMUNICATION IN FRENCH-I</b>	<b>Language</b>	<b>6</b>	<b>3</b>

### **COURSE OBJECTIVES**

- Graduates will be able to write on a variety of topics with significant precision and in detail.
- Graduates will be able to narrate and describe in past, present and future time.
- Graduates will have a knowledge of French and Francophone culture.

### **Course outcome and Cognitive Level Mapping**

On successful completion of the course, the student will acquire the listed skills

<b>CO1</b>	Use varied and appropriate vocabulary as well as circumlocution when required to discuss a variety of topics.	K1
<b>CO2</b>	Demonstrate a good knowledge of the fundamental grammatical structures of French.	K2
<b>CO3</b>	Demonstrate a good knowledge of the history, culture and gastronomy of France.	K3
<b>CO4</b>	Express themselves clearly enough in both oral & written French which will ensure the students better job opportunities.	K4
<b>CO5</b>	Listen to basic spoken French and demonstrate understanding by writing and/or responding appropriately	K5

### **Mapping of CO with PO and PSO**

<b>COs</b>		<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1		3	3	3	4	4	3	3	3	2	3
CO2		2	3	3	3	3	3	3	3	3	3
CO3		3	3	3	3	3	3	2	2	3	2
CO4		2	3	2	3	3	2	2	3	2	3
CO5		2	3	3	3	2	3	3	3	3	4

## SYLLABUS

**This paper contains Unités 1,2,3,4&5**

**Unité :1 : Vous comprenez (17 hours)**

Vous connaissez la chanson ? - Se présenter - Aborder quelqu'un  
Saluer-prendre congé - Remercier

**Grammaire :** Les pronoms sujets - L'article défini et l'article indéfini -  
Conjugaison : Les verbes en- **ER**  
- Interroger –Répondre : Qu'est-ce que c'est ?/ Qui est-ce ?  
**Civilisation-** L'espace francophone.

**Unité : 2 Au travail (15 hours)**

1. **Vous connaissez la chanson ? Répétitions :** Nommez- Préciser - Exprimer ses goûts  
Demander quelque chose
2. **Grammaire :** Masculin et féminin des adjectifs / pluriel des noms et des adjectifs  
Poser des questions - Conjugaison des autres verbes
3. **Civilisation-** Première approche de la société française :

**Unité :3 On se détend ? (16 hours)**

1. **Vous connaissez la chanson ? « - Fausses notes :** Parler des loisirs/ Parler de ses activités - Exprimer la possibilité, l'obligation - Proposer, Accepter, Refuser
2. **Grammaire :** Passé récent, présent progressif ;Parler du futur : Future proche -  
Négation avec « du » et « de la » - Conjugaison des verbes : aller, venir, vouloir, pouvoir, savoir, devoir
3. **Civilisation :** Repérage de quelques lieux de loisirs.
4. **Écriture :** Cartes et messages d'invitation, d'acceptation ou de refus.

**Unité : 4 Racontez-moi (20 hours)**

1. **Vous connaissez la chanson ? Fugues :** Raconter un emploi du temps passé - Dire ce qu'on fait
2. **Grammaire :** Passé composé - La date et l'heure
3. **Civilisation-** Personnalités du monde francophone.
4. **Écriture :** Rédaction d'un fragment de journal personnel

**Unité : 5 – Bon Voyage ; Bon appétite (16 hours)**

**La traversée de l'Hexagone – Décision**

Présenter les avantages et les inconvénients d'une activité

**Grammaire :** Les démonstratifs - Adjectifs possessifs Emploi des articles - La forme négative - Exprimer la possession - Les questions générale / les mots interrogatifs avec inversion, Articles partitifs.

**Civilisation-** Les transports en France. - Les habitudes alimentaires des Français.

## **PEDAGOGY:**

Blackboard, PPT, YOU TUBE links, Assignments, Quiz.

## **TEXT BOOK**

<b>S.NO</b>	<b>BOOK NAME</b>	<b>AUTHOR</b>	<b>PUBLISHERS</b>	<b>YEAR OF PUBLISHING</b>
1	ECHO A1	J.Girardet/ J. Pêcheur	CLE INTERNATIONAL	2017

## **Reference Books**

ALTER EGO 1	Hachette-Français Langue ``Etrangère	GOYAL	2016
REFELTS 1	Guy Capelle, NoelleGidon	GOYAL	2017
APPRENONS LE FRANCAIS	Simran Batra Mahitha Ranjit	NEW SARASWATHI HOUSE	2016

## **Web References**

[www.elearningfrench.com](http://www.elearningfrench.com)

[www.simplefrench.com](http://www.simplefrench.com)

[www.apprenonslefrancais.com](http://www.apprenonslefrancais.com)

Syllabus by: Mrs.M.Manjula



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18

PART – I SANSKRIT

(Applicable to the candidates to be admitted from the academic year 2022 – 2023 onwards)

YEAR	SEM	COURSE CODE	TITLE OF THE COURSE	L	T	P	CREDIT
I	I	22ULS1	HISTORY OF POPULAR TALES LITERATURE AND SANSKRIT STORY	86	4	-	3

**COURSE OBJECTIVES:**

To introduce fundamentals word structure and simple prose structure of the language and to provide an insight into some of the popular tales and the morals preached.

CO Number	CO Statement	Knowledge Level
CO1	Differentiate the Phonetic sound of Alphabets of Sanskrit and Tamil	K1
CO2	Analyze the Ancient Pauranic Stories with Modern Stories	K2
CO3	Hearing the method of Ancient Story tellers and distinguish the remarks	K3
CO4	Examine the seven cases of Sabdhas and differentiate the usages	K4
CO5	Assess the kinds of Tales and Fables	K5

**SYLLABUS**

**UNIT I**

(20Hrs)

Compare the Alphabets and Special Features of Sanskrit and Tamil – Pathaparichaiya – Basic Santhi – Grammatical forms

**UNIT II**

(20hrs)

Katha Vallari Stories 1 to 5

**UNIT III**

(20 hrs)

Katha Vallari Stories 6 to 10

**UNIT IV**

(15hrs)

Declension 1. Asmath, 2. Yushmath, 3.Tadh im three genders, 4.Kim im three genders– Conjugation – I 1 to 3(Present Tense) – Conjugation – II 1 to 3(Past Tense \_\_\_\_\_) – Conjugation - III 1 to 3(Future Tense)

**UNIT V**

(15hrs)

History of Popular Tales Literature

**UNIT VI**

Practice to write Sanskrit Storage with own Words

**TEXT BOOKS:**

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	Bharathiya Vidhya Bhawan	Balabodh Part - I	Bharathiya Vidhya Bhawan	2012
2.	T.K.Ramachandra Aiyar	History of Sanskrit Literature	R.S.Vadhyar & Sons	2015
3	T.K.Ramachandra Aiyar	Sabdamanchari Dhadhumanchari	R.S.Vadhyar & Sons	2015

**REFERENCE BOOKS:**

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	Dr.N.Narasim hachary	Sanskrit for Beginners	NR.Publication, Chennai	-
2.	Vishnu Sharma	Panchathandiram	R.S.Vadhyar & Sons	2015

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**Annamalai Nagar, Trichy-18.**



**PG DEPARTMENT OF ENGLISH**

**SIXTH BOARD OF STUDIES MEET**

**2022-2023 and Onwards**



## CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

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Annamalai Nagar, Trichy-18.

### PG DEPARTMENT OF ENGLISH

#### AGENDA

#### The Agenda for the Sixth Meeting of the Board of Studies are as follows:

1. **ITEM NO.BOS/06/01**

To consider and approve the PSO, Programme Structure and I Semester Syllabus (Core Course & Allied Course) of BA English for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy – 18.

2. **ITEM NO.BOS/06/02**

To consider and approve the PSO, Programme Structure and I Semester Syllabus (Core Course & Elective Course) of MA English for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy – 18.

3. **ITEM NO.BOS/06/03**

To suggest panel of names to the Academic Council for appointment of Examiners, Cauvery College for Women (Autonomous), Trichy – 18.

4. **ITEM NO.BOS/06/04**

To express appreciation to the members of the Board of Studies for their contribution in the ground plan of the syllabus and curriculum and forward it to the Academic Council, Cauvery College for Women (Autonomous), Trichy – 18.



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**MINUTES OF THE SIXTH MEETING OF BOARD OF STUDIES**

**DATE: 6th MAY 2022**

**VENUE: Aural Oral English Lab, Cauvery College for Women (Autonomous)**

**TIME: 11.00 am**

**MEMBERS PRESENT FOR THE SIXTH BOARD OF STUDIES MEET**

<b>S.No</b>	<b>Name</b>	<b>Designation</b>
1	Dr. P. Urmila	PG. Chairperson and Associate Professor
2	Dr.S.Jayashree Agarwal	UG Chairperson and Assistant Professor
3	Dr.G.Baskaran	Subject Expert, Gandhigram University.
4	Dr.B.Kathiresan	University Nominee, Thiruvalluvar University, Vellore
5	Dr.P.Nagaraj	College Nominee, Subject Expert, Bharathiar University, Coimbatore
6	Mr.R.Pandi Ganesh	Industrial Representative, EIT Madurai
7	Ms.R.Sruthi	Alumna, Guest Lecturer, N.K.R .Govt. Arts College, Namakkal
8	Dr. Uma Maheswari	Member
9	Dr. Rita Shanthakumar	Member
10	Dr. Prema Joshua	Member
11	Dr. P. Helan Jona	Member
12	Dr. G.Gayathri	Member
13	Dr.Cecilia Merlin Wilton	Member
14	Ms. A. Violet Pangaja Bai	Member
15	Ms. K.Kanimozhi	Member
16	Ms. J.Jenifer Nancy	Member
17	Ms.Chithra	Member
18	Ms. M.Irudhaya Pushpam	Member
19	Ms. Diana Betty Garret	Member
20	Ms. S. Ramalakshmi	Member
21	Ms. R. Shanthi	Member
22	Ms. P. K. Durgadevi	Member
23	Ms. J. Vanipriya	Member
24	Ms. T. Haseena Banu	Member
25	Ms. V. Sudhandra Devi	Member
26	Ms. A. Esther Rani	Member
27	Ms. U. Sree Aruna	Member
28	Ms. A. Edel Flora Mary	Member

29	Ms. N. Yoga	Member
30	Ms. L. Samyuktha	Member
31	Ms. G. Vijayarenganayaki	Member
32	Dr. S. Senthil Kumari	Member
33	Ms.Srinidhi	Member
34	Dr. R. Vanitha	Member
35	Ms.Vanmathi. Siva	Member
36	Ms. T. Mothika	Member



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**PG DEPARTMENT OF ENGLISH**

**ACTION TAKEN REPORT OF THE FIFTH MEETING OF THE BOARD OF STUDIES**  
**HELD ON 03/06/2021**

The fifth meeting of the Board of Studies was held online through Google Meet on 03/06/2021. All the five External Members were present, The Resolution in BOS/05/01 with regard to semester VI syllabus of Part III Core Courses and Major Based Elective in connection with the changes focusses a broader insight for a higher learning through Projects, research etc. and Resolution BOS/05/02 highlights the Question Paper pattern of Jeevan Kaushal paper titled Professional Skills with the same internal and external components were all carried out and forwarded to the Academic Council and implemented successfully.



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**PG DEPARTMENT OF ENGLISH**

**Minutes of the Sixth Board of Studies Meeting held on 06/05/2022**

The following Resolutions were passed by the Board of Studies Members

**1. Resolution. No BOS/06/01**

The PSO, Programme Structure and the Syllabus for BA English (2022-2023) batch and onwards were considered, approved and forwarded to the Academic Council with the following changes to provide a broader scope for the progression of the young minds for higher learning.

**The Programme Structure of UG in Semester- V in Part- IV**

- Skill Enhancement Course (SEC) - II titled *Academic Writing* is substituted by *English for Career Advancement*.
- Skill Enhancement Course (SEC) - III titled *Art of Speaking* is replaced by *English for BPO*.

**Revision of Syllabus of Core Course 22UEN1CC2 – Short Stories**

- Unit II – Tagore's Short Story *Kabuliwala* is substituted by *Subha*

**2. Resolution No BOS/06/02**

The PSO, Programme Structure and the Syllabus along with the **Self-Study** in each unit is (to empower the students towards self-determined learning) for MA English (2022-2023) batch and onwards were considered, approved and forwarded to the Academic Council with the following changes in Core Courses and Elective Courses to brighten the future prospects of the students community in expanding their horizons of learning.

**i) Core Course II- 22PEN1CC2 – Shakespeare**

• **Topics Modified**

Unit III: Tragedy – *Macbeth* is substituted by *Othello*

Unit IV: In Criticism on Shakespeare instead of *Hamlet and His*

*Problems* and Tolstoy's *Attack of Shakespeare, Brutus and Macbeth* by G.Wilson Knight and *The Merchant of Venice* by Harold Bloom is included.



- ii) **Core Course III- 22PEN1CC3 – Indian English Literature**
- **Topics Modified**  
Unit III: Short Stories - R.K.Narayan's *Gateman's Gift* is also included  
Unit V: Fiction - Aravind Adiga's *The White Tiger* is removed.  
- Kiran Desai's *Chromosome* substitutes *The Inheritance of Loss*.
- iii) **Core Course IV - 22PEN1CC4 – Black Women's Writing in English Literature**
- **Topics Added**  
Unit I - Poetry is included  
Unit II - Prose - *Scenes from a Life in Negroland* is also included.  
Unit V - Fiction - *Half of a Yellow Sun* is also included
- iv) **Elective Course I - 22PEN1EC1A - Rhetoric and Stylistics**  
(Title of the paper Linguistics and Rhetoric is changed to Rhetoric and Stylistics)
- **Topics Modified**  
Unit I & II Science of Rhetoric & Discourse is retained.  
Unit III, IV, V is changed to Study of Stylistics

**3. Resolution No BOS/06/03**

Considered and approved the panel of names for appointment of examiners and question paper setters and suggested to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**4. Resolution No BOS/06/04**

Dr.P.Urmila, Chairperson, Associate Professor and Head, expressed her gratitude for the valuable suggestions given by the External BOS Members during the BOS Meetings for the period 2019-2022 and thanked all the members of the Board of Studies.

The Board of Studies resolved and concluded by recommending the PSO, Programme Structure and Syllabus of BA English (I -VI Semesters) & MA English (I - IV Semesters), Programme Structure and Syllabus of I Semester BA & MA English for 2022-2023 batch and onwards to the Academic Council, Cauvery College for Women, Trichy- 18.

## Members of the Sixth Board of Studies Meet

<b>Dr.G.Baskaran</b> <b>Professor &amp; Dean</b> Gandhigram University. Dindigul	
<b>Dr.B.Kathiresan</b> <b>Professor,</b> Thiruvalluvar University, Vellore	
<b>Dr.P.Nagaraj</b> <b>Professor,</b> Bharathiar University, Coimbatore.	
<b>Mr.R.Pandi Ganesh</b> <b>Associate Professor</b> Industrial Representative, EIT Madurai	
<b>Ms.R.Sruthi,</b> <b>Alumna,</b> Guest Lecturer, N.K.R. Govt Arts College, Namakkal	
<b>Dr. P. Urmila</b> <b>Associate Professor</b> PG Head, Department of English, Cauvery College for Women (Autonomous) Trichy-18	
<b>Dr.S.Jayashree Agarwal</b> <b>Assistant Professor</b> UG Head, Department of English, Cauvery College for Women (Autonomous) Trichy-18	

S.No	Name	Designation	Signature
1	Dr. Uma Maheswari	Member	
2	Dr. Rita Shanthakumar	Member	
3	Dr. Prema Joshua	Member	
4	Dr. P. HelanJona	Member	
5	Dr. G.Gayathri	Member	
6	Dr.Cecilia Merlin Wilton	Member	
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25	Dr. S. Senthil kumari	Member	
26	Ms.Srinidhi	Member	
27	Dr. R. Vanitha	Member	
28	Ms.Vanmathi. Siva	Member	
29	Ms. T. Mothika	Member	

<b>Dr.P.Urmila</b> PG Head, Department of English Cauvery College for Women (Autonomous) Trichy-18	<b>Dr.S.Jayashree Agarwal</b> UG Head, Department of English Cauvery College for Women (Autonomous) Trichy-18	<b>Dr.N.Savithri</b> Dean of Arts Cauvery College for Women (Autonomous) Trichy-18

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TRICHY - 18**

NATIONALLY ACCREDITED (III CYCLE) WITH "A" GRADE BY NAAC

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**PG DEPARTMENT OF ENGLISH**



**B.A ENGLISH**

**SYLLABUS**

**2022- 2023 AND ONWARDS**



**CAUVERY COLLEGE FOR WOMEN, AUTONOMOUS  
TRICHY-18**

**PG DEPARTMENT OF ENGLISH**

**VISION STATEMENT**

- The Department of English envisions the learners to explore and empower LSRW skills thereby gaining competency in various genres of literature across the world.
- Ensuring the aesthetic sensibility and creativity of the learners for higher pursuits in research and professional career.

**MISSION STATEMENT**

- Procure academic excellence by mastering language and literature, imbibe human values embedded with personality enrichment.
- To gratify the needs of employability and enshrine learners as socially responsible citizens.

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**PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)**

<b>PEOs</b>	<b>STATEMENTS</b>
<b>PEO1</b>	<p><b>LEARNING ENVIRONMENT</b></p> <p>To facilitate value-based holistic and comprehensive learning by integrating innovative learning practices to match the highest quality standards and train the students to be effective leaders in their chosen fields.</p>
<b>PEO2</b>	<p><b>ACADEMIC EXCELLENCE</b></p> <p>To provide a conducive environment to unleash their hidden talents and to nurture the spirit of critical thinking and encourage them to achieve their goal.</p>
<b>PEO3</b>	<p><b>EMPLOYABILITY</b></p> <p>To equip students with the required skills in order to adapt to the changing global scenario and gain access to versatile career opportunities in multidisciplinary domains.</p>
<b>PEO4</b>	<p><b>PROFESSIONAL ETHICS AND SOCIAL RESPONSIBILITY</b></p> <p>To develop a sense of social responsibility by formulating ethics and equity to transform students into committed professionals with a strong attitude towards the development of the nation.</p>
<b>PEO5</b>	<p><b>GREEN SUSTAINABILITY</b></p> <p>To understand the impact of professional solutions in societal and environmental contexts and demonstrate the knowledge for an overall sustainable development.</p>

## **PROGRAMME OUTCOMES FOR ARTS**

### **PROGRAMME OUTCOMES FOR BA ENGLISH**

<b>PO NO.</b>	<b>PROGRAMME OUTCOMES</b> <b>On completion of BA Programme, the students will be able to</b>
<b>PO1</b>	Possess thorough knowledge of language and understand the concerns of the society in real situations and work environment. (Academic Excellence with Social Thinking)
<b>PO2</b>	Express thoughts and ideas effectively using appropriate texts, media and evaluate practices, policies and theories by applying scientific and social approaches. (Skilled Proficiency)
<b>PO3</b>	Acquire training skills in research, internships and foster team spirit in the global world and face the challenges in a multicultural society. (Team Building and Problem Solving)
<b>PO4</b>	Relate and apply exemplary role models/writers and their values to elucidate different kinds of unknown problems. (Leadership Traits & Critical Thinking)
<b>PO5</b>	Inculcate lifelong learning by fostering scientific attitude aimed at personal and societal development to meet the changing demands of work and career through knowledge and skills. (Situational Approach and Life long Learning)

### **PROGRAMME SPECIFIC OUTCOMES FOR BA ENGLISH**

#### **BA ENGLISH CURRICULUM [2022 -2023 ONWARDS]**

<b>PSO NO.</b>	<b>PROGRAMME SPECIFIC OUTCOMES</b> <b>Students of BA English will be able to</b>	<b>POs Addressed</b>
<b>PSO 1</b>	Gain competence and confidence in acquiring LSRW skills in English Language and Literature to face the realities of life.	<b>PO1</b>
<b>PSO 2</b>	Empower and appreciate knowledge of various genres of literature and develop an eclectic taste to appreciate the literary movements, cultural and social contexts in relation with the society and the world.	<b>PO2, PO3</b>
<b>PSO 3</b>	Explore and analyse the works of the writers from political, historical, ethical and sociological perspectives for higher learning and research.	<b>PO3</b>
<b>PSO 4</b>	Attain proficiency to solve the complexities of human life through various genres of literature till the present modern age and train them to be socially committed citizens.	<b>PO1, PO4</b>
<b>PSO 5</b>	Achieve in depth knowledge to comprehend communication skills, linguistics, journalism and literature in different modes of learning to gain job opportunities for a better self and society.	<b>PO5</b>



CAUVERY COLLEGE FOR WOMEN, AUTONOMOUS, TRICHY - 18.

DEPARTMENT OF ENGLISH

BA ENGLISH - Programme Structure

(For the Candidates admitted from the Academic year 2022 -2023 onwards)

## I SEMESTER

Semester	Part	Course	Title	Subject Code	Inst. Hrs./ Week	Credits	Exam			Total
							Hours	Marks		
								Int.	Ext.	
I	I	Language Course -I(LC) -Tamil */Other Languages*	Ikkala Ilakiyam – I	22ULT1	6	3	3	25	75	100
			Hindi Literature & Grammar - I	22ULH1						
			History of Popular Tales, Literature and Sanskrit Story	22ULS1						
			Basic French - I	22ULF1						
	II	English Language Course - I (ELC)	Functional English for Effective Communication – I	22UE1	6	3	3	25	75	100
	III	Core Course - I (CC)	Prose	22UEN1CC1	6	5	3	25	75	100
			Short Stories	22UEN1CC2	6	5	3	25	75	100
			First Allied - I Allied Course (AC)	Social History of England	22UEN1AC1	4	3	3	25	75
	IV	UGC - Jeevan Kaushal	Universal Human Values	22UGVE	2	2	3	25	75	100
	<b>Total</b>					<b>30</b>	<b>21</b>			



# FIRST SEMESTER SYLLABUS

## ENGLISH LANGUAGE COURSE – I

### Functional English for Effective Communication-I

Semester I	Internal Marks: 25	External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	Hours / Week	CREDITS
22UE1	Functional English for Effective Communication - I	English Language Course - I	6	3

#### Course Objectives

- To enhance Vocabularies and Sentences for Effective Communication
- To express and practice the language through personal experience and expressions
- To reinforce the approach through Writing and Self-Assessment
- To understand usage of functional grammar through Short Stories
- To develop students' insight into the structure of English Language

#### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of this course, the students will be able to	Cognitive Level
CO1	Recall Parts of Speech and relate them with Vocabularies and Sentence Structures.	K1
CO2	Explain and illustrate actions based on time and situation.	K2
CO3	Build a profound knowledge in grammar through communication based on everyday Conversation and Role Plays.	K3
CO4	Identify and restate various sentence structures through grammar to develop accuracy and fluency.	K3
CO5	Analyze and Synthesize statements using the expressions for enhancing LSRW Skills focusing for better prospects.	K4

#### Mapping of CO with PO and PSO

CO	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	3	3	3	3	3	3	2	3
CO2	3	2	3	3	2	3	2	3	3	3
CO3	3	3	3	3	2	3	2	3	3	3
CO4	3	2	3	3	3	3	3	3	3	3
CO5	2	3	2	3	3	3	3	3	2	3

“1” – Slight (Low) Correlation  “2” – Moderate (Medium) Correlation

“3” – Substantial (High) Correlation  “-” indicates there is no correlation.

## **Syllabus**

### **UNIT I**

- I- Listening** - AOE LAB- Level I- Units -1, 2 & 3
- II- Speaking** - Self Introduction/ Describe your favourite Person/Food/Place
- III- Reading** - Short Story - O. Henry-The Last Leaf
- IV- Writing** - Paragraph Writing
- V- Grammar**- Nouns, Pronouns and Adjectives

### **UNIT II**

- I- Listening**- AOE LAB- Level I- Units- 4, 5 & 6
- II- Speaking**- Express an Incident of your life where you realized the Importance of Love
- III- Reading**- Short Story- Rabindranath Tagore - Kabuliwala
- IV- Writing**- Essay Writing
- V- Grammar**-Verbs-Tenses

### **UNIT III**

- I- Listening**- AOE LAB- Level I- Unit- 7- Level II- Units- 1 & 2
- II- Speaking**- Ordering food in a restaurant, Booking a room, Booking and cancellation of tickets, Enquiring on Availability of Transportation
- III- Reading**- Short Story-Ernest Hemingway- Cat in the Rain
- IV- Writing**- Writing a Short Story
- V- Grammar**- Voice and Concord

### **UNIT IV**

- I- Listening**- AOE LAB- Level II- Units- 3 & 4
- II- Speaking**- Express your feelings and emotions if you are lost in crowd
- III- Reading**- Short Story- R.K. Narayan-An Astrologer's Day
- IV- Writing**- Letter Writing- Formal
- V- Grammar**- Adverb and Determiners

### **UNIT V**

- I- Listening**- AOE LAB- Level II- Units- 5, 6 & 7
- II - Speaking**- Mention about a childhood habit that you wish you would not have possessed
- III- Reading**- Short Story- Leo Tolstoy- Little Girls are wiser than Men
- IV- Writing**- Letter Writing- Informal
- V- Grammar**- Preposition, Conjunction and Interjection

## UNIT VI

**I- Listening-** Comprehension Passage

**II - Speaking-** Express your feelings if you have become the Prime Minister of a country, how will you feel if you are the last person to left on earth.

**III- Reading-** The Adventures of Tom Sawyer-Mark Twain, Treasure Island- Robert Louis Stevenson

**IV-Writing-** Write a poem of 10 lines about your favourite teacher, Write a short note on your favourite festival, Describe on your pet at your home, Write a note on step by step preparation of coffee.

**V- Grammar-** Direct and Indirect Speech, Active and Passive Voice

### **Text Books**

Chakraverty, Anima. *Comprehensive Grammar and Composition by Pearson*. Pearson Publication, 2011.

David, James and Viron, Thomas Christian. *English Today*. IELSC Publications Sdn.Bhd, 2000.

Henry, O. *The Trimmed Lamp and Other Stories of the Four Million*. Dodo Press, 2008.

Tagore, Rabindranath. *Kabuliwala and Other Stories*. Maple Press, 2019.

Hemingway, Ernest. *Cat in the Rain and other Short Stories*. MG Books, 2020.

Narayan, R.K. *An Astrologer's Day*. Andesite Press, 2015.

Tolstoy, Leo. *Little Girls Wiser Than Men*. Tara Books, 2021.

### **Books for Reference**

Murphy, Raymond. *English Grammar in Use: A Self Study and Practice Book Intermediate Learners Book*. Cambridge University Press, 2013.

### **Web References**

1. [https://americanenglish.state.gov/files/ae/resource\\_files/the-last-leaf.pdf](https://americanenglish.state.gov/files/ae/resource_files/the-last-leaf.pdf)
2. <https://www.englishliterature.info/2021/04/kabuliwala-short-story-by-tagore.html>
3. [file:///C:/Users/DELL/Downloads/Hemingway%20cat%20in%20the%20rain%20\(1\).pdf](file:///C:/Users/DELL/Downloads/Hemingway%20cat%20in%20the%20rain%20(1).pdf)
4. <http://www.collaborativelearning.org/astrologersday.pdf>
5. <https://druid675333030.files.wordpress.com/2018/03/little-girls-are-wiser-than-men.pdf>

**Pedagogy:** Assignment, Quiz, and Seminar

**Course Designer:** Ms. A. Esther Rani

# FIRST SEMESTER SYLLABUS

## PROSE

<b>Semester I</b>	<b>Internal Marks: 25</b>	<b>External Marks:75</b>		
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hours/ Week</b>	<b>CREDITS</b>
<b>22UEN1CC1</b>	<b>PROSE</b>	<b>CORE COURSE I</b>	<b>6</b>	<b>5</b>

### Course Objectives:

- > To acquaint students with the styles of the prose writers of the English literary tradition.
- > To enable students to differentiate the prose styles of individual authors.
- > To enable students to understand and appreciate prose.

### COURSE OUTCOMES

#### Course Outcomes and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of this course, the students will be able to	Cognitive Level
CO1	Recall the modern prose writers of English literary tradition and their works.	K1
CO2	Illustrate the prose styles of individual authors, themes and styles of writing.	K2
CO3	Identify the writer's perspectives from the Elizabethan period till modern period.	K3
CO4	Examine ambiguity and complexity for better understanding of the text.	K4
CO5	Analyse their own interpretations with an awareness and curiosity for other perspectives to gain better prospects.	K4

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	3	3	3	2	3	2
CO2	3	3	3	3	3	3	3	2	3	3
CO3	3	3	3	3	3	2	3	2	2	2
CO4	2	3	3	3	3	3	2	3	3	3
CO5	3	3	3	3	3	3	2	3	3	2

“1” – Slight (Low) Correlation  “2” – Moderate (Medium) Correlation   
 “3” – Substantial (High) Correlation  “-” indicates there is no correlation.

## SYLLABUS

### **UNIT I: (18 hrs)**

Francis Bacon	:	Of Studies
Oliver Goldsmith	:	The Man in Black

### **UNIT II: (17 Hours)**

Richard Steele	:	The Spectator Club
Joseph Addison	:	Periodical Essays (A great book is a great evil)

### **UNIT III: (17 Hours)**

Charles Lamb	:	Dream Children; A Reverie
William Hazlitt	:	On Going a Journey

### **UNIT IV: (17 Hours)**

G.K. Chesterton	:	The Worship of the Wealthy
Winston Churchill	:	Blood, Soil, Tears and Sweat

### **UNIT V: (17 Hours)**

J.B. Priestly	:	Lectures
Robert Lynd	:	In Praise of Mistakes

<b>UNIT VI</b>	:	<b>Self Study For Enrichment</b> Reading topics from Frances Bacon's Essays. Reading and Writing Comprehension passages. Learning values of Great Personality and their works. Reading topics on Charles Lamb Essays of Elia.
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## **TEXT BOOKS**

1. Kumar, Ashok. *Selected Essays: An Anthology of English Essays for Undergraduates*. Orient Blackswan, 2014.
2. M.G Nayar. *A Galaxy of English Essayists*. Macmillan, 1986.
3. P.K.Thakar, S. D.Desai, Oxford University Press, 2006.

## **REFERENCE BOOK**

1. Abbott, Edwin A. *Bacon's Essay with Introductions, Notes and Index – (Volume I)*. Penguin Publishers, 2018.

## **Web References**

1. <https://www.thoughtco.com/of-studies-by-francis-bacon-1688771>
2. <https://gfgc.kar.nic.in/sadalga/GenericDocHandler/263-5df2b3cd-d279-4012-863b-45afb9be338d.pdf>
3. <https://www.britannica.com/biography/Joseph-Addison>
4. <https://www.litgalaxy2019.com/2020/03/The-Worship-Wealthy-G-K-Chesterton.html>

**Pedagogy:** Seminar, Quiz, Assignment.

**Course Designer:** Ms. M. Irudhaya Pushpam

**FIRST SEMESTER  
SYLLABUS  
SHORT STORIES**

<b>Semester I</b>	<b>Internal Marks: 25</b>		<b>External Marks:75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hours/Week</b>	<b>CREDIT S</b>
<b>22UEN1CC2</b>	<b>SHORT STORIES</b>	<b>CORE COURSE II</b>	<b>6</b>	<b>5</b>

**Course Objectives:**

- To explore the sequences in understanding a story
- To acquire new vocabulary of words and us age in sentences
- To identify the characters and events of the story

**COURSE OUTCOMES**

**Course Outcome and Cognitive Level Mapping**

<b>CO Number</b>	<b>CO Statement On the successful completion of the course, students will be able to</b>	<b>Cognitive Level</b>
CO1	Recall and relate the stories written from different parts of the world.	K1
CO2	Classify different types of characters and how they react to the situation.	K2
CO3	Apply decisions taken by the characters in the given situation and synchronize into readers' own life.	K3
CO4	Analyse the different themes and its purpose of the making of the plot.	K4
CO5	Examine the story based on themes and analyse the style of writing, and study other aspects of the stories from the global world to enhance job opportunities.	K4

**Mapping of CO with PO and PSO**

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	3	3	3	3	3	2	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3
CO4	2	3	3	3	3	2	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

“1” – Slight (Low) Correlation □ “2” – Moderate (Medium) Correlation □

“3” – Substantial (High) Correlation □ “-” indicates there is no correlation.

## **SYLLABUS**

### **Unit-I: BRITISH (18**

**Hours)** Saki: The Open

Window

Somerset Maugham: The Verger

### **Unit-II: INDIAN (17 Hours)**

Rabindranath Tagore: Subha

R.K. Narayan: A Hero

### **Unit-III: RUSSIAN (17 Hours)**

Anton Chekhov: The Bet     Leo

Tolstoy: The Candle

### **Unit-IV: AMERICAN (17 Hours)**

Nathaniel Hawthorne: The Snow Image Ray

Bradbury: A Sound of Thunder

### **Unit-V: NEW ZEALAND & FRENCH (17 Hours)**

Katherine Mansfield: A Cup of Tea

Guy De Maupassant: The Diamond Necklace

### **Unit-VI: Self Study For Enrichment**

Implication of reading various classical and modern short stories of various countries across the world.

Writing a short story with a theme, plot, content, values and virtues. Express a short story/ complete an incomplete story creatively.

Making a short video of a short story.

### **Text Book:**

1. Joseph A. and Balasubramanian. *Memorable Tales*. PoGo Publishing House, 2013.

### **Books for Reference:**

1. Tagore, Rabindranath and Radice, William. *Selected Short Stories*. Penguin books, 1991.
2. Mansfield, Katherine. *The Doves' Nest and other Stories*. Kessinger Pub Co, 2004.
3. Bradbury, Ray. *The Golden Apples of the Sun: and other Stories*. Subterranean, 2008.
4. Brein, Terry O'. *50 Greatest Short Stories*. Rupa Publications, 2015.



## Web References

1. <https://www.vma.is/static/files/enska/Bokmenntir/Short%20Stories/TheOpenWindowSaki.pdf>
2. [https://www.teachingenglish.org.uk/sites/teacheng/files/Maugham\\_The\\_Verger\\_0.pdf](https://www.teachingenglish.org.uk/sites/teacheng/files/Maugham_The_Verger_0.pdf)
3. <https://www.englishliterature.info/2021/04/subha-story-by-rabindranath-tagore.html>
4. <https://www.acschools.org/cms/lib/PA01916405/Centricity/Domain/399/The%20Bet.pdf>
5. <https://www.edutechtree.com/Eleven%20Stories.pdf>
6. <http://nzetc.victoria.ac.nz/tm/scholarly/tei-ManDove-t1-body1-d4.html>
7. [https://fac.ksu.edu.sa/sites/default/files/the\\_diamond\\_necklace.pdf](https://fac.ksu.edu.sa/sites/default/files/the_diamond_necklace.pdf)

**Pedagogy:** Role Play, Assignment, Discussion, Quiz, Seminar.

**Course Designer:** Dr. J. Jenifer Nancy

**FIRST SEMESTER SYLLABUS**  
**SOCIAL HISTORY OF ENGLAND**

<b>Semester I</b>	<b>Internal Marks: 25</b>		<b>External Marks:75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hours /Week</b>	<b>CREDITS</b>
<b>22UEN1AC1</b>	<b>SOCIAL HISTORY OF ENGLAND</b>	<b>FIRST ALLIED-I ALLIED COURSE</b>	<b>4</b>	<b>3</b>

**Course Objectives:**

- To have a comprehensive knowledge of the Social History of England.
- To facilitate better appreciation of literary masterpieces by knowing the social background of the authors of England.
- To relate historical movements and its impact on the writers and their literary works.

**COURSE OUTCOMES**

**Course Outcome and Cognitive Level Mapping**

<b>CO NUMBER</b>	<b>COURSE STATEMENT</b> <b>On the successful completion of this course, the students will be able to</b>	<b>Cognitive Level</b>
CO-1	Recall and discuss the Renaissance, Reformation that made a great change in the socio-cultural- political-economic and religious revolution in England	K1
CO-2	Relate the facts about the expansion of Colonies and Political parties of England	K2
CO-3	Identify the changes during Queen Anne and the role of Coffee Houses life in London	K3
CO-4	Analyse the reasons for Revolutions, Humanitarian, and the growth of Industries, Science and Technology	K4
CO-5	Examine the background study about the society of England thereby to enhance career opportunities.	K4

**Mapping of CO with PO and PSO**

<b>COs</b>	<b>PSO 1</b>	<b>PSO 2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO 4</b>	<b>PO5</b>
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	2	3	2	3	3	3
CO3	3	3	3	3	2	3	2	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	2	3

"1"–Slight (Low) Correlation □ "2"–Moderate (Medium) Correlation □ "3"–Substantial (High) Correlation □ "-" indicates there is no correlation.

# **SYLLABUS**

## **UNIT I: From Darkness to Light: Rebirth (16 Hours)**

- 1.1* The Renaissance
- 1.2* The Reformation
- 1.3* The Religion of England

## **UNIT II: The Golden Age in English History (10 Hours)**

- 2.1* The Elizabethan Theatre
- 2.2* East India Company
- 2.3* Colonial Expansion

## **UNIT III: Radical Changes in English Society (16 Hours)**

- 3.1* The Civil War and its Social Significance
- 3.2* Puritanism
- 3.3* The Origin and growth of Political parties in England
- 3.4* Coffee House Life in London, Age of Queen Anne

## **UNIT IV: Various Revolutions (12 Hours)**

- 4.1* The Union of England and Scotland
- 4.2* The Agrarian Revolution
- 4.3* The Industrial Revolution

## **UNIT V: Victorianism and World Wars (10 Hours)**

- 5.1* Other Humanitarian Movements
- 5.2* The Victorian Age
- 5.3* The World Wars and Social Security

## **UNIT VI: Self Study For Enrichment**

Historical background of England.

Political, Social and Economic conditions prevailing in England. The growth of Industrial Revolution and Communication Explore the impact of England on Europe.

**TEXT BOOK:**

1. Xavier, A. G. *An Introduction to the Social History of England*. S.Viswanathan Printers, 2007.

**BOOKS FOR REFERENCE:**

1. Trevelyan, G.M. *Social History of England*. The English Language Book Society & Longmans, 1962.
2. William J. Long. *English Literature: Its History and Its Significance for the Life of the English Speaking World*. Rupa Publications, 2015.
3. Hutson, W.H. *An Outline History of English Literature*. Maple Press, 2011.

**WEB REFERENCE:**

1. [https://www.uh.edu/~djudkins/life\\_in\\_renaissance\\_england.htm](https://www.uh.edu/~djudkins/life_in_renaissance_england.htm)
2. <https://www.history.com/.amp/topics/reformation/reformation>
3. <https://www.history.com/.amp/topics/british-history/church-of-england>

**PEDAGOGY:** Quiz, Assignment and Seminar

**COURSE DESIGNER:** Ms. U. Sree Aruna

**CAUVERY COLLEGE FOR WOMEN, AUTONOMOUS, TRICHY - 18**  
**NATIONALLY ACCREDITED (III CYCLE) WITH "A" GRADE BY NAAC**  
**ISO 9001:2015 CERTIFIED**  
**TIRUCHIRAPPALLI**

**PG DEPARTMENT OF ENGLISH**



**M.A ENGLISH**

**SYLLABUS**

**2022-2023 AND ONWARDS**



**CAUVERY COLLEGE FOR WOMEN, AUTONOMOUS, TRICHY - 18**

**NATIONALLY ACCREDITED (III CYCLE) WITH "A" GRADE BY NAAC**

**ISO 9001:2015 CERTIFIED**

**TIRUCHIRAPPALLI**

## **PG DEPARTMENT OF ENGLISH**

### **VISION STATEMENT**

- The Department of English envisions the learners to explore and empower LSRW skills thereby gaining competency in various genres of literature across the world.
- Ensuring the aesthetic sensibility and creativity of the learners for higher pursuits in research and professional career.

### **MISSION STATEMENT**

- Procure academic excellence by mastering language and literature, imbibe human values embedded with personality enrichment.
- To gratify the needs of employability and enshrine learners as socially responsible citizens.



# CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

NATIONALLY ACREDITED (IICYCLE) WITH "A" GRADE BY NAAC

ISO 9001:2015 Certified

TIRUCHIRAPPALLI

## PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEOs	Statements
<b>PEO1</b>	<b>LEARNING ENVIRONMENT</b> To facilitate value-based holistic and comprehensive learning by integrating innovative learning practices to match the highest quality standards and train the students to be effective leaders in their chosen fields.
<b>PEO2</b>	<b>ACADEMIC EXCELLENCE</b> To provide a conducive environment to unleash their hidden talents and to nurture the spirit of critical thinking and encourage them to achieve their goal.
<b>PEO3</b>	<b>EMPLOYABILITY</b> To equip students with the required skills in order to adapt to the changing global scenario and gain access to versatile career opportunities in multidisciplinary domains.
<b>PEO4</b>	<b>PROFESSIONAL ETHICS AND SOCIAL RESPONSIBILITY</b> To develop a sense of social responsibility by formulating ethics and equity to transform students into committed professionals with a strong attitude towards the development of the nation.
<b>PEO5</b>	<b>GREEN SUSTAINABILITY</b> To understand the impact of professional solutions in societal and environmental contexts and demonstrate the knowledge for an overall sustainable development.



**PROGRAMME OUTCOMES FOR ARTS**  
**PROGRAMME OUTCOMES FOR MA ENGLISH**

PO. No	<b>PROGRAMME OUTCOMES</b> <b>On completion of MA Programme, the students will be able to</b>
<b>PO1</b>	Exhibit comprehensive knowledge in understanding the issues and problems that arise in the society and apply in life circumstances. (Social Responsibility)
<b>PO2</b>	Achieve in-depth knowledge in various genres of literary texts to contribute the best for the society and to create a better world. (Exploring Success)
<b>PO3</b>	Perceive leadership skills through higher learning and be a visionary to achieve the target. (Professional Competence)
<b>PO4</b>	Identify appropriate resources required for research projects to explore novel ideas to gain real life experience through internships and higher studies. (Discover Innovations)
<b>PO5</b>	Create a scientific attitude and aptitude to undertake research studies for higher learning and career opportunities. (Build Scientific Temperament)

**PROGRAMME SPECIFIC OUTCOMES FOR MA ENGLISH**  
**MA ENGLISH CURRICULUM [2022 -2023 ONWARDS]**

PSO No.	<b>PROGRAMME SPECIFIC OUTCOMES</b> <b>Students of MA English will be able to</b>	<b>POs Addressed</b>
<b>PSO 1</b>	Evaluate literature through politics, environment, society, values, gender and sociological perspectives in reality	<b>PO1</b>
<b>PSO 2</b>	Analyze cognizance to classify the perspectives of English Language and Literature, genres and literary styles of various literatures across the society and the world.	<b>PO1, PO2</b>
<b>PSO 3</b>	Examine writers and their literary works through literary devices and theoretical approaches for professional growth.	<b>PO3</b>
<b>PSO 4</b>	Explore deep insights of literature through hands on experience in research studies enriching critical thinking and creativity.	<b>PO4, PO5</b>
<b>PSO 5</b>	Empower language, linguistics and literature for professional development, crack competitive examinations and to build employability skills.	<b>PO5</b>





## Cauvery College for Women (Autonomous), Trichy - 18. MA- Programme Structure

(For the Candidates admitted from the Academic year 2022 -2023 onwards)

### I SEMESTER

Semester	Course	Title	Subject Code	Inst.Hrs/ Week	Credits	Exam			Total
						Exam Hrs	Marks		
							Int.	Ext.	
I	Core Course - I	British Literature - I (1340 - 1798)	22PEN1CC1	6	5	3	25	75	100
	Core Course - II	Shakespeare	22PEN1CC2	6	5	3	25	75	100
	Core Course - III	Indian English Literature	22PEN1CC3	6	4	3	25	75	100
	Core Course - IV	Black Women's Writing in English Literature	22PEN1CC4	6	4	3	25	75	100
	Elective Course - I	Rhetoric & Stylistics	22PEN1EC1A	6	4	3	25	75	100
		European Fiction in Translation	22PEN1EC1B						
		Technical English	22PEN1EC1C						
	Total				30	22			
15 DAYS OF INTERNSHIP TRAINING DURING SEMESTER HOLIDAYS									

<b>SEMESTER - I</b>	<b>Internal Marks: 25</b>		<b>External Marks : 75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>HRS/ WEEK</b>	<b>CREDITS</b>
<b>22PEN1CC1</b>	<b>British Literature I (From 1340 - 1798)</b>	<b>Core Course I</b>	<b>6</b>	<b>5</b>

### **COURSE OBJECTIVES:**

- To identify the elements and the key components of British Literature.
- To familiarize the students with the characteristics of various literary genres.
- To understand literature as an expression of human values within a historical and social context.

### **PRE-REQUISITE:**

- Thorough knowledge in Social History of England and History of English Literature.

### **COURSE OUTCOMES**

<b>CO Number</b>	<b>CO Statement On the successful completion of the course, students will be able to</b>	<b>Cognizant Level</b>
<b>CO1</b>	Analyse the different techniques employed by the prominent poets and explore creativity in the art of writing poems.	K4
<b>CO2</b>	Examine the concepts of poetry and critically analyze the period from 1340 to 1798 through different genres.	K4
<b>CO3</b>	Evaluate the dramas in the British Literature and also diagnose the critical insight of the tragedies.	K5
<b>CO4</b>	Interpret the way the writers tried to create an impact and contributions made through prose writings.	K5
<b>CO5</b>	Discuss and estimate the characters in drama and fiction instilling virtues over vice and to enrich professional growth in higher learning.	K6

### **MAPPING OF CO WITH PO AND PSO**

<b>Cos</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	3	3	3	3	3	3	3	3	2	3
CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	2	3
CO4	3	3	3	3	3	3	3	2	3	3
CO5	2	3	3	3	3	3	3	3	2	3

“1” – Slight (Low) Correlation “2” - Moderate (Medium) Correlation  
“3” –Substantial (High) Correlation “-” indicates there is no correlation

## SYLLABUS

### UNIT-I: POETRY (17 Hrs)

Geoffrey Chaucer – The Prologue to the Canterbury Tales

John Milton – On Shakespeare

John Dryden - Why Should a Foolish Marriage Vow

Alexander Pope – Ode on Solitude

**Key concepts:** (Sonnet of Milton – Sonnet of Pope – Rise of Dramatic Monologue – Definition and Features of Ode – Features of poetry across the ages)

### UNIT-II: PROSE (15 Hrs)

Francis Bacon - Of Boldness, Of Innovation

Richard Steele - Sir Roger's Opinion of True Wisdom

**Key concepts:** (Development of prose – difference between Bacon and Steele works – uniqueness in Samuel Johnson's prose piece – a study on the periodicals like The Spectator, The Tattler, The Rambler, The Bee etc... )

### UNIT-III: SHORT STORY (15 Hrs)

Richard Cumberland - The Poisoner of Montremos

Walter Scott - The Tapestry Chamber

**Key concepts:** (Origin of English short stories)

### UNIT- IV: DRAMA (16 Hrs)

Ben Jonson – Everyman in his Humour

Richard Brinsley Sheridan - The Rivals

**Key concepts:** (comedy, tragedy, humour, humours comedy, tragic flaw, four humours of Medieval physiology, bodily fluids)

### UNIT-V: FICTION (17 Hrs)

Henry Fielding - Tom Jones

Daniel Defoe - Moll Flanders

**Key concepts:** (Elements of the picaresque and the Bildungsroman, comic epic novel)

### UNIT – VI: Self Study for Enrichment

Edmund Spenser - Easter

William Cowper - Epitaph on a Hare

Samuel Pepys – The Diary of Samuel Pepys

Walter Scott - Death of the Laird's Jock

Aphra Behn - The Rover

Horace Walpole – The Castle of Otranto

**\*Portions for self-study (Not to be included for External examination)**

1. Chaucer, Geoffrey. *The Prologue to the Canterbury Tales*. Oxford, 1997.
2. Bacon, Francis. *The Essays of Francis Bacon*. CreateSpace Independent Pub, 2004.
3. Addison, Joseph and Richard Steele. *The Sir Roger De Coverley Papers from the Spectator*. Kessinger Publishing Co, 2004.
4. Scott, Sir Walter. *The Complete Short Stories of Sir Walter Scott*. Musaicum Books,
5. Jonson, Ben. *Everyman in his Humour*. Boos Way, 2016.
6. Fielding, Henry. *Tom Jones*. Wordsworth Classic,1992.
7. Defoe, Daniel. *Moll Flanders*. Bantam Classics,1989.

**REFERENCES:**

1. Pepys, Samuel. *The Diary of Samuel Pepys*. Modern Library,2003.
2. Scott, Sir Walter. *The Complete Short Stories of Sir Walter Scott*, Musaicum Books
3. Behn, Aphra. *The Rover*. Book Valley,2018.
4. Walpole, Horace. *The Castle of Otranto*. A Gothic Story, Oxford, 2014.

**WEB REFERENCES:**

<https://chaucer.fas.harvard.edu/pages/general-prologue-0>  
<http://www.walterscott.lib.ed.ac.uk/etexts/shortfiction.html>  
[https://archive.org/stream/sirrogerdecoverl04addi/sirrogerdecoverl04addi\\_djvu.txt](https://archive.org/stream/sirrogerdecoverl04addi/sirrogerdecoverl04addi_djvu.txt)  
<https://www.bauerverlag.eu/downloads/Essays-of-Francis-Bacon.pdf>  
<https://www.gutenberg.org/ebooks/4200>

**PEDAGOGY:** Seminar, Discussion and Assignment Course

**DESIGNER:** Dr. S. Senthilkumari

Semester I	Internal Marks: 25		External Marks:75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22PEN1CC2	Shakespeare	Core Course II	6	5

### Course Objective

- To create an awareness of Elizabethan Age
- To make the students understand and appreciate the uniqueness and greatness of Shakespeare
- To acquaint the students with the style of Shakespearean works

### Prerequisite:

- Basic knowledge of Elizabethan age and Shakespearean works.

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Demonstrate the methods employed by the scholars to understand Shakespearean studies.	K3
CO2	Relate the use of Language in the poetry and dramas pertaining to the Cultural Values.	K3
CO3	Distinguish the style employed by Shakespeare in his plays with his Contemporaries.	K4
CO4	Evaluate the works and characters of Shakespearean plays.	K5
CO5	Estimate the creative skills of Shakespeare to gain competency for better Prospects	K5

### Mapping of CO with PO and PSO

Cos	SO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3	3	3	3	3	2
CO2	3	3	3	2	3	3	3	3	2	2
CO3	3	3	3	2	3	3	3	3	2	2
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

“1” – Slight (Low) Correlation “2” – Moderate (Medium) Correlation

“3” – Substantial (High) Correlation “-” indicates there is no correlation.

## Syllabus

### UNIT- I: SONNET (16 hrs)

Sonnet No: 18, 55, 116, 130, 144

**Key Concepts:** Poetic Devices, Volta, Anti-Petrarchan, Psychomachia

### UNIT- II: COMEDY(16 hrs)

The Merchant of Venice

**Key Concepts:** Elements of Comedy

### UNIT- III: TRAGEDY (16hrs)

Macbeth

**Key Concepts: Elements of Tragedy**

### UNIT- IV: CRITICISM ON SHAKESPEARE (16 hrs)

G.Wilson Knight Brutus and Macbeth

Harold Bloom - The Merchant of Venice

**Key Concepts:** Objective correlative, Inartistic Writer

### UNIT -V: TSLKD ON TEDX (16 hrs)

John Bell - How Shakespeare has made me a Humanist

Shamrock Mcshane - Seven sides of Shakespeare

Guy Roberts - To Lead or not to lead: Changing the world with Shakespeare

Doug Scholz Carlson - Shakespeare, Communication and Connecting to Each Other -

Rob Crisell - How NOT to Hate Shakespeare

**Key Concepts:** Humanism, Communication, Globalization, Imagination

### UNIT- VI: Self Study for Enrichment

Shakespear- Sonnet- 27, 106

The Taming of the Shrew

Romeo and Juliet

Hamlet and his Problems – T.S. Eliot

The power of imagination: Lessons from Shakespeare

**\* Portions for self-study (Not to be included for External examination)**

### Text Book:

1. Shakespeare, William. *The Complete Works of Shakespeare*. IBH Publishing Co,1980.
2. Bloom, Harold. *Shakespeare, The Invention of the Human*. "The Merchant of Venice". Riverhead Books,1998.
3. Knight, G. *The Wheel of Fire*. "Brutus and Macbeth". Taylor and Francis. 2005.
4. Eliot, T.S. *The Sacred Wood*. "Hamlet and His Problems". Faber& Faber,1932.

### Reference Books:

1. Shaughnessy, Robert. *The Routledge Guide to William Shakespeare*. Routledge, 2011.
2. Bell, Millicent. *Shakespeare's Tragic Scepticism*. Yale University Press, 2002.
3. Viswanathan, S. *Exploring Shakespeare, The Dynamics of Playmaking*, Orient Longman, 2005.
4. Wells, Stanley and Lena Cowen Orlin. *Shakespeare: An Oxford Guide*. OUP, 2003.

## **Web References**

1. <https://youtu.be/kdvn93jny2w>
2. <https://youtu.be/pw3YPeXSsVE>
3. <https://youtu.be/su2L2NWm3kU>
4. <https://youtu.be/RcfMVM7e1pQ>
5. <https://youtu.be/Kh3gMcOUFao>
6. [https://www.ted.com/talks/john\\_bolton\\_the\\_power\\_of\\_imagination\\_lessons\\_from\\_shakespeare](https://www.ted.com/talks/john_bolton_the_power_of_imagination_lessons_from_shakespeare)

**Pedagogy:** Chalk and talk, PPT, Discussion, Assignment, Demo, Quiz, Seminar

**Course Designer:** Ms. P.K.Durgadevi

	<b>Internal Marks: 25</b>	<b>External Marks: 75</b>		
<b>Subject Code</b>	<b>Course Title</b>	<b>Category</b>	<b>Hrs/ Week</b>	<b>Credits</b>
<b>22PEN1CC3</b>	<b>Indian English Literature</b>	<b>Core Course III</b>	<b>6</b>	<b>4</b>

### Course Objectives:

- To expose students to the artistic and innovative use of language employed by the writers.
- To instil values and develop human concern in students through exposure to literary texts.
- To provide a learning experience that is traditional and informative.

### Pre requisite:

- Good knowledge of various phases of evolution in Indian Writing in English.

### Course Out comes and Cognitive Level of Mapping

<b>CO Number</b>	<b>CO Statement</b> <b>On the successful completion of the course, students will be able to</b>	<b>Cognitive Level</b>
<b>CO1</b>	Examine and apply various aspects of poetry in Indian Writing in English.	K3
<b>CO2</b>	Analyse the principle works of Indian English Poets.	K4
<b>CO3</b>	Compare the technical devices from the dram as prescribed in This course and provide reference to context.	K5
<b>CO4</b>	Evaluate the values to social political and cultural issues reflected in Indian Writing in English.	K5
<b>CO5</b>	Formulate themes, forms, and styles of Indian writing for the better prospects of women for freedom, education and empowerment.	K6

### Mapping of CO with PO and PSO

<b>CO</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	3	3	3	3	3	3	3	3	3	3
<b>CO2</b>	3	3	2	2	3	3	3	2	2	3
<b>CO3</b>	2	3	3	3	3	2	3	3	3	3
<b>CO4</b>	3	3	3	3	3	3	3	3	3	3
<b>CO5</b>	3	3	3	3	3	3	3	3	3	3

“1” – Slight (Low) Correlation “2” – Moderate (Medium) Correlation

“3” – Substantial (High) Correlation “-” indicates there is no correlation.



## SYLLABUS

### UNIT– I POETRY (16 Hours)

Rabindranath Tagore	- Lyric – XXXV (Gitanjali)
Sarojini Naidu	- The Village Song
Nissim Ezekiel	- Marriage Jayanta
Mahapatra	- Dawn at Puri
A.K.Ramanujan	- Obituary

**Key Concepts:** Anaphora, Metaphor, Apostrophe, Symbolism, Rhyme, Imagery, Personification

### UNIT – II PROSE (16 Hours)

A.P.J.Abdul Kalam	- Turning Point: A Journey through Challenges (Chapter – 3)
Salman Rushdie	- Imaginary Homelands (Chapter – 11.14)

**Key Concepts:** Parallelism, Diction, Foreshadow, Vignette

### UNIT – III SHORT STORIES (16 Hours)

Jhumpa Lahiri	-A Temporary Matter
Chitra Banerjee Divakaruni	- The Ultra sound
R.K.Narayan	- Gateman’s Gift

**Key Concepts:** Protagonist, Antagonist, Exposition, Denouement

### UNIT – IV - DRAMA (12 Hours)

Asif Currimbhoy	-The Dumb Dancer
Mahesh Dattani	- Tara

**Key Concepts:** Atmosphere, Dramatic Tension, Monologue, Three Unities

### UNIT – V – FICTION (20 Hours)

Amitav Ghosh	-The Calcutta Chromosome
Kiran Desai	-The Inheritance of Loss

**Key Concepts:** Cultural Materialism, Deconstruction, Postcolonialism, Feminism

### UNIT – VI Self-Study for Enrichment

Kamala Das	- My Grandmother’s House
Jawaharlal Nehru	- Glimpses of World History (Chapter – 22 & 56)
Anita Desai	- A Devoted Son
Girish Karnad	- The Fire and the Rain
Rohinton Mistry	- A Fine Balance

**\*Portions for self-study (Not to be included for External examination)**

#### Text Books:

- 1.Tagore, Rabindranath. *Gitanjali*. Braden Books,2000.
2. King, Bruce.*Three Indian Poets: Nissim Ezekiel, A.K. Ramanujan*. Dom Moraes. Oxford UP, 1991.
3. Kalam, A.P.J.Abdul. *Turning Points: A Journey through Challenges India*. Harper Collins, 2016
4. Rushdie, Salman. *Imaginary Homelands*. Penguin Book, 1991.
5. Lahari, Jhumpa. *Interpreter of Maladies*. Houghton Mifflin, 2017.
6. Divakaruni, Chitra Banerjee. *Arranged Marriage*. Penguin, 2017.
7. Narayan.R.K. *Malgudi Days*. Indian Thought Publications,2000.
8. Currimbhoy, Asif. *The Dumb Dancer*. Writers Workshop,1992.
9. Dattani, Mahesh. *Tara*. Orient Longman, 1995.
10. Gosh, Amitav. *The Calcutta Chromosome*. Penguin,2009.

#### Books for Reference:

1. Iyengar, K.R Srinivasa. *Indian Writing in English*. Sterling Publishing Private Limited,2005.
2. Das, Kamala. *Summer in Calcutta*. Everett Press, 1965.
3. Nehru, Jawaharlal. *Glimpses of World History*. Penguin Book,2004.

4. Desai, Anita. *Games at Twilight and Other Stories*. Penguin Book, 1983.
5. Karnad, Girish. *The Fire and Rain*. Oxford University Press, 1988.
6. Mistry, Rohinton. *A Fine Balance*. Faber & Faber, 2008.

#### Web Reference

[https://allpoetry.com/Village-](https://allpoetry.com/Village-Song)

[Songhttps://www.poemhunter.com/poem/dawn-at-puri/](https://www.poemhunter.com/poem/dawn-at-puri/)

[https://en.wikipedia.org/wiki/The\\_Inheritance\\_of\\_LossMalgudi\\_Days\\_\(short\\_story\\_collection\)](https://en.wikipedia.org/wiki/The_Inheritance_of_LossMalgudi_Days_(short_story_collection)) -

[Wikipedia](#)

[https://www.goodreads.com/book/show/5211.A\\_Fine\\_Balance](https://www.goodreads.com/book/show/5211.A_Fine_Balance)

[https://www.semanticscholar.org/paper/The-Dumb-Dancer%3A-A-Quest-for-Identity\\_Kiran/9c30fcde5d87b65264fa8d8fedd56395f1a577f8](https://www.semanticscholar.org/paper/The-Dumb-Dancer%3A-A-Quest-for-Identity_Kiran/9c30fcde5d87b65264fa8d8fedd56395f1a577f8)

**Pedagogy:** Seminar, Quiz, Assignment,  
**Course Designer:** Dr. P. HelanJona

Semester – I	Internal Marks: 25	External Marks : 75		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs/Week	CREDITS
22PEN1CC4	Black Women’s Writing in English Literature	Core Course IV	6	4

### Course Objectives:

- To develop a greater understanding of the various genres of writings by black women writers from varied cultures.
- To understand how racial and ethnic groups have resisted and struggled to recreate their own cultural identities, leading to both conflict and community empowerment.
- To begin to understand the unique aspects of African American literary theory.
- To gain a fuller and richer understanding of black women’s literature, particularly representations of black women within the American literary and cultural imagination.

### Prerequisite:

- To have knowledge of women’s writing and the issues they portray.

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Analyse the narrative forms of oral traditions, signifying, folklore, and music, making African American literature unique in its approach.	K4
CO2	Classify the principal works, authors and genres of Black Women’s Writing.	K4
CO3	Evaluate the unique features of Black women’s literature and to recognize characteristics of African American literary history	K5
CO4	Determine the theoretical concepts of race, racism, and racialization in the creation of an ethnic literature.	K5
CO5	Formulate views on ethnic identity and racial identity by individuals and groups in different contexts to gain knowledge and competency for higher prospects	K6

### Mapping of CO with PO and PSO

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3
CO3	3	3	2	3	3	2	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

“1” – Slight (Low) Correlation “2” – Moderate (Medium) Correlation  
“3” – Substantial (High) Correlation“-” indicates there is no correlation.

## SYLLABUS

### UNIT-I: INTRODUCTION TO AFRICAN AMERICAN WOMEN'S LITERATURE (18Hrs)

Historical context– Early Black Women writers and Major Themes - The Literature of Slavery, Freedom and itsabolition - Harlem Renaissance - Literature of the civil rights and Black Power era – Contemporary Black Women writers.

#### POETRY

Margaret Walker - Lineage (1942)

Audre Lorde - A Woman Speaks (written1984 /published 1997)

Maya Angelou - Caged Bird (1983)

**Key Concept:** Racial oppression - Freedom/Captivity - Happiness/Sorrow- Imagery - Religion Culture – Racism – Religion - Slavery – War – Freedom - Equality.

### UNIT-II: PROSE (16 Hrs)

Margo Jefferson - Scenes from a Life in Negroland (2015)

Toni Morrison - The Color Fetish (2017)

**Key Concepts:** Captivity, war and equality

### UNIT III- SHORT STORIES (16 Hrs)

Toni Cade Bambara – Happy Birthday (1972)

Alice Moore Dunbar Nelson - The Goodness of St. Rocque (1996)

**Key concepts:** Desperation – Identity - Social and Economic Problems

### UNIT IV-DRAMA (DETAILED) (14Hrs)

[Zora Neale Hurston](#) - Color Struck (1926)

Pearl Cleage - Blues for an Alabama sky (1995)

**Key Concepts:** Harlem Renaissance - Great Depression - Economic Hardships - Reproductive Rights -Homosexuality

### UNIT V- FICTION (16 Hrs)

Paule Marshall - Praisesong for the Widow (1983)

Chimamanda Ngozi Adichie - Half of a Yellow Sun (2006)

**Key Concepts:** Culture, Materialism, loss of identity, Slave trade

### UNIT – VI – Self- Study for Enrichment

Barbara Christian's -Black Feminist Criticism

Margaret Walker – I Want to Write

Bell Hooks - Love as the Practice of Freedom (1994)

Nafissa Thompson - Heads of the Coloured People (2018)

Lorraine Hansberry - A Raisin in the Sun (1959)

Toni Morrison – Tar Baby (1981)

**\*Portions for self-study (Not to be included for External examination)**

### **Text Books:**

1. Walker, Margaret. *"Lineage" from This is My Century: New and Collected Poems*. University of Georgia Press, 1989.
2. Lorde, Audre. *"A Woman Speaks" The Collected Poems of Audre Lorde* W. W. Norton and Company Inc., 1997.
3. Angelou, Maya. *Caged Bird, The Complete Collected Poems*. Random House, First Ed., 1994.
4. Jefferson, Margo. *Negroland: A Memoir*. Pantheon Books, 2015.
5. Morrison, Toni. *The Origin of Others*. Harvard University Press, 2017.
6. Bambara, Toni Cade. *Gorilla, My Love*. Random House, 1960.
7. Dunbar, Alice Moore. *The Goodness of St. Rocque, and Other Stories*. Public domain, 1996.
8. Cleage, Pearl. *Blues for an Alabama Sky*. Dramatists Play Service Inc., 1983.
9. Hurston, Zora Neale. *Color Struck*. Rutgers University Press, 1926.
10. Marshall, Paule. *Praisesong for the Widow*. Penguin Books, 1983.
11. Adichie, Chimamanda Ngozi. *Half of a Yellow Sun*. Harper Collins Publishers, 2006.

### **Reference Books:**

1. Carby, Hazel. *Reconstructing Womanhood: The Emergence of the Afro-American Woman Novelist*. Oxford University Press, 1987.
2. Routledge. *Routledge Handbook of African Literature*. first Edited by Moradewun Adejunmobi, Carli Coetzee, 2019.

### **Web References:**

<https://www.google.com/MargaretWalker/I+Want+to+Write>  
<https://www.google.com/AliceMooreDunbarNelsonGorilla+My+Love+Sweet+Townhttps://www.google.com/Lorraine+Hansberry+A+Raisin+in+the+Sunhttps://scalar.lehigh.edu/toni-morrison/tar-baby-1981-overview-and-links>  
[https://www.researchgate.net/publication/338712372\\_Routledge\\_Handbook\\_of\\_African\\_Literature\\_Edited\\_by\\_Moradewun\\_Adejunmobi\\_and\\_Carli\\_Coetzee\\_Chapter](https://www.researchgate.net/publication/338712372_Routledge_Handbook_of_African_Literature_Edited_by_Moradewun_Adejunmobi_and_Carli_Coetzee_Chapter)

**Pedagogy:** Quiz, Seminar, Assignment

**Course Designers:** Dr. Prema Joshua & Dr. R. Vanitha

<b>Semester I</b>	<b>Internal Marks: 25</b>		<b>External Marks:75</b>	
<b>ELECTIVE COURSE I</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hrs / Week</b>	<b>CREDITS</b>
<b>22PEN1EC1A</b>	<b>Rhetoric and Stylistics</b>	<b>Elective Course I</b>	<b>6</b>	<b>4</b>

### Course Objective

- To develop conversance of the learners in English Rhetoric and Stylistic.
- To apply the acquired rhetoric skills, linguistics knowledge and Style in analysis of the language.
- Enables the learners to study and to be familiar with future trends in Language.

### Prerequisite:

- Primary understanding in the art of writing and an interest for listening to discourses combined with an intermediate knowledge about the Contemporary topic in Stylistics in English Language.

### Course Outcome and Cognitive Level Mapping

<b>CO Number</b>	<b>CO Statement</b>	<b>Cognitive Level</b>
	<b>On the successful completion of the course, students will be able to</b>	
CO1	Analyse the concepts of Stylistics and the Science of Rhetoric.	K4
CO2	Examine the elements of Rhetoric and elaborate the five canons of Rhetoric writing.	K4
CO3	Determine and assess the acquired skills with the levels and theories in Stylistics	K5
CO4	Compare and evaluate contemporary topics in Stylistics	K5
CO5	Construct the contrastive analysis of literature with emerging trends in Stylistics to enhance competency for better prospects and career opportunities.	K6

### Mapping of CO with PO and PSO

<b>Cos</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	3	2	3	3	3	3	3	2	3	3
CO2	2	3	3	3	3	2	3	2	3	3
CO3	3	3	3	3	3	2	3	2	3	2
CO4	3	3	3	2	3	2	3	3	3	3
CO5	3	3	3	3	3	2	3	2	3	3

“1” – Slight (Low) Correlation      “2” – Moderate (Medium) Correlation  
“3” – Substantial (High) Correlation      “-” indicates there is no correlation.

## **SYLLABUS**

### **UNIT –I The Science of Rhetoric (18Hrs)**

Definition of Rhetoric – Three Elements of Rhetoric: Presentative, Representative and Elaborative- Rhetorical Situation: Grammar, Logic, Aesthetics, and Ethics – 5 Canons of rhetoric writing.

**Key Concepts:** Logic, Aesthetics, Inventive, Arrangement, Style, Memory, Delivery.

### **UNIT – II Discourse (17Hrs)**

Topic Sentence, Paragraph Unity: Coherence and flow, Methods of Developing Paragraphs, Discourse. Four Kinds of Discourse: Exposition, Argumentation, Description, Narration.

**Key Concepts:** Comparison, Concession, Emphasis, Parallelism

### **UNIT-III - Stylistics (17Hrs)**

The Linguistic Levels of foregrounding in Stylistics, Stylistics speech acts and impoliteness theory, Stylistics point of view and modality, Speech and thought presentation in stylistics.

**Key Concepts:** Formalist Stylistics, Metaphor and Metonymy, Rhetoric and Poetics, Schema, Script, and Frame Theory

### **UNIT – IV- Contemporary topics in Stylistics (15 Hrs)**

Pedagogical Stylistics, Feminist Stylistics, Critical Stylistics.

**Key Concepts:** Feminist Stylistics, Point of View and Modality, Speech and Thought Presentation, Text World Theory.

### **UNIT- V: Emerging trends in Stylistics (13 Hrs)**

Creative Writing and Stylistics, Stylistics and Film, Stylistics and hypertext Fiction. Practical Work: Creative Writing.

**Key Concepts:** Cognitive Poetics, Drama and Performance, Rhetoric and Poetics, Narratology, Stylistics and Film.

### **UNIT- VI – Self- Study for Enrichment**

Art of Discourse.

Discourse Analysis; Elements of Grammar and Transformation of Sentences.

Metaphor and Stylistics.

Stylistics and Translation.

Stylistics, Emotion and Neuroscience.

**\*Portions for self-study (Not to be included for External examination)**

### **Text Books:**

- 1 Weston, Anthony. *A Rulebook for Arguments*. Hackett publication, 2009.
- 2 Cleanth Brooks and Robert Penn Warren. *Modern Rhetoric*. Harcourt Brace Jovanovich, 1979.
- 3 Paul Simpson. *Stylistics: A Resource Book for Students*. Routledge, 2nd edition, 2014.
- 4 Edited by Michael Burke. *The Routledge Handbook of Stylistics*. Routledge, 2014.

### **Books for Reference:**

1. Robin Wooffitt. *Conversation Analysis and Discourse Analysis: A Comparative and Critical Introduction*, First Edition. SAGE, Publications Ltd, 2005.
2. Widdowson H.G., *Discourse Analysis*. Oxford University Press, 2012.

## **Web References**

1. <https://rulb.org/en/article/ritorika-lingvistika-i-stilistika-obzor/>
2. <https://www.degruyter.com/document/doi/10.1515/9781614511335-014/html>
3. <https://www.thoughtco.com/stylistics-language-studies-1692000>
4. <https://oxfordre.com/literature/view/10.1093/acrefore/9780190201098.001.0001/acrefore9780190201098-e-1008>

**Pedagogy:** PPT, Assignment, Phonetic Transcription, Quiz and Assignment.

**Course Designer:** Ms.A.Violet Pangaja Bai



Semester I	Internal Marks: 25		External Marks:75	
Elective Course I	COURSE TITLE	CATEGORY	Hours/ Week	CREDITS
22PEN1EC1B	European Fiction in Translation	Elective Course I	6	4

### Course Objectives:

- To reveal the complex scope and the wealth and values hidden in European literature
- To expose the richness of European culture to the students
- To introduce various cultural practices followed in European Nations

### Prerequisite:

Acquire knowledge of western civilization and European cultures.

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Analyze and classify the concepts of European culture through various genres of literature	K4
CO2	Examine the themes and forms in various fictions, poems, dramas and novels.	K4
CO3	Evaluate the style of the European writers and their works.	K5
CO4	Compare the characters and motifs in the European literature	K5
CO5	Create to build the ideas with various European cultures, traditions and languages for progression and better prospects.	K6

### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	2	2	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

“1” – Slight (Low) Correlation      “2” – Moderate (Medium) Correlation  
“3” – Substantial (High) Correlation “-” indicates there is no correlation.

## SYLLABUS

### UNIT I (16 Hrs)

Milan Kundera - The Unbearable Lightness of Being

Albert Camus - The Stranger

**Key concepts:** Physical unfaithfulness, shunning, emotional faithfulness, irrationality of human actions and philosophical notion of absurdity.

### UNIT II (16 Hrs)

Orhan Pamuk - Snow

Nikos Kazantzakis - Zorba the Greek

**Key concepts:** Universality of death, modernity versus religion, incredible friendship and the importance of living life to the fullest.

### UNIT III (16 Hrs)

Boris Pasternak - Doctor Zhivago

Mikhail Sholokhov - And Quiet Flows the Don

**Key concepts:** Stability, communist regime, peace, acceptance, analogy, guilt, responsibility and blame.

### UNIT IV (16 Hrs)

Camilo Jose Sela - The Family of Pascual Duarte Jose

Saramago - The Year of the Death of Ricardo Reis

**Key concepts:** Spanish Civil War, alienation, cultural contextualization and conflict.

### UNIT V (16 Hrs)

Umberto Eco - The Name of the Rose Elias

Canetti - Auto-da-Fe

**Key concepts:** Judgement, hypocrisy, dissociated intellectualism, evil, chaos and destruction.

### UNIT VI – Self Study for Enrichment

Antoine de Saint-Exupéry - The Little Prince

Ahmet Hamdi Tanpınar - A Mind at Peace

Gunter Grass - The Tin Drum

Isabel Allende - City of the Beasts

Michael Ende - The Never ending Story

**\*Portions for self-study (Not to be included for External examination)**

**Text Book:**

1. Kundera, Milan. *The Unbearable Lightness of Being*. Faber & Faber. 2000.
2. Camus, Albert. *The Stranger*. Vintage, 1989.
3. Pamuk, Orhan. *Snow*. Vintage, 2005.
4. Kazantzakis, Nikos. *Zorba the Greek*. Faber & Faber, 1959.
5. Pasternak Boris. *Doctor Zhivago*. Pantheon, 1997.
6. Sholokhov, Mikhail. *And Quiet Flows the Don*. Penguin Press, 2017.
7. Sela, Camilo Jose. *The Family of PascualDuante*. Bright Summaries .com, 2018.
8. Saramago, Jose. *The Year of the Death of Ricardo Reis*. Vintage Digital, 2013.
9. Eco, Umberto. *The Name of the Rose*. Mariner Books, 2014.
10. Canetti, Elias. *Auto-da-Fe*. Farrar, Straus and Giroux, 1984

**Reference Books:**

1. [Bell, James Scott](#). *Write Great Fiction Plot & Structure: Techniques and Exercises for Crafting and Plot That Grips Readers from Start to Finish*. Writer's Digest Books, 2004.
2. Forster E. M. *Aspects of Novel*. Rosetta Books, 2010.

**Web References:**

1. [https://www.msjkeeler.com/uploads/1/4/0/6/1406968/milan\\_kundera\\_the\\_unbearable\\_lightness\\_of\\_being.pdf](https://www.msjkeeler.com/uploads/1/4/0/6/1406968/milan_kundera_the_unbearable_lightness_of_being.pdf)
2. <https://www.slps.org/site/handlers/filedownload.ashx?moduleinstanceid=27607&dataid=78367&FileName=The%20Stranger%20-%20Albert%20Camus.pdf>
3. <https://archive.org/details/snow00pamu/page/n15/mode/2up>
4. [https://archive.org/stream/NikosKazantzakisZorbaTheGreek/Nikos-Kazantzakis-Zorba-theGreek\\_djvu.txt](https://archive.org/stream/NikosKazantzakisZorbaTheGreek/Nikos-Kazantzakis-Zorba-theGreek_djvu.txt)
5. [https://archive.org/stream/DoctorZhivago\\_201511/Doctor%20Zhivago\\_djvu.txt](https://archive.org/stream/DoctorZhivago_201511/Doctor%20Zhivago_djvu.txt)
6. <https://www.supersummary.com/the-tin-drum/summary/>
7. <https://www.supersummary.com/the-family-of-pascual-duarte/summary/>
8. <https://www.themodernnovel.org/europe/w-europe/portugal/saramago/reis/>
9. <https://www.docdroid.net/wIUWCoa/umberto-eco-the-name-of-the-rose-1980-pdf#page=5>
10. <https://archive.org/details/in.ernet.dli.2015.65735/page/n11/mode/2up>

**Pedagogy:** Role Play, Assignment, Discussion, Quiz, Seminar.

**Course Designer:** Dr. J. Jenifer Nancy



**Cauvery College for Women (Autonomous)**

**Nationally Accredited (III cycle) with 'A' Grade by NAAC**

**ISO 9001:2015 Certified**

**Annamalai Nagar, Trichy-18**

**P.G & Research Department of Social Work**

**VI Board of Studies (Virtual Meeting)**

**Minutes of the Meeting**

**Date : 04/05/2022**

**Time : 10.30 AM**

**The Members attended the meeting**

1. Dr.G.Kanaga Chairman & Professor  
Professor & Dean of Alumnae Relations  
PG & Research Department of Social Work  
Cauvery College For Women (Autonomous)  
Trichy.
2. Dr.F.X.Lovelina Little Flower Subject Expert  
Professor & Head Bharathiar University  
Department of Social Work  
Bharathiyar University  
Coimbatore
3. Dr.Arul Kamaraj Subject Expert  
Assistant Professor other University  
Loyola College  
Chennai-34
4. Dr.K.Suriyan Special Invitee

Professor and Head I/C  
Department of Sociology  
Bharathidasan University  
Trichy.

Bharathidasan University

5. Dr.T.R.Kanmani  
Assistant Professor  
Department of Psychiatric Social Work  
NIMHANS  
Bengaluru. Subject Expert  
(other University)
6. Dr.G.Mettilda Buvaneswari  
Associate Professor & Head  
PG & Research Department of Social Work  
Cauvery College For Women (Autonomous)  
Trichy. Member
7. Dr.S.Vidhya  
Assistant Professor  
PG & Research Department of Social Work  
Cauvery College For Women (Autonomous)  
Trichy Member
8. Ms.PL.Rani  
Assistant Professor  
PG & Research Department of Social Work  
Cauvery College For Women (Autonomous)  
Trichy Member
9. Dr.O.Aisha Manju  
Assistant Professor  
PG & Research Department of Social Work  
Cauvery College For Women (Autonomous)  
Trichy Member
10. Ms.S.Hema  
Assistant Professor  
PG & Research Department of Social Work  
Cauvery College For Women (Autonomous)  
Trichy Member
11. Dr.T.Amirtha Mary  
Assistant Professor  
PG & Research Department of Social Work  
Cauvery College For Women (Autonomous)  
Trichy Member

Leave of absence was granted to Ms.V.Chitrakala (Alumna Member), Medical Social Worker, Medico Social Work Wing, JIPMER, Puducherry

Leave of absence was granted to Mr.J.Ravikumar.,Recruitment – HR , IDFC FIRST Bharat Ltd.,Trichy-1(Placement representative from Industry/Corporate)

### **Agenda of the Meeting**

#### **ITEM NO.BOS/06/01**

To consider and approve the PSO, the Programme structure and I semester syllabus of BSW for 2022-2023 batch onwards and recommend to the academic council, Cauvery college for Women(Autonomous),Trichy-18.

#### **ITEM NO.BOS/06/02**

To consider and approve the Syllabus for UGC Jeevan Kaushal Life Skills course 22UGVE- Universal Human Values.

#### **ITEM NO.BOS/06/03**

To consider and approve the PSO, the Programme structure and I semester syllabus of MSW for 2022-2023 batch onwards and recommend to the academic council, Cauvery college for Women(Autonomous),Trichy-18.

#### **ITEM NO.BOS/06/04**

To suggest panel of names to the academic council, Cauvery college for Women (Autonomous),Trichy-18 for appointment of examiners.

#### **ITEM NO.BOS/06/05**

To thank the members of BOS

**At the outset, the members discussed the above Agenda and is Resolved as Follows**

**Dr.G.Kanaga, Professor & Dean of Alumnae Relations, PG & Research Department of Social Work Welcomed the Members of BOS**

#### **RESOLUTION ITEM NO.BOS/06/01**

Considered and Approved the PSO, the Programme Structure and I Semester syllabus of

BSW for 2022-2023 batch and onwards and forwarded to the Academic Council, Cauvery college for Women (Autonomous), Trichy-18 with the following changes

Revision of syllabus of core course 22USW1CC1- Introduction to Social Work.

#### **Portion for Self-study is given in each Unit**

Unit I: Learners need to present application of methods of social work from the available literature.

Unit II: Learners should be able to relate social work to the basic concepts of social work.

Unit III: Learners need to gain knowledge about the professional organizations such as NAPSWI, INPSW, NASW and IASW.

Unit IV: Learners need to present the autobiography of the founders of each religion

Unit V: Learners should prepare a list of institutions functioning for the practice of social work in their region.

### **Topics Included**

Unit I Social Work: Meaning, Definition, Basic Assumptions, Objectives, Philosophy, Ethics and Principles of social work, Functions and Methods.

Unit II Basic concepts of Social Work: Social Service, Social Welfare, Social Reform, Social Justice, Social Security, Social Policy, Social Defense, Social Development, Human Rights, Social Legislation.

Unit IV: Religious values, Ethics and contribution: Hinduism, Islam, Christianity, Buddhism, Jainism and Sikhism

Unit V : Scope of social work

### **Topics Reduced**

Unit II: Social Administration.

Unit V: Welfare State: Concept; role of state and voluntary agencies in the field of social welfare.

Revision of syllabus of Core Course 22USW1CC2 Structure of Indian Society and Indian Social Problems

### **Portion for Self-study is given in each Unit**

Unit I- Social process, Culture & Civilization, Acculturation, Cultural conflict, Cultural lag, Culture & Personality

Unit II- Caste system in India, Theories of Caste system, Social Inequality & Exclusion, Patterns of Social Mobility

Unit III- Other Social Institutions - Education, Economy, Religion, Political institutions, Examples of Social Control in India

Unit IV- Theoretical approaches to Social problems, Causes of Social Problems, Effects of Social problems, Corruption

Unit V- Urbanization, Youth unrest & agitation, Population Explosion

### **Topics Included**

Unit V Topic Alcoholism is removed and added with Substance Abuse

Revision of syllabus of Allied Course I 22USWAC1 Basics of Economics and Political system

### **Portions for Self Study given in each Unit**

Unit I - Concept of Competition and market structures, consumer , income distribution

Unit II- Market economy and Mixed economics system

Unit III - Sustainable development, Factors affecting economic growth

Unit IV - Advantages and disadvantages of representative democracy

Unit V - Forms of: Political Participation

**Topics included**

Unit I

Basics of Economics and Political System, Market and Prices, profits, Elasticity of Demand, Optimum use of Resources

Unit II: History and Types of Economic System, Current position of Indian Economy

Unit III : Indicators of Economic Development

Unit IV : Definition of Political System

Unit V : Definition, Components and Functions, Benefits of Political Participation

**Topics Reduced**

Unit i - Cost Efficiency

Unit II - Contemporary Economic System , Capital market economy

Unit V - Elements of Political Participation

**RESOLUTION ITEM NO.BOS/06/02**

Considered and Approved the Revision of Syllabus for UGC Jeevan Kaushal Life Skills course 22UGVE- Universal Human Values.

**Portion for Self-study is given in each Unit**

Unit I: Learners need to list ways of practising the values love and compassion

Unit II: Learners need to list ways of practising the values Truth and non-violence.

Unit III: Learners need to list ways of practising the values Righteousness and service

Unit IV: Learners need to list ways of practising the values Renunciation (sacrifice) & Peace

Unit V: Learners need to list ways of practising the values Renunciation (sacrifice) & Peace

**Topics included**

Unit II : Non – Violence : Introduction: what is non violence? Its need. Love, compassion, empathy sympathy for others as pre-requisites for non violence. Ahimsa as non -violence and non- killing. Individuals and organisations that are known for their commitment to non – violence. Narratives and anecdotes about non - violence from history and literature including local folklore.

Unit III



Righteousness and Service. Introduction: What are Righteousness and service?. Righteousness and dharma, Righteousness and Propriety. Forms of service for self, parents, family, friend, spouse, community, nation, humanity and other beings- living and non-living persons in distress for disaster. Individuals who are remembered in history for practicing Righteousness and Service. Narratives and anecdotes dealing with instances of Righteousness and Service from history, literature, including local folklore.

#### Unit IV

Renunciation (sacrifice) & Peace Introduction: what is renunciation? Renunciation and sacrifice. Self restraint and ways of overcoming greed. Renunciation with action as true renunciation. What is peace? It's need, relation with harmony and balance.

Individuals who are recommended in history for practicing Renunciation and sacrifice. Individuals and organizations that are known for their commitment to peace. Narratives and anecdotes from history and literature including local folklore about individuals who are remembered for their renunciation and sacrifice. Narratives and anecdotes about peace from history and literature including local folklore practicing peace

#### Unit V

Practicing human values : What will learners learn/gain if they practice human values? What will learners lose if they Don't Practice human values?. Sharing learner's individual and/ or group experience(s). Simulated situations. Case studies.

### **Topics reduced**

#### Unit I

Practicing love and compassion: what will learners learn gain if they practice love and compassion? What will learners lose if they Don't Practice love and compassion? Sharing learner's individual and/ or group experience(s). Simulated situations. Case studies

Unit II : Practicing truth: what will learners learn/ gain if they practice truth? What will learners lose if there Don't Practice it?. Learners' individual and/ or group experience(s). Simulated situations. Case studies.

### **RESOLUTION ITEM NO.BOS/06/03**

Considered and Approved the PSO, the Programme Structure and I Semester syllabus of MSW for 2022-2023 batch and onwards and forwarded to the Academic Council, Cauvery college for Women (Autonomous), Trichy-18 with the following changes

Revision of syllabus of Core Course 22PSW1CC1 Introduction of Social Work

### **Portion of self study is given in each unit**

Unit I Social Reform movements in India

Unit II Procedures for membership in professional organisations

Unit III Fields of social work

Unit IV social institutions

Unit V Data collection on Social Problems

**Topics reduced**

UNIT II Problems Faced By Social Work Professionals In India

UNIT III Fields of social work

UNIT IV Social Institutions

**Topics included**

Unit II National and International Professional Organizations in Social Work

Revision of Syllabus for Core Course 22PSW1CC2 Social Work Profession with Individuals and Groups Introduced by merging existing Syllabus of Social Case Work and Social Group work

**Portions of self study is given in each unit**

Unit I – Learners have to write down the experience of establishing relationship

Unit II-Learners have to conduct 1 case work and submit report

Unit IV- Learners to Plan & Implement any one group work submit a detailed report

Unit V- Learners to visit any one of the setting & observe the case work & group Work and record observation and submit a detailed report )

**Topics Included**

**Unit I-**

Client Case worker relationship

**Unit II**

Case work Process, Case Work and Communication, Approaches to Practice.

**Unit III**

Social Group Work, Group work Process, Group Work Supervision

**Unit IV**

Programme Planning, Programme Laboratory, Models and approaches

**Unit V**

Recording in case work and Group Work Scope and practice of Social case work & Social Group work, Application of Case work and Group work method in different settings

Revision of Syllabus for Core Course 22PSW1CC3 Community Organization and Social Action

### **Portions for Self Study included in each Unit**

Unit I - Caste system in India, Theories of Caste system, Social Inequality & Exclusion, Patterns of Social Mobility, Leadership, and theories of Leadership

Unit II - Community Participation, Community Organization as a macro method, Community work

Unit III - Nature of Different Communities with their strength and weakness

Unit IV - Current issues in Community Organization, Gender sensitivity issues in Community Organization

Unit V - Advantages of Social Action, Examples of Social Action in India and abroad

### **Topics included**

Unit I: Concept of Community Development, Similarities and differences between Community Development and Community Organisation, History of Community Organisation

Unit II : Phases of Community Organisation, Community Relationship, study, Analysis, Assessment, Discussion, Organisation, Action, Evaluation, Modification and Continuation. Models of Community organization.

Unit III : Focus groups, Analysis of Power Dynamics in various community, Mobilization of participation, Involvement in problem solving process, Identification of needs, Issues, Prioritization, Problem Analysis, Selection of Alternatives, Community based Organisation, Building and Federating for sustained problem solving Action, Strategies in Community Organisation, Organising Conferences, training programmes, Consultation, negotiation and networking.

Unit IV: Topics included: Application of Community Organisation

Community Organisation in different fields- Health, Education, Correctional, Rural-Urban and Tribal Communities, Vulnerable Sections, Disaster, Displaced Population and Rehabilitation, Peace and Peace building, Empowerment of Marginalised groups of Communities, Practice Skills, Research skills for Community work, Various roles of Community Organiser.

### **Topics reduced**

Unit I: Minority groups, Definition and Qualities, leadership in different types of Communities, theories of leadership

Unit II: Community welfare Council and Community Chest, Community Participation, Concept Imperatives, types, constraints, methods and techniques, components of community work and community relation.

Unit III : Methods of Community Organisation, Planning, Education, Communication, Community Participation, Collective decision making, involvement of groups and organizations, resource mobilization, community action,

legislative and non legislative promotion, Coordination, Community Organisation as an approach to Community Development

Unit IV: Phases of Community Organisation, Study, Assessment, Discussion, Organisation, Action, Evaluation, Modification, Continuation, Community Organisation in Emergencies like fire, flood, drought, famine, earthquake, and war: Community Organisation at local, state and national level. Community Organisation in different settings: rural, urban, and tribal areas.

Revision of syllabus for Core Practicum I - 22PSWICC1P Social Work Practicum

In the three components of Social Work Practicum, topics/themes were included in two components. The following institutions were included under observation visits: Psychiatric hospitals/clinics, PHCs; Community settings: village visits, Corporations, municipalities, Panchayat Samitis etc.

Under Group awareness project the theme suicide prevention is included.

In the evaluation part External Evaluation is considered as VIVA-VOCE.

**ITEM NO.BOS/06/04**

Considered and Approved the panel of names to the academic council, Cauvery college for Women (Autonomous), Trichy-18 for appointment of examiners.

**ITEM NO.BOS/06/05**

Dr.G.Kanaga thanked the members of BOS for their Suggestions and Contributions for the Board of Studies

Signature

Dr.G.Kanaga  
Dean of Alumnae Relations  
Chairman & Professor  
PG & Research Department of Social Work  
Cauvery College For Women (Autonomous)  
Trichy-18

S.No	Name and Designation	Signature
1	Dr.G.Kanaga Chairman & Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	

2	Dr.F.X.LovelinaLittleFlower Subject Expert Professor&Head Department of Social Work Bharathiyar University Coimbatore	
3	Dr.Arul Kamaraj Subject Expert Other University Assistant Professor Loyola College Chennai-34	
4	Dr.K.Suriyan Special Invitee Professor and Head I/C Department of Sociology Bharathidasan University Trichy.	
5	Dr.T.R.Kanmani Subject Expert Other University Assistant Professor Department of Psychiatric Social Work NIMHANS Bengaluru.	
6	Dr.G.Mettilda Buvaneswari Member Associate Professor & Head PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	
7	Dr.S.Vidhya Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	
8	Ms.PL.Rani Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	
9	Dr.O.Aisha Manju Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	
10	Ms.S.Hema Member Assistant Professor	

	PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	
11	Dr.T.Amirtha Mary Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	

# CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

(Nationally Accredited with “A” Grade (III Cycle) by NAAC)

ISO 9001: 2015 Certified

PG & RESEARCH DEPARTMENT OF SOCIAL WORK

BACHELOR OF SOCIAL WORK PROGRAMME STRUCTURE

UNDER CHOICE BASED CREDIT SYSTEM

( For the candidates admitted from the academic year 2022-2023 onwards)

Sem	Part	Course	Course Title	Course Code	Ins Hrs/ week	Credits	Exam Hours	Marks		
								Internal	External	Total
I	I	Language course I Tamil/	Ikkala Ellaikiyam	22ULT1	6	3	3	25	75	100
		Other languages	Hindi Literature & Grammar-1	22ULH1						
			History of Popular Tales, Literature and Sanskrit Story	22ULS1						
			Basic French-I	22ULF1						
	II	English Language Course – I (ELC )	Functional English for Effective Communication – I	22UE1	6	3	3	25	75	100
	III	Core course I	Introduction to Social Work	22USW1CC1	6	5	3	25	75	100
		Core course II	Structure of Indian Society and Indian Social Problems	22USW1CC2	6	5	3	25	75	100
		Allied Course I	Basics of Economics and Political System	22USW1AC1	4	3	3	25	75	100
	IV	UGC Jeevan Kaushal	Universal Human Values	22UGVE	2	2	3	25	75	100
			<b>Total</b>		<b>30</b>	<b>21</b>				<b>600</b>

Semester I	Internal Marks:25		External Marks:75	
COURSE CODE	COURSE TITLE	CATEGORY	Hours/Week	CREDITS
22USW1CC1	INTRODUCTION TO SOCIAL WORK	CORE	6	5

### COURSE OBJECTIVES

1. To introduce to the learners the basic philosophy of Social Work.
2. To enable the learners to understand the concepts of Social Work such as Social Service, Social Welfare, Social Reform, Social Justice, Social Security, Social Policy, Social Defence, Social Development, Human Rights and Social Legislation.
3. To kindle the learners to develop the desire explore the origin of Social Work in India and abroad.
4. To support the learners to learn the contribution of various religions towards society's welfare.
5. To help the learners to discover the scope and fields of practice of Social Work.

### COURSE OUTCOMES

### COURSE OUTCOMES AND COGNITIVE LEVEL MAPPING

CO NUMBER	CO STATEMENT On the successful completion of the course, students will be able to	COGNITIVE LEVEL
CO1	Recall the basic assumptions, philosophy, functions, principles and methods of Social Work	K1
CO2	Relate Social Work with other concepts of Social Work	K2
CO3	Apply the professional aspects of Social Work	K3
CO4	Appraise the contribution of various religions for the society's welfare	K5
CO5	Discuss the practice of social work in various settings	K6

### MAPPING OF CO WITH POs and PSOs

COs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	1	1	1	3	3	3	3	2
CO2	2	3	1	1	2	3	3	3	3	3
CO3	3	3	3	1	3	3	2	3	3	2
CO4	3	2	2	1	1	1	1	1	1	1
CO5	3	3	3	3	3	3	3	3	3	3

“1”- Slight (Low) Correlation – “2” – Moderate (Medium) Correlation - “3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### Syllabus

Unit 1:

(18 HOURS)



Social Work: Meaning, Definition, Basic Assumptions, Objectives, Philosophy, Ethics and Principles of social work, Functions and Methods

**Unit II:** (18 HOURS)

Basic concepts of Social Work: Social Service, Social Welfare, Social Reform, Social Justice, Social Security, Social Policy, Social Defence, Social Development, Human Rights, Social Legislation.

**Unit III:** (18 HOURS)

Historical development of Social Work: Development of Professional Social Work- USA, UK, & India, Development of Social Work education; Professional aspects of Social Work

**Unit IV:** (18 HOURS)

Religious values, ethics and contribution: Hinduism, Islam, Christianity, Buddhism, Jainism and Sikhism

**Unit V:** (18 HOURS)

Scope & Fields of social work-Family and Child welfare services, Welfare services for differently abled, Women welfare, Labour welfare, Medical Social work, Correctional services

**Unit VI : Self Study for Enrichment (Not for Examination)**

Learners need to present application of methods of social work from the available literature, they should be able to relate social work to the basic concepts of social work, Learners need to gain knowledge about the professional organizations such as NAPSWI, INPSW, NASW and IASW, Learners need to present the autobiography of the founders of each religion, Learners should prepare a list of institutions functioning for the practice of social work in their region.

**References:**

1. Bhattacharya.S.(2003).Social Work –An Integrated Approach. Deep & Deep publication.
2. David Howe.(1987).An Introduction to Social Work Theory(community care practice Handbook). Routledge
3. Friedlander, W. A., &Apte, R. Z.(1968). Introduction to social welfare . Englewood, NJ: Prentice-Hall.

Semester I	Internal Marks : 25	External Marks: 75		
Course Code	Course Title	Category	Hours/Week	Credits
22USW1CC2	STRUCTURE OF INDIAN SOCIETY AND INDIAN SOCIAL PROBLEMS	CORE	6	5

4. Heimsath, C. H. (2015). Indian nationalism and Hindu social reform. Princeton University Press

5. Misra,P.D.(1994).Social work philosophy & Methods. Inter India Publication.

6. Rameshwari Devi & Ravi Prakash.(1998). Social work and Social Welfare Administration (Method and Practice). Mangal Deep Publication.

7. Sachdev Suresh .(2012).A Textbook of Social Work. Laxmi Publication.

8. Sanjay Roy .(2011).Introduction to Social Work & practice in India. Akansha publishing.

9. Singh ,K.(2011).An Introduction to Social Work .ABD Publishers.

10. Skidmore,Rex A.(1991).Introduction to Social Work. Prentice Hall International

11. William ,O,Larry Lorenzo Smith,Scott,W.Boyle .(2011).Pearson publishers

#### Web Links

1. <https://egyankosh.ac.in/bitstream/123456789/17108/1/Unit-1.pdf>
2. <https://egyankosh.ac.in/bitstream/123456789/17105/1/Unit-2.pdf>
3. [https://kkhsou.ac.in/eslm/E-SLM\\_Main/5th%20Sem/Bachelor%20Degree/BSW/HPSW/HPSW-3\\_-\\_with\\_changes\\_incorporated.pmd.pdf](https://kkhsou.ac.in/eslm/E-SLM_Main/5th%20Sem/Bachelor%20Degree/BSW/HPSW/HPSW-3_-_with_changes_incorporated.pmd.pdf)
4. <http://www.ignou.ac.in/upload/bswe-02-block1-unit-6-small-size.pdf>

**Pedagogy:** Chalk & Talk, Seminar, PPT Presentation, Group Discussion, Blended Method, and Case Study.

**Course Designer :** Dr.G.Mettilda Buvanewari

#### Course Objectives

- 1.To recall the concepts of society and features of Indian Society.
- 2.To relate the problems of Indian society and its transformation in modern times.

3.To identify the preventive measures to deal the problems of the society to help the students

4.To apply the principles and ethics to handle the social problems.

### Course Outcomes

#### Course Outcomes and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Recall the concept of society and features of Indian society	K1
CO2	Relate the problems of Indian society and its transformation in modern times.	K2
CO3	Identify the preventive measures to deal the problems of the society	K3
CO4	Apply principles & Ethics to handle social problems	K3
CO5	Discuss the solutions related to each of the social problems	K6

#### Mapping of CO with PSO and PO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	1	3	3	1	3	2	1	1	1
CO2	1	2	1	2	1	2	3	1	1	2
CO3	3	1	1	2	1	3	3	3	1	3
CO4	1	1	2	3	2	3	2	2	1	1
CO5	3	1	2	1	1	1	2	2	2	2

“1”- Slight (Low) Correlation – “2” – Moderate (Medium) Correlation - “3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### Syllabus

#### Unit I: (18 hours)

**Society:** Concept, Features and Elements of Society. **Community:** Concept, Characteristics, Types of Communities.

#### Unit II: (18 hours)

**Social Stratification & Mobility:** Concept, Characteristics, Types - Casteism, Religiousism, Regionalism. Mobility – concept, types & causes of mobility.

### **Unit III: (18 hours)**

**Social Institutions & Social Control:** Marriage, Family, Concept, Features, Types, Significance of Social Control, Agencies of Social Control, Techniques of Social Control.

### **Unit IV: (18 hours)**

**Indian Social Problems:** Poverty – Causes, Magnitude, Measures & Poverty Alleviation programmes, Unemployment, Illiteracy, Child Abuse – Types, Causes and Effects, Child Labour – Problem of Child Labour, Violence against Women – Nature, Extent, Characteristics.

### **Unit V: (18 hours)**

Terrorism, Communalism, Substance Abuse – Nature, Types, Role of family & peer group in substance abuse, Measures to combat substance abuse.

### **Unit VI: Self Study for Enrichment (Not for Examination)**

Social process, Culture & Civilization, Acculturation, Cultural conflict, Cultural lag, Culture & Personality; Caste system in India, Theories of Caste system, Social Inequality & Exclusion, Patterns of Social Mobility; Other Social Institutions - Education, Economy, Religion, Political institutions, Examples of Social Control in India; Theoretical approaches to Social problems, Causes of Social Problems, Effects of Social problems, Corruption; Urbanization, Youth unrest & agitation, Population Explosion.

### **Book References:**

- 1) Atal, Y. (2016). Indian Society – Continuity and Change, Pearson.
- 2) Rao, S. (2015). Indian Social Problems – A Sociological Perspective, S.Chand & Company Limited.
- 3) Miluwi, J.O (2014). Social Problems in India – Issues and Challenges, Mangalam Publications.
- 4) Baviskar & Patel, T.(2011). Understanding Indian Society, Orient Blackswan Pvt Ltd.
- 5) Bhushan, V & Sachdeva, D.R.(2008). An Introduction to Sociology, Kitab Mahal Agencies, 40<sup>th</sup> Edition.
- 6) Kuppusamy, B. (2006). Social Change in India, Konark Publishers Private Ltd.

7) Singh, K(2001). Social Control and Social Change, Prakashan Kendra.

**Online References:**

- 1) <https://www.webmd.com/mental-health/addiction/substance-abuse>
- 2) Chromeextension://efaidnbmnnnibpcajpcglclefindmkaj/https://nios.ac.in/media/documents/331courseE/L5%20SPCIETY%20COMMUNITY%20ASSOCIATION%20AND%20INSTITUTION.pdf
- 3) <https://www.sociologygroup.com/social-issues-in-india/>
- 4) <https://pediaa.com/what-is-the-difference-between-social-stratification-and-social-mobility/#:~:text=and%20Social%20Mobility,Definition,a%20system%20of%20social%20stratification.>
- 5) Chromeextension://efaidnbmnnnibpcajpcglclefindmkaj/http://www.uop.edu.pk/ocontents/SOCIAL%20INSTITUTIONS.pdf
- 6) <https://www.drishtias.com/to-the-points/paper1/regionalism-in-india-upsc>
- 7) <https://www.youtube.com/watch?v=ChdP-CzdYGk>
- 8) <https://www.youtube.com/watch?v=mRWzIvcefkU>
- 9) <https://www.youtube.com/watch?v=cMDfhAZVCHI>
- 10) <https://www.youtube.com/watch?v=70c6IrP6I2Y>

Pedagogy: Lectures, Audios / Videos followed by discussion, PPT, Peer Learning and Student-led seminars.

**Course Designer : Dr.T.Amirtha Mary**

<b>Semester I</b>	<b>Internal Marks:25</b>		<b>External Marks:75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>HOURS/WEEK</b>	<b>CREDITS</b>
<b>22USW1AC1</b>	<b>BASICS OF ECONOMICS AND POLITICAL SYSTEM</b>	<b>CORE</b>	<b>4</b>	<b>3</b>

**Course Objectives**

- To introduce the concept of Economics and Economic Systems of Indian Society
- To understand the Indian Economic Policy with Globalization and political Systems in

### Course Outcomes

#### Course Outcomes and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Summarize the concept of Economics of Indian society	K1
CO2	Relate the Indian Economic Policy with globalization	K2
CO3	Explaining the political system in India	K2
CO4	Recollect the knowledge on Traditional and Contemporary Economic system.	K3
CO5	Discuss the solutions related to each of the economic problems	K6

#### Mapping of CO with PSO and PO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	1	3	3	1	3	2	1	1	1
CO2	1	2	1	2	1	2	3	1	1	2
CO3	3	1	1	2	1	3	3	3	1	3
CO4	1	1	2	3	2	3	2	2	1	1
CO5	3	1	2	1	1	1	2	2	2	1

“1”- Slight (Low) Correlation – “2” – Moderate (Medium) Correlation - “3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### Syllabus

**Unit I:** (12hours)

**Fundamental Concepts of Economics:** Introduction to Economics, Definition of Economics Resources, Production, Consumption, Demand and Supply and Redistribution of Wealth, Cost Efficiency and Scarcity, Principles of Economics.

**Unit II:** (12hours)

**Economic Systems:** Traditional Economic System–Features, Merits and Demerits and Contemporary Economic System–Capital market economy–Features, Merits and Demerits.

(Self Study portions:)

**Unit III:** (12hours)

**Concept of Economic Development:** Definition, Liberalization, Privatization and Globalization– Gross Domestic Product, Roles and Functions– Reserve Bank of India (RBI), World Bank, International Monetary Fund.

**Unit IV:** (12hours)

**Political System:** Concept, Types, Elements, Concept of State, Democracy, Power, Government Authority, Liberty, Justice, Equality, Indian Constitution –Fundamental Rights & Fundamental Duties.

**Unit V:** (12hours)

**Political Participation:** Political Parties – National and State, Roles and Functions of Political Parties, Political Participation– Merits &Demerits.

**Unit VI: Self Study for Enrichment (Not for examination)**

Concept of Competition and market structures, consumers, demand, elasticity of demand, income distribution, market and prices, profits, price elasticity, Market economic and Mixed economics system ,Sustainable development, Factors affecting economic growth , Advantages and disadvantages of representative democracy ,Political Participation-definition, forms, types.

**References:**

- 1) Karuppiah, S(2018). Indian Economy Key Concept, Kavin Mukhil Publications.
- 2) Bhat,S.(2017).Privatization&GlobalizationChangingLegalParadigm,Eastern Law House.
- 3) Datt,G & Mahajan,A.(2016).Indian Economy,S., Chand Publishing.  
Agarwal, M.D & Joe, S(2010), Business Economics, Ramesh Book Depot, Jaipur, New Delhi.
- 4) Sathyanarayan,B.(2009). Essays on Economic Liberalization and Reforms, Anmol Publisher.
- 5) Chandra,R.(2004).Globalization, Liberalization, Privatization and Indian Polity,GyanBooks;8 edition.

- 6) Gupta,D.C.(1975).Indian Government and Politics,Vikas Publishing.
- 7) Varma,S.P.(1975).Modern Economic Theory,Vikas Publishing.

**Online Links:**

- 1) <https://byjus.com/commerce/fundamentals-of-economics/>
- 2) <https://corporatefinanceinstitute.com/resources/knowledge/economics/economic-system/>
- 3) [https://nios.ac.in/media/documents/SrSec318NEW/318\\_Economics\\_Eng/318\\_Economics\\_Eng\\_Lesson3.pdf](https://nios.ac.in/media/documents/SrSec318NEW/318_Economics_Eng/318_Economics_Eng_Lesson3.pdf)
- 4) <https://open.lib.umn.edu/sociology/chapter/14-2-types-of-political-systems/>

Pedagogy: Lectures, Audios / Videos followed by discussion, PPT, Peer Learning and Student-led seminars.

**Course Designer: Dr. G. Kanaga**



Semester I	Internal Marks:25	External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	Hours/Week	CREDITS
22UGVE	UNIVERSAL HUMAN VALUES	Part IV	2	2

### COURSE OBJECTIVES

1. To enable the learners to learn the values of love and compassion.
2. To foster the values of righteousness and service among the learners.
3. To enhance the morale of the learners by inculcating the values renunciation and peace.
4. To inspire the learners to practice the basic human values so as to make them become responsible citizens of the Nation.

### COURSE OUTCOMES

### COURSE OUTCOMES AND COGNITIVE LEVEL MAPPING

CO Number	CO Statement On the successful completion of this course, the students will able to	Cognitive Level
CO1	Define the values of Love and Compassion	K1
CO2	Understand the value of Truth and Non - Violence	K2
CO3	Explain the value of Righteousness and Service	K3
CO4	Practice the values of Renunciation (sacrifice) & Peace	K4
CO5	Prioritize Human Values in their day to life	K5

### Syllabus

#### Unit I: (6 Hours)

##### Love and Compassion

- **Introduction:** what is love? Forms of love for self, parents family friend, spouse community, nation, humanity and other beings both for living and non-living.
- Love and Compassion and Inter-relatedness
- Love, compassion, empathy, sympathy and nonviolence
- Individuals who are remembered in history for practicing compassion and love.
- Narratives and anecdotes from history, literature including local folklore

#### Unit II : (7 Hours)

##### Truth and Non - Violence

- **Introduction:** what is truth? Universal truth, truth as value, truth as fact (veracity, sincerity, honesty among others)
- Individuals who are remembered in history for practicing this value
- Narratives and anecdotes from history, literature including local folklore
- **Introduction:** what is non violence? Its need. Love, compassion, empathy sympathy for others as pre-requisites for non violence
- Ahimsa as non -violence and non- killing.
- Individuals and organisations that are known for their commitment to non - violence
- Narratives and anecdotes about non - violence from history and literature including local folklore

### **Unit III :**

**(6 Hours)**

#### **Righteousness and Service**

- **Introduction:** What are Righteousness and service?
- Righteousness and dharma, Righteousness and Propriety
- Forms of service for self, parents, family, friend, spouse, community, nation, humanity and other beings- living and non-living persons in distress for disaster.
- Individuals who are remembered in history for practicing Righteousness and Service
- Narratives and anecdotes dealing with instances of Righteousness and Service from history, literature, including local folklore

### **Unit IV :**

**(6 Hours)**

#### **Renunciation (sacrifice) & Peace**

- Introduction: what is renunciation? Renunciation and sacrifice. Self- restraint and ways of overcoming greed. Renunciation with action as true renunciation. What is peace? It's need, relation with harmony and balance.
- Individuals who are recommended in history for practicing Renunciation and sacrifice. Individuals and organisations that are known for their commitment to peace.
- Narratives and anecdotes from history and literature including local folklore about individuals who are remembered for their renunciation and sacrifice. Narratives and anecdotes about peace from history and literature including local folklore practicing peace

### **Unit V :**

**( 5 Hours)**

- Practicing human values: what will learners learn gain if they practice human values? What will learners lose if they Don't Practice human values?
- Sharing learner's individual and/ or group experience(s)
- Simulated situations
- Case studies

## **Unit VI : Self Study for Enrichment ( Not for Examination)**

Learners need to list ways of practising the values love and compassion, Truth and non-violence, Righteousness and service, Renunciation (sacrifice) & Peace. Group Discussion needs to be conducted on strategies to promote human values at various levels – family, community, society, nation and global.

### **Web Links**

<http://gurdjiefffourthway.org/pdf/LOVE%20AND%20COMPASSION.pdf>

<https://iosrjournals.org/iosr-jhss/papers/Vol18-issue4/H01846769.pdf>

<https://www.youtube.com/watch?v=JaxIp8dyBBQ>

<https://core.ac.uk/download/pdf/38646904.pdf>

[https://www.hartford.edu/unotes/\\_images/submitted\\_images/Renunciation%20as%20the%20Path%20to%20Happiness%20and%20Success\\_1603743763\\_file1.pdf](https://www.hartford.edu/unotes/_images/submitted_images/Renunciation%20as%20the%20Path%20to%20Happiness%20and%20Success_1603743763_file1.pdf)

**Pedagogy:** Chalk & Talk, Seminar, PPT Presentation, Group Discussion, Blended Method, Flipped Classroom method and Case Study.

**Course Designer :** Dr.G.Mettilda Buvaneswari



**Cauvery College for Women (Autonomous)**

**Nationally Accredited (III cycle) with 'A' Grade by NAAC**

**ISO 9001:2015 Certified**

**Annamalai Nagar, Trichy-18**

**P.G & Research Department of Social Work**

**VI Board of Studies (Virtual Meeting)**

**Minutes of the Meeting**

**Date : 04/05/2022**

**Time : 10.30 AM**

**The Members attended the meeting**

1. Dr.G.Kanaga Chairman & Professor  
Professor & Dean of Alumnae Relations  
PG & Research Department of Social Work  
Cauvery College For Women (Autonomous)  
Trichy.
2. Dr.F.X.Lovelina Little Flower Subject Expert  
Professor & Head Bharathiar University  
Department of Social Work  
Bharathiyar University  
Coimbatore
3. Dr.Arul Kamaraj Subject Expert  
Assistant Professor other University  
Loyola College  
Chennai-34
4. Dr.K.Suriyan Special Invitee

Professor and Head I/C  
Department of Sociology  
Bharathidasan University  
Trichy.

Bharathidasan University

5. Dr.T.R.Kanmani  
Assistant Professor  
Department of Psychiatric Social Work  
NIMHANS  
Bengaluru. Subject Expert  
(other University)
6. Dr.G.Mettilda Buvaneswari  
Associate Professor & Head  
PG & Research Department of Social Work  
Cauvery College For Women (Autonomous)  
Trichy. Member
7. Dr.S.Vidhya  
Assistant Professor  
PG & Research Department of Social Work  
Cauvery College For Women (Autonomous)  
Trichy Member
8. Ms.PL.Rani  
Assistant Professor  
PG & Research Department of Social Work  
Cauvery College For Women (Autonomous)  
Trichy Member
9. Dr.O.Aisha Manju  
Assistant Professor  
PG & Research Department of Social Work  
Cauvery College For Women (Autonomous)  
Trichy Member
10. Ms.S.Hema  
Assistant Professor  
PG & Research Department of Social Work  
Cauvery College For Women (Autonomous)  
Trichy Member
11. Dr.T.Amirtha Mary  
Assistant Professor  
PG & Research Department of Social Work  
Cauvery College For Women (Autonomous)  
Trichy Member

Leave of absence was granted to Ms.V.Chitrakala (Alumna Member), Medical Social Worker, Medico Social Work Wing, JIPMER, Puducherry

Leave of absence was granted to Mr.J.Ravikumar.,Recruitment – HR , IDFC FIRST Bharat Ltd.,Trichy-1(Placement representative from Industry/Corporate)

### **Agenda of the Meeting**

#### **ITEM NO.BOS/06/01**

To consider and approve the PSO, the Programme structure and I semester syllabus of BSW for 2022-2023 batch onwards and recommend to the academic council, Cauvery college for Women(Autonomous),Trichy-18.

#### **ITEM NO.BOS/06/02**

To consider and approve the Syllabus for UGC Jeevan Kaushal Life Skills course 22UGVE- Universal Human Values.

#### **ITEM NO.BOS/06/03**

To consider and approve the PSO, the Programme structure and I semester syllabus of MSW for 2022-2023 batch onwards and recommend to the academic council, Cauvery college for Women(Autonomous),Trichy-18.

#### **ITEM NO.BOS/06/04**

To suggest panel of names to the academic council, Cauvery college for Women (Autonomous),Trichy-18 for appointment of examiners.

#### **ITEM NO.BOS/06/05**

To thank the members of BOS

**At the outset, the members discussed the above Agenda and is Resolved as Follows**

**Dr.G.Kanaga, Professor & Dean of Alumnae Relations, PG & Research Department of Social Work Welcomed the Members of BOS**

#### **RESOLUTION ITEM NO.BOS/06/01**

Considered and Approved the PSO, the Programme Structure and I Semester syllabus of

BSW for 2022-2023 batch and onwards and forwarded to the Academic Council, Cauvery college for Women (Autonomous), Trichy-18 with the following changes

Revision of syllabus of core course 22USW1CC1- Introduction to Social Work.

#### **Portion for Self-study is given in each Unit**

Unit I: Learners need to present application of methods of social work from the available literature.

Unit II: Learners should be able to relate social work to the basic concepts of social work.

Unit III: Learners need to gain knowledge about the professional organizations such as NAPSWI, INPSW, NASW and IASW.

Unit IV: Learners need to present the autobiography of the founders of each religion

Unit V: Learners should prepare a list of institutions functioning for the practice of social work in their region.

### **Topics Included**

Unit I Social Work: Meaning, Definition, Basic Assumptions, Objectives, Philosophy, Ethics and Principles of social work, Functions and Methods.

Unit II Basic concepts of Social Work: Social Service, Social Welfare, Social Reform, Social Justice, Social Security, Social Policy, Social Defense, Social Development, Human Rights, Social Legislation.

Unit IV: Religious values, Ethics and contribution: Hinduism, Islam, Christianity, Buddhism, Jainism and Sikhism

Unit V : Scope of social work

### **Topics Reduced**

Unit II: Social Administration.

Unit V: Welfare State: Concept; role of state and voluntary agencies in the field of social welfare.

Revision of syllabus of Core Course 22USW1CC2 Structure of Indian Society and Indian Social Problems

### **Portion for Self-study is given in each Unit**

Unit I- Social process, Culture & Civilization, Acculturation, Cultural conflict, Cultural lag, Culture & Personality

Unit II- Caste system in India, Theories of Caste system, Social Inequality & Exclusion, Patterns of Social Mobility

Unit III- Other Social Institutions - Education, Economy, Religion, Political institutions, Examples of Social Control in India

Unit IV- Theoretical approaches to Social problems, Causes of Social Problems, Effects of Social problems, Corruption

Unit V- Urbanization, Youth unrest & agitation, Population Explosion

### **Topics Included**

Unit V Topic Alcoholism is removed and added with Substance Abuse

Revision of syllabus of Allied Course I 22USWAC1 Basics of Economics and Political system

### **Portions for Self Study given in each Unit**

Unit I - Concept of Competition and market structures, consumer , income distribution

Unit II- Market economy and Mixed economics system

Unit III - Sustainable development, Factors affecting economic growth

Unit IV - Advantages and disadvantages of representative democracy

Unit V - Forms of: Political Participation

**Topics included**

Unit I

Basics of Economics and Political System, Market and Prices, profits, Elasticity of Demand, Optimum use of Resources

Unit II: History and Types of Economic System, Current position of Indian Economy

Unit III : Indicators of Economic Development

Unit IV : Definition of Political System

Unit V : Definition, Components and Functions, Benefits of Political Participation

**Topics Reduced**

Unit i - Cost Efficiency

Unit II - Contemporary Economic System , Capital market economy

Unit V - Elements of Political Participation

**RESOLUTION ITEM NO.BOS/06/02**

Considered and Approved the Revision of Syllabus for UGC Jeevan Kaushal Life Skills course 22UGVE- Universal Human Values.

**Portion for Self-study is given in each Unit**

Unit I: Learners need to list ways of practising the values love and compassion

Unit II: Learners need to list ways of practising the values Truth and non-violence.

Unit III: Learners need to list ways of practising the values Righteousness and service

Unit IV: Learners need to list ways of practising the values Renunciation (sacrifice) & Peace

Unit V: Learners need to list ways of practising the values Renunciation (sacrifice) & Peace

**Topics included**

Unit II : Non – Violence : Introduction: what is non violence? Its need. Love, compassion, empathy sympathy for others as pre-requisites for non violence. Ahimsa as non -violence and non- killing. Individuals and organisations that are known for their commitment to non – violence. Narratives and anecdotes about non - violence from history and literature including local folklore.

Unit III



Righteousness and Service. Introduction: What are Righteousness and service?. Righteousness and dharma, Righteousness and Propriety. Forms of service for self, parents, family, friend, spouse, community, nation, humanity and other beings- living and non-living persons in distress for disaster. Individuals who are remembered in history for practicing Righteousness and Service. Narratives and anecdotes dealing with instances of Righteousness and Service from history, literature, including local folklore.

#### Unit IV

Renunciation (sacrifice) & Peace Introduction: what is renunciation? Renunciation and sacrifice. Self restraint and ways of overcoming greed. Renunciation with action as true renunciation. What is peace? It's need, relation with harmony and balance.

Individuals who are recommended in history for practicing Renunciation and sacrifice. Individuals and organizations that are known for their commitment to peace. Narratives and anecdotes from history and literature including local folklore about individuals who are remembered for their renunciation and sacrifice. Narratives and anecdotes about peace from history and literature including local folklore practicing peace

#### Unit V

Practicing human values : What will learners learn/gain if they practice human values? What will learners lose if they Don't Practice human values?. Sharing learner's individual and/ or group experience(s). Simulated situations. Case studies.

### **Topics reduced**

#### Unit I

Practicing love and compassion: what will learners learn gain if they practice love and compassion? What will learners lose if they Don't Practice love and compassion? Sharing learner's individual and/ or group experience(s). Simulated situations. Case studies

Unit II : Practicing truth: what will learners learn/ gain if they practice truth? What will learners lose if there Don't Practice it?. Learners' individual and/ or group experience(s). Simulated situations. Case studies.

### **RESOLUTION ITEM NO.BOS/06/03**

Considered and Approved the PSO, the Programme Structure and I Semester syllabus of MSW for 2022-2023 batch and onwards and forwarded to the Academic Council, Cauvery college for Women (Autonomous), Trichy-18 with the following changes

Revision of syllabus of Core Course 22PSW1CC1 Introduction of Social Work

### **Portion of self study is given in each unit**

Unit I Social Reform movements in India

Unit II Procedures for membership in professional organisations

Unit III Fields of social work

Unit IV social institutions

Unit V Data collection on Social Problems

**Topics reduced**

UNIT II Problems Faced By Social Work Professionals In India

UNIT III Fields of social work

UNIT IV Social Institutions

**Topics included**

Unit II National and International Professional Organizations in Social Work

Revision of Syllabus for Core Course 22PSW1CC2 Social Work Profession with Individuals and Groups Introduced by merging existing Syllabus of Social Case Work and Social Group work

**Portions of self study is given in each unit**

Unit I – Learners have to write down the experience of establishing relationship

Unit II-Learners have to conduct 1 case work and submit report

Unit IV- Learners to Plan & Implement any one group work submit a detailed report

Unit V- Learners to visit any one of the setting & observe the case work & group Work and record observation and submit a detailed report )

**Topics Included**

**Unit I-**

Client Case worker relationship

**Unit II**

Case work Process, Case Work and Communication, Approaches to Practice.

**Unit III**

Social Group Work, Group work Process, Group Work Supervision

**Unit IV**

Programme Planning, Programme Laboratory, Models and approaches

**Unit V**

Recording in case work and Group Work Scope and practice of Social case work & Social Group work, Application of Case work and Group work method in different settings

Revision of Syllabus for Core Course 22PSW1CC3 Community Organization and Social Action

### **Portions for Self Study included in each Unit**

Unit I - Caste system in India, Theories of Caste system, Social Inequality & Exclusion, Patterns of Social Mobility, Leadership, and theories of Leadership

Unit II - Community Participation, Community Organization as a macro method, Community work

Unit III - Nature of Different Communities with their strength and weakness

Unit IV - Current issues in Community Organization, Gender sensitivity issues in Community Organization

Unit V - Advantages of Social Action, Examples of Social Action in India and abroad

### **Topics included**

Unit I: Concept of Community Development, Similarities and differences between Community Development and Community Organisation, History of Community Organisation

Unit II : Phases of Community Organisation, Community Relationship, study, Analysis, Assessment, Discussion, Organisation, Action, Evaluation, Modification and Continuation. Models of Community organization.

Unit III : Focus groups, Analysis of Power Dynamics in various community, Mobilization of participation, Involvement in problem solving process, Identification of needs, Issues, Prioritization, Problem Analysis, Selection of Alternatives, Community based Organisation, Building and Federating for sustained problem solving Action, Strategies in Community Organisation, Organising Conferences, training programmes, Consultation, negotiation and networking.

Unit IV: Topics included: Application of Community Organisation

Community Organisation in different fields- Health, Education, Correctional, Rural-Urban and Tribal Communities, Vulnerable Sections, Disaster, Displaced Population and Rehabilitation, Peace and Peace building, Empowerment of Marginalised groups of Communities, Practice Skills, Research skills for Community work, Various roles of Community Organiser.

### **Topics reduced**

Unit I: Minority groups, Definition and Qualities, leadership in different types of Communities, theories of leadership

Unit II: Community welfare Council and Community Chest, Community Participation, Concept Imperatives, types, constraints, methods and techniques, components of community work and community relation.

Unit III : Methods of Community Organisation, Planning, Education, Communication, Community Participation, Collective decision making, involvement of groups and organizations, resource mobilization, community action,

legislative and non legislative promotion, Coordination, Community Organisation as an approach to Community Development

Unit IV: Phases of Community Organisation, Study, Assessment, Discussion, Organisation, Action, Evaluation, Modification, Continuation, Community Organisation in Emergencies like fire, flood, drought, famine, earthquake, and war: Community Organisation at local, state and national level. Community Organisation in different settings: rural, urban, and tribal areas.

Revision of syllabus for Core Practicum I - 22PSWICC1P Social Work Practicum

In the three components of Social Work Practicum, topics/themes were included in two components. The following institutions were included under observation visits: Psychiatric hospitals/clinics, PHCs; Community settings: village visits, Corporations, municipalities, Panchayat Samitis etc.

Under Group awareness project the theme suicide prevention is included.

In the evaluation part External Evaluation is considered as VIVA-VOCE.

**ITEM NO.BOS/06/04**

Considered and Approved the panel of names to the academic council, Cauvery college for Women (Autonomous), Trichy-18 for appointment of examiners.

**ITEM NO.BOS/06/05**

Dr.G.Kanaga thanked the members of BOS for their Suggestions and Contributions for the Board of Studies

Signature

Dr.G.Kanaga  
Dean of Alumnae Relations  
Chairman & Professor  
PG & Research Department of Social Work  
Cauvery College For Women (Autonomous)  
Trichy-18

S.No	Name and Designation	Signature
1	Dr.G.Kanaga Chairman & Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	

2	Dr.F.X.LovelinaLittleFlower Subject Expert Professor&Head Department of Social Work Bharathiyar University Coimbatore	
3	Dr.Arul Kamaraj Subject Expert Other University Assistant Professor Loyola College Chennai-34	
4	Dr.K.Suriyan Special Invitee Professor and Head I/C Department of Sociology Bharathidasan University Trichy.	
5	Dr.T.R.Kanmani Subject Expert Other University Assistant Professor Department of Psychiatric Social Work NIMHANS Bengaluru.	
6	Dr.G.Mettilda Buvaneswari Member Associate Professor & Head PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	
7	Dr.S.Vidhya Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	
8	Ms.PL.Rani Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	
9	Dr.O.Aisha Manju Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	
10	Ms.S.Hema Member Assistant Professor	

	PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	
11	Dr.T.Amirtha Mary Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY - 18  
(Nationally Accredited (III cycle) with 'A' Grade by NAAC)  
DEPARTMENT OF BUSINESS ADMINISTRATION  
Minutes for the Sixth meeting of the Board of Studies on 18.04.2022

**Members Present**

- |                                  |   |
|----------------------------------|---|
| 1) Dr.J.Tamilselvi               | Chairperson, Associate Professor & HOD    |
| 2) Dr. N. Senthilkumar Nakkeeran | Subject Expert, Anna University, Chennai  |
| 3) Dr. N. KavithaShanmugam       | Subject Expert, SRM University, Chennai   |
| 4) Dr. N. Thamaraiselvan         | University Nominee, NIT, Trichy.          |
| 5) Mrs. P. Premakumari           | Member Alumna, St.Joseph college, Trichy. |
| 6) Dr.R.Bhargavi                 | Industrial Representative                 |
| 7) Dr.S.ThamaraiSelvi            | Member                                    |
| 8) Dr.M.Neela                    | Member                                    |
| 9) Dr. A.Sivaranjani             | Member                                    |
| 10) Dr.M.Gayathri                | Member                                    |
| 11) Mrs. P.Thangamani            | Member                                    |
| 12) Mrs. S. Yalini               | Member                                    |
| 13) Mrs.A.Suganya                | Member                                    |

**MINUTES OF Sixth BOS MEET - 18.04.2022:**

**1.ITEM NO. BOS/06/01**

To consider and approve the PSO, the Programme Structure and I semester syllabus of Business Administration for 2022 -2023 batch and onwards and recommend to the Academic Council, Cauvery college for Women (Autonomous), Trichy-18.

Revision of Syllabus of Core Course 19UBA1CC1 – Fundamentals of Management

- Portions for Self-study is given in each unit

UNIT I : Management as an Art, Science and Profession.

UNIT II : Types of planning.

UNIT III : Distinction between Centralization and Decentralization.

UNIT IV : Characteristics of Directing.

UNIT V : Importance of Controlling.

- Topics are included in Unit IV: Decision making
- Topics reduced in Unit I: Departmentalization and Unit V: Co-ordination.

#### Revision of Syllabus of Core Course 19 UBA1CC2 – Financial Accounting

- Portions for Self-study is given in each unit

UNIT I : Difference between single entry and double entry system.

UNIT II : Objectives of Accounting standards.

UNIT III : Difference between journal and ledger accounting.

UNIT IV : Difference between straight line and written down value method.

UNIT V : Difference between Trading and Profit & Loss Account.

- Topics are included in Unit II: Financial Accounting Standards
- Topics reduced in Unit IV: Non – Profit Organization

#### Revision of Syllabus of Core Course 19UBA1AC1– Managerial Economics

- Portions for Self-study is given in each unit

UNIT I : Nature of Managerial Economics.

UNIT II : Exceptions in Law of Demand.

UNIT III : Classification of Economies of Large-scale Production.

UNIT IV : Objectives of Pricing.

UNIT V : Difference between perfect competition and Monopoly.

- Topics are included in Unit IV: Pricing
- Topics reduced in Unit III: Cost Control and Unit V: Business Cycle

**Resolved to approve the PSO, the Programme Structure and I semester syllabus of Business Administration for 2022 -2023 batch and onwards and recommend to the Academic Council, Cauvery college for Women (Autonomous), Trichy-18.**



**2. ITEM NO. BOS/06/02**

To suggest Panel of names to the Academic Council, Cauvery college for Women (Autonomous), Trichy-18.

**The Panel of examiners were suggested and approved by the members of Bos to be forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.**

**3. ITEM NO. BOS/06/03**

To thank the members of Board of Studies of Business Administration.

**The Chairperson expressed her deep sense of gratitude and thanks to all members of Board of Studies of Business Administration.**

**(Chairman)**

**Board of Studies**

# CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

Nationally Accredited (III cycle) with 'A' Grade by NAAC

ISO 9001:2015 Certified

TIRUCHIRAPPALLI

DEPARTMENT OF BUSINESS ADMINISTRATION



BBA

SYLLABUS

**2022 -2023 and Onwards**

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**  
**NATIONALLY ACREDITED (IICYCLE) WITH “A” GRADE BY NAAC**  
**ISO 9001:2015 Certified**  
**TIRUCHIRAPPALLI**

**PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)**

<b>PEOs</b>	<b>Statements</b>
<b>PEO1</b>	<p><b>LEARNING ENVIRONMENT</b></p> <p>To facilitate value-based holistic and comprehensive learning by integrating innovative learning practices to match the highest quality standards and train the students to be effective leaders in their chosen fields.</p>
<b>PEO2</b>	<p><b>ACADEMIC EXCELLENCE</b></p> <p>To provide a conducive environment to unleash their hidden talents and to nurture the spirit of critical thinking and encourage them to achieve their goal.</p>
<b>PEO3</b>	<p><b>EMPLOYABILITY</b></p> <p>To equip students with the required skills in order to adapt to the changing global scenario and gain access to versatile career opportunities in multidisciplinary domains.</p>
<b>PEO4</b>	<p><b>PROFESSIONAL ETHICS AND SOCIAL RESPONSIBILITY</b></p> <p>To develop a sense of social responsibility by formulating ethics and equity to transform students into committed professionals with a strong attitude towards the development of the nation.</p>
<b>PEO5</b>	<p><b>GREEN SUSTAINABILITY</b></p> <p>To understand the impact of professional solutions in societal and environmental contexts and demonstrate the knowledge for an overall sustainable development.</p>

**PROGRAMME OUTCOMES FOR B.COM., B.COM. CA, B.B.A. PROGRAMMES**

<b>PO NO.</b>	<b>Programme Outcome</b> <b>On completion of B.Com. /B.Com. CA / B.B.A. Programme,</b> <b>The students will be able to</b>
<b>PO 1</b>	<b>PROGRAMME KNOWLEDGE AND ENVIORNMENT SUSTAINABILITY</b> Acquire a strong foundation in the areas of Commerce, Management and Information Technology that needs to respond to the constantly changing Business and Legal environment.
<b>PO 2</b>	<b>CRITICAL THINKING AND DECISION MAKING SKILLS</b> Analyse and develop solutions through various computational techniques for real time problems in all areas of Business Management specially Finance, Marketing, Human Resources and Operations.
<b>PO 3</b>	<b>ENTREPRENEURSHIP SKILLS AND COMPETENCY DEVELOPMENT</b> Apply the competencies and creativity required to undertake entrepreneurship as a desirable and feasible career option or be employed in various positions in industry, academia and Government.
<b>PO 4</b>	<b>TEAM WORK AND PROFICIENCY DEVELOPMENT</b> Imbibe professionalism to embrace new opportunities of emerging technologies, leadership and team work in a dynamic ethical business scenario.
<b>PO 5</b>	<b>PROFESSIONAL SKILLS AND EMPLOYABILITY</b> Internalize the learned concept of Business and Commerce that will enable them to become skilled professionals and to enhance the career prospects.

**PROGRAMME SPECIFIC OUTCOMES FOR BBA**

**BACHELOR OF BUSINESS ADMINISTRATION (BBA)**

**CURRICULUM (2022–2023 Onwards)**

<b>PSO NO</b>	<b>Programme Specific Outcomes Students of Business Administration will be able to</b>	<b>POs Addressed</b>
<b>PSO1</b>	Apply frameworks and tools to arrive at informed decisions in profession and practice, remarkable balance between business and social dimensions.	PO1, PO3
<b>PSO2</b>	Solid foundation to pursue professional careers and take up higher learning courses.	PO2, PO5
<b>PSO3</b>	Function effectively as a member, leader, individual or group in diverse environment.	PO4
<b>PSO4</b>	Fostering entrepreneurship by providing understanding of the fundamentals of creating and managing innovation, new business development and high-growth potential entities.	PO3
<b>PSO5</b>	Apply ethical principles and commitment towards professional ethics and responsibility.	PO4, PO5



**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18**  
**DEPARTMENT OF BUSINESS ADMINISTRATION**  
**BBA – PROGRAMME STRUCTURE**

(For the candidates admitted from the academic year 2022 – 2023 onwards)

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
								Internal	External	
I	I	Language Course - I (LC)	Ikkala Elakkiyam	22ULT1	6	3	3	25	75	100
			Hindi Literature & Grammar - I	22ULH1						
			History of Popular Tales, Literature and Sanskrit Story	22ULS1						
			Basic French – I	22ULF1						
	II	English Language Course - I (ELC)	Functional English for Effective Communication - I	22UE1	6	3	3	25	75	100
	III	Core Course - I (CC)	Management Concepts	22UBA1CC1	6	5	3	25	75	100
		Core Course - II (CC)	Financial Accounting	22UBA1CC2	6	5	3	25	75	100
Allied Course - I (AC)		Managerial Economics	22UBA1AC1	4	3	3	25	75	100	
IV	UGC Jeevan Kaushal	Universal Human Values	22UGVE	2	2	3	25	75	100	
	<b>Total</b>				<b>30</b>	<b>21</b>				<b>600</b>

II	I	Language Course - II (LC)	Idaikkala Elakkiyamum, Pudinamum	22ULT2	5	3	3	25	75	100
			Hindi Literature & Grammar - II	22ULH2						
			Poetry, Textual Grammar and Alakara	22ULS2						
			Basic French – II	22ULF2						
	II	English Language Course – II (ELC)	Functional English for Effective Communication - II	22UE2	6	3	3	25	75	100
	III	Core Course - III (CC)	Elements of Marketing		6	5	3	25	75	100
		Core Course - IV(CC)	Business Statistics		6	5	3	25	75	100
		Allied Course - II (AC)	Business Environment		5	3	3	25	75	100
	IV	Ability Enhancement Compulsory Course- I (AECC)	Environmental Studies	AECCI	2	2	3	25	75	100
	V	Extra Credit Course	Swayam Online Course		As per UGC norms					
	<b>Total</b>				<b>30</b>	<b>21</b>				<b>600</b>



**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18**  
**DEPARTMENT OF BUSINESS ADMINISTRATION**  
**BBA – PROGRAMME STRUCTURE**  
**(For the candidates admitted from the academic year 2022 – 2023 onwards)**

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total	
								Internal	External		
III	I	Language Course- III (LC)	Kappiyamum, Nadagamum	22ULT3	5	3	3	25	75	100	
			Hindi Literature & Grammar - III	22ULH3							
			Prose, Textual Grammar and Vakyarachana	22ULS3							
			Intermediate French – I	22ULF3							
	II	English Language Course III (ELC)	Learning Grammar Through Literature - I	22UE3	6	3	3	25	75	100	
	III	Core Course - V (CC)	Core Practical - I (CP)	Organisational Psychology		5	5	3	25	75	100
				Computer Applications Package for Managers (MS-Office Practical)		5	5	3	40	60	100
				Allied Course - III (AC)	Business Law		5	3	3	25	75
	IV	Ability Enhancement Compulsory Course – II (AECC)	Generic Elective –I (GE)	Innovation in Entrepreneurship	AECCII	2	1				100
				Stock Exchange Practices		2	2	3	25	75	100
				Special Tamil							
			Basic Tamil								
	V	Extra Credit Course	Swayam Online Course			As per UGC norms					
		<b>Total</b>				<b>30</b>	<b>22</b>				<b>700</b>

**15 Days INTERNSHIP during Semester Holidays**

IV	I	Language Course - IV (LC)	Pandaiya Elakkiyam	22ULT4	6	3	3	25	75	100	
			Hindi Literature & Functional Hindi	22ULH4							
			Drama, History of Drama Literature	22ULS4							
			Intermediate French – II	22ULF4							
	II	English Language Course-IV (ELC)	Learning Grammar Through Literature - II	22UE4	6	3	3	25	75	100	
	III	Core Course - VI (CC)	Core Practical - II (CP)	Cost Accounting		5	4	3	25	75	100
				Computer Applications Package for Managers (Tally - Practical)		5	4	3	40	60	100
				Allied Course - IV (AC)	Company Law		4	3	3	25	75
			Internship				2				100
	IV	Generic Elective – (GE) II	Skill Enhancement Course – I (SEC)	Export Import Management		2	2	3	25	75	100
				Special Tamil							
				Basic Tamil							
			E - Business		2	2	3	25	75	100	
			Stress Management								
	V	Extra Credit Course	Swayam Online Course			As per UGC norms					
	<b>Total</b>				<b>30</b>	<b>23</b>				<b>800</b>	



**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18**  
**DEPARTMENT OF BUSINESS ADMINISTRATION**  
**BBA – PROGRAMME STRUCTURE**  
**(For the candidates admitted from the academic year 2022 – 2023 onwards)**

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total	
								Internal	External		
V	III	Core Course - VII (CC)	Entrepreneurial Development		5	5	3	25	75	100	
		Core Course – VIII (CC)	Research methods in Management		5	5	3	25	75	100	
		Core Course - IX (CC)	Management Accounting		5	5	3	25	75	100	
		Core Course - X (CC)	Digital Marketing		5	5	3	25	75	100	
		Discipline Specific Elective – I (DSE)	Consumer Behaviour Managerial Communication		4	3	3	25	75	100	
	V	Skill Enhancement Course – II (SEC)	Banking – Practicum study		2	2	3	40	60	100	
			New Product Development								
		Skill Enhancement Course – III (SEC)	Statistical Package for Managers (SPSS Practical) Event Management Practical		2	2	3	40	60	100	
	IV	UGC Jeevan Kaushal	Professional Skills		2	1	3	25	75	100	
	V	Extra Credit Course	Swayam Online Course		As per UGC norms						
		<b>Total</b>			<b>30</b>	<b>28</b>					<b>800</b>
	VI	III	Core Course - XI (CC)	Human Resource Management		6	5	3	25	75	100
Core Course - XII (CC)			Financial Management		5	5	3	25	75	100	
Core Course - XIII (CC)			Services Marketing		5	4	3	25	75	100	
Discipline Specific Elective – II (DSE)			Business Analytics		4	3	3	25	75	100	
			Global Business Management								
Discipline Specific Elective – III (DSE)			Operations Management		4	3	3	25	75	100	
		Business Ethics									
Core Project		Project work		5	3	-	-	-	100		
V		Extension Activities		--	1	--	--	--	--		
		Gender Studies		1	1	3	25	75	100		
	<b>Total</b>			<b>30</b>	<b>25</b>				<b>700</b>		
	<b>Grand Total</b>			<b>180</b>	<b>140</b>				<b>4200</b>		



**CORE COURSE I – MANAGEMENT CONCEPTS**  
2022 – 2023 Batch Onwards

Semester I	Internal Marks 25	External Marks 75		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs. / Week	CREDITS
22UBA1CC1	Management Concepts	CORE	6	5

**Course Objectives:**

- To acquaint the student with a conceptual framework for understanding the basic theories of management, planning, goal setting, decision making, organizational structure, and effective control mechanisms.
- To utilize these concepts in various decisive functions of an organizations.

**Pre-Requisites:** Basic Knowledge in Business Studies

**Course Outcomes:**

Course Outcomes and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Define and acquire the concepts of functions of Management.	K1, K2
CO2	Apply the concepts of Planning and Budgeting process in Business.	K3
CO3	Discuss the principles and decision-making process in an organization.	K3
CO4	Analyse the knowledge of Business organization structure and its resources.	K4
CO5	Analyse the techniques of controlling and budgeting.	K4

## MAPPING OF CO WITH PO AND PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	2	3	3	3	3	2
CO2	3	3	3	3	3	3	3	3	2	3
CO3	3	3	3	3	3	3	2	3	3	3
CO4	3	3	3	3	2	3	3	3	3	2
CO5	3	3	1	3	1	3	3	3	1	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## SYLLABUS

### UNIT I:

(16 Hours)

Management - Meaning – Definition – Nature – Importance and Functions – Levels of Management – Administration Vs Management – Contribution of F.W. Taylor, Henry Fayol.

### UNIT II:

(14 Hours)

Planning - Meaning – Definition – Nature – Importance – Process – Types of plans – Objectives, Policies, Procedures, Rules, Strategies, Programmes and Budgets - @ *Types of planning*.

### UNIT III:

(15 Hours)

Organisation - Meaning – Definition – Nature – Importance – Principles – Formal and Informal Organisation – Types of Organisation - Centralization – Decentralization.

### UNIT IV:

(15 Hours)

Directing – Definition – Features – Importance – Principles – Techniques of Direction. Decision making – Importance – Characteristics – Steps in decision making process.

### UNIT V:

(15 Hours)

Controlling – Need and Importance - Control Process – Techniques – Tradition and Modern method – Effective control system – Budgetary control.

### UNIT VI - SELF STUDY FOR ENRICHMENT: (Not to be included for External examination)

Management as an Art, Science and Profession – Types of planning – Distinction between Centralization and Decentralization – Characteristics of Directing – Importance of Controlling.

**Note: Self Study must be tested through Seminars, Assignments and Quiz.**

**Text Book:**

1. Prasad, L.M. (2021), *Principles and Practices of Management*, Sultan Chand and Sons.
2. Ramasamy, T. (2017), *Principles of Management*, (1<sup>st</sup> ed.), Sultan Chand and Sons.

**Books for Reference:**

1. Gupta, C.B. (2019), *Management principle*, Sultan Chand and Sons.
2. Dinkar and Pagare. (2018), *Business Management*, Prentice Hall of India.
3. Tripathi and Reddy. (2012), *Principles of Management*, Mc Graw Hill Education.
4. Koontz and odonnel weirich. (2018), *Principles of Management*, Mc Graw Hill Education.

**Web Resources:**

1. <https://vtechworks.lib.vt.edu/bitstream/handle/10919/70961/Fundamentals%20of%20Business%20%28complete%29.pdf>
2. <https://studyresearch.in/2018/03/11/case-studies-principles-of-management/>
3. [https://www.researchgate.net/publication/338967220\\_INTRODUCTION\\_TO\\_BUSINESS\\_MANAGEMENT](https://www.researchgate.net/publication/338967220_INTRODUCTION_TO_BUSINESS_MANAGEMENT)
4. <https://www.just.edu.jo/~mqais/CIS151.html>

**Pedagogy:** Lectures, Quiz, Power Point Presentation, Assignments and Seminar.

**Course Designer:** Dr. A. SIVARANJANI, Assistant Professor.

## CORE COURSE II - FINANCIAL ACCOUNTING

2022 – 2023 Batch Onwards

Semester I	Internal Marks 25	External Marks 75		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs. / Week	CREDITS
22UBA1CC2	Financial Accounting	CORE	6	5

### Course Objectives:

- The content of this course is designed to impart the basic knowledge of financial accounting theory, standards, principles and procedures to accounting problems and its application in business.
- To enable the students to acquire accounting skills and facilitate them to prepare final accounts of business and non-trading organization.

**Pre-Requisite:** Basic knowledge required in accounting concepts.

### Course Outcomes:

#### Course Outcomes and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
CO1	On the successful completion of the course, students will be able to Explain the basic concepts and their application in business.	K1,K2
CO2	Discuss the Financial Accounting standards.	K2
CO3	Apply the methods for valuing financial resources.	K3
CO4	Analyse the financial reports for managerial decision making.	K4
CO5	Evaluate the methods for preparing financial reports.	K4

## MAPPING OF CO WITH PO AND PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	2	3	3	3	3	2
CO2	3	3	3	3	3	3	3	2	3	3
CO3	3	3	3	3	3	2	3	3	3	3
CO4	3	3	3	3	2	3	3	3	1	3
CO5	3	3	1	3	1	2	3	3	3	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
 “3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### SYLLABUS

#### UNIT I: (15 Hours)

Accounting - Definition – Objectives – Scope – Accounting Concepts – Principles and Conventions – Double Entry Vs Single Entry – Books of Accounts.

#### UNIT II: (16 Hours)

Financial Accounting Standards – Formation – Scope of Accounting standards. Trial Balance - Capital and Revenue – Classification of Expenditure – Capital and Revenue Profit - Capital and Revenue Loss.

#### UNIT III: (14 Hours)

Journal – Ledger – Subsidiary Books – Purchase Book – Purchase Return Book – Sales Book – Sales Return Book – Cash Book – Double Column Book – Triple Column Cash Book – Petty Cash Book.

#### UNIT IV: (15 Hours)

Depreciation - Meaning – Causes – Methods of Depreciation – Straight Line Method – Written Down Value Method – Annuity Method.

#### UNIT V: (15 Hours)

Preparation of Trading and Profit & Loss Account and Balance sheet of sole Proprietary Business with simple Adjustment.

#### UNIT VI - SELF STUDY FOR ENRICHMENT: (Not to be included for External examination)

Difference between single entry and double entry system – Objectives of Accounting standards – Difference between journal and Ledger accounting – Difference between straight line and written down value method – Difference between Trading and Profit & Loss Account.

**Note: Self Study must be tested through Seminars, Assignments and Quiz.**

**Text Book:**

1. Gupta, R. L.& Gupta,V. K. (2016), *Financial Accounting*, Sultan Chand and Sons.
2. Maheswari, S.N. (2017), *Financial Accounting*, Vikas Publishing House.

**Books for Reference:**

1. Jain, S.P. & Narang, K.L. (2014), *Advanced Accountancy*, Kalyani Publishing & Co.
2. Gupta, R.L & Radhasamy, L. (2018), *Advanced Accountancy*, Sultan Chand and Sons.
3. Reddy, T.S. & Murthy, A. (2021), *Financial Accounting*, Margham Publications.

**Web Resources:**

1. [www.accountingcoach.com](http://www.accountingcoach.com)
2. [www.accountingweb.com](http://www.accountingweb.com)
3. [www.depreciationguru.com](http://www.depreciationguru.com)
4. [www.accountingplay.com](http://www.accountingplay.com)
5. [www.accounting.com](http://www.accounting.com)

**Pedagogy:** Lectures, Quiz and Assignments

**Course Designer:** Dr. A. SIVARANJANI, Assistant Professor.

**ALLIED COURSE I - MANAGERIAL ECONOMICS**  
**2022 – 2023 Batch Onwards**

Semester I	Internal Marks 25	External Marks 75		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs. / Week	CREDITS
22UBA1AC1	Managerial Economics	ALLIED	4	3

**Course Objectives:**

- To enable the students to learn the various economic concepts and their application in business decisions.
- To make students to understand the relevance of economics in business decisions.
- To equip the students with economic tools for business analysis.

**Pre-Requisite:** Basic knowledge in Economics.

**Course Outcomes:**

Course Outcomes and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Explain the basic concepts of Managerial Economics.	K1, K2
CO2	Define the concept of utility analysis and demand analysis.	K2
CO3	Analyze the various Micro and Macro Economic Tools to be applied in different Business Situations.	K3
CO4	Examine the alternate solutions for better profitability and Productivity of Industry.	K3
CO5	Analyze the Simple Economic Models for Business Units.	K4

## MAPPING OF CO WITH PO AND PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	2	3	3	3	3	3
CO2	3	3	3	3	3	3	2	3	2	3
CO3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	2	2	3	1	3	2
CO5	3	3	1	3	1	3	3	3	3	1

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## SYLLABUS

### Unit-I: (10 Hours)

Managerial Economics- Meaning, Scope - Characteristics – Relationship with other disciplines –Objectives of the firm.

### Unit-II: (9 Hours)

Concept of utility – Law of Diminishing marginal utility –Consumer surplus - Demand Analysis – Law of demand –Elasticity of demand – Types.

### Unit-III: (9 Hours)

Production Analysis - Law of Variable Proportion – Law of returns to scale – Economies of Large-Scale production - Cost concepts – Classifications and determinants – Cost Output relationship.

### Unit-IV: (9 Hours)

Pricing – determinants of pricing –Revenue and Revenue curves –Relationship between Average revenue, Marginal revenue and Total Revenue.

### Unit-V: (8Hours)

Market Structure: Perfect competition – Monopoly and monopsony – Price discrimination – Monopolistic Competition – Oligopoly. National Income – Concepts, Measurement and difficulties in measurement.

### Unit – VI- SELF STUDY FOR ENRICHMENT: (Not to be included for External examination)

Nature of Managerial Economics – Exceptions in Law of Demand – Classification of Economics of Large scale production – Difference between perfect competition and Monopoly – Seminars – Assignments – Quiz.

**Note: Self Study must be tested through Seminars, Assignments and Quiz.**



**Text Book:**

1. Varshney, R.L. & Maheswari, K.L. (2018), *Managerial Economics*, (19<sup>th</sup> ed.), Sultan Chand and Sons.
2. Cauvery, R. SudhaNayak, M. Giriza, & Meenakshi, R. (2015), *Managerial Economics*, (3<sup>rd</sup> ed.), Sultan Chand and Sons.

**Books for Reference:**

1. Sankaran, S. (2013), *Managerial Economics*, Margham Publication.
2. Mehta, P.L. (2016), *Managerial Economics Analysis, Problems and Cases*, Sultan Chand and Sons.
3. Jhingam, M.L. & Stephen, J.K. (2014), *Managerial Economics*, (2<sup>nd</sup> ed.), Vrinda Publicaions Private Limited.

**Web Resources:**

1. <https://www.managementstudyguide.com/managerial-economics.htm>
2. [https://www.researchgate.net/publication/327882739\\_Management\\_Economics\\_Concepts\\_and\\_Tools](https://www.researchgate.net/publication/327882739_Management_Economics_Concepts_and_Tools)

**Pedagogy:** Lecture, Power Point Presentation, Assignment, Seminar.

**Course Designer:** Dr.M.NEELA, Associate Professor.

Semester I	Internal Marks: 25	External Marks: 75		
COURSECODE	COURSE TITLE	CATEGORY	Hrs. / Week	CREDITS
22UGVE	UNIVERSAL HUMAN VALUES	Part -IV	2	2

### Course Objectives

- To enable the learners to learn the values of love and compassion.
- To foster the values of righteousness and service among the learners.
- To enhance the morale of the learners by inculcating the values renunciation and peace.
- To inspire the learners to practice the basic human values so as to make them become responsible citizens of the Nation.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Define the values of Love and Compassion	K1
CO2	Understand the value of Truth and <b>Non - Violence</b>	K2
CO3	Explain the value of <b>Righteousness and Service</b>	K3
CO4	Practice the values of <b>Renunciation (sacrifice) &amp; Peace</b>	K4
CO5	Prioritize Human Values in their day today life	K5

### Syllabus

#### UNIT -I

(6Hours)

##### Love and Compassion

- **Introduction:** what is love? Forms of love for self, parents family friend, spouse community, nation, humanity and other beings both for living and non-living.
- Love and Compassion and Inter-relatedness
- Love, compassion, empathy, sympathy and nonviolence
- Individuals who are remembered in history for practicing compassion and love.
- Narratives and anecdotes from history, literature including local folklore.

#### UNIT -II

(6Hours)

##### Truth and Non - Violence

- **Introduction:** what is truth? Universal truth, truth as value, truth as fact (veracity. sincerity, honesty among others)
- Individuals who are remembered in history for practicing this value
- Narratives and anecdotes from history, literature including local folklore
- **Introduction:** what is non-violence? Its need. Love, compassion, empathy sympathy for others as pre-requisites for non-violence
- Ahimsa as non -violence and non- killing.
- Individuals and organisations that are known for their commitment to non - violence
- Narratives and anecdotes about non - violence from history and literature including local folklore

### **UNIT -III**

**(6Hours)**

#### **Righteousness and Service**

- **Introduction:** What are Righteousness and service?
- Righteousness and dharma, Righteousness and Propriety
- Forms of service for self, parents, family, friend, spouse, community, nation, humanity and other beings- living and non-living persons in distress for disaster.
- Individuals who are remembered in history for practicing Righteousness and Service
- Narratives and anecdotes dealing with instances of Righteousness and Service from history, literature, including local folklore.

### **UNIT -IV**

**(6Hours)**

#### **Renunciation (sacrifice) & Peace**

- Introduction: what is renunciation? Renunciation and sacrifice. Self-restraint and ways of overcoming greed. Renunciation with action as true renunciation. What is peace? It's need, relation with harmony and balance.
- Individuals who are recommended in history for practicing Renunciation and sacrifice. Individuals and organisations that are known for their commitment to peace.
- Narratives and anecdotes from history and literature including local folklore about individuals who are remembered for their renunciation and sacrifice. Narratives and anecdotes about peace from history and literature including local folklore practicing peace

### **UNIT - V**

**(6Hours)**

#### **Practicing human values**

- What will learners learn/gain if they practice human values? What will learners lose if they Don't Practice human values?
- Sharing learner's individual and/ or group experience(s)
- Simulated situations
- Case studies

#### **Pedagogy**

Chalk & Talk, Seminar, PPT Presentation, Group Discussion, Blended Method, and Case Study.

#### **CourseDesigner**

Dr.G.Mettilda Buvaneswari.



## **CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**

**Nationally Accredited (III Cycle) with A Grade by NAAC**

**ISO 9001:2015 Certified**

**Annamalai Nagar, Tiruchirappalli -18.**

### **PG & RESEARCH DEPARTMENT OF COMMERCE**

#### **MINUTES OF THE SIXTH BOARD OF STUDIES**

**DATE: 07.05.2022**

**VENUE: CA Lab II & Google Meet**

**TIME: 10.30 a.m.**

#### **Members Present:**

- |                           |  |
|---------------------------|--|
| 1. Prof. Dr. N. SAVITHRI  | Chairperson & Head   |
| 2. Dr. T. PALANEESWARI    | University Nominee, The Standard Fireworks<br>Rajarathnam College, Sivakasi. |
| 3. Dr. N. C RAJASHREE     | Subject Expert, Guru Nanak College, Chennai                                  |
| 4. Dr. B. MITRA PRIYA     | Member Alumna  |
| 5. Mr. K. KANAGASABAPATHY | Industrial Expert  |
| 6. Ms. N. ARUNA           | Member, Assistant Professor  |
| 7. Dr. S. SHAMEEM         | Member, Assistant Professor  |
| 8. Dr. S. SUDHA           | Member, Assistant Professor  |
| 9. Dr. P. KAVITHA         | Member, Assistant Professor  |
| 10. Dr. D. RAMYA          | Member, Assistant Professor  |
| 11. Dr. C. SUBHA          | Member, Assistant Professor  |
| 12. Dr. S. JAYALAKSHMI    | Member, Assistant Professor  |
| 13. Ms. SHILPA A. TALREJA | Member, Assistant Professor  |
| 14. Dr. S. SOWMYA         | Member, Assistant Professor  |

15. Dr. P. BANU	Member, Assistant Professor
16. Dr. J. PRABA	Member, Assistant Professor
17. Ms. J. LALITHAMBIGAI	Member, Assistant Professor
18. Ms. D. INDUMATHI	Member, Assistant Professor
19. Ms. B. LAVANYA	Member, Assistant Professor
20. Ms. A. VINODHINI	Member, Assistant Professor
21. Ms. S. J. SUREYA	Member, Assistant Professor
22. Ms. G. KANAGAVALLI	Member, Assistant Professor
23. Ms. S. PRAVEENA	Member, Assistant Professor

**The leave of absence was granted to**

Dr. M. Victor Louis Anthuvan, Subject Expert, LIBA, Chennai and Dr. D. Sarala, Member, Assistant Professor, Department of Commerce.

**Action Taken Report of Special BoS held on 25.11.2021**

The special BoS meeting was held online on 25.11.2021 through Google Meet, The chairman of the BoS read the minutes of the meeting and the Resolutions pertaining to IV Semester Syllabus of B.Com. and B.Com.CA for 2020 – 2023 batch and onwards.

**Minutes of the Bos held on 07.05.2022 at 10.30 a.m.**

The following Resolution was passed by the member of the sixth BoS.

**Resolution No.: BOS/06/01**

Resolved to approve the PSO, Programme Structure and I semester syllabus of B.Com. for 2022 - 2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following revision of syllabus for

**1. Core Course – I (19UCO1CC1) - Financial Accounting – I**

• **Portion of Self-study is given in each unit**

Unit – I - Difference between Balance Sheet and Trial Balance, Adjustment and Closing Entries.

Unit – II - Negotiable Instrument, Difference between Promissory note and Bills of Exchange.

Unit – III - Capital and Revenue items.

Unit – IV - Difference between Branch and Department.

Unit – V - Difference between Hire Purchase and Instalment Purchase.

- **Topics included in**

Unit – I : Manufacturing A/c.

Unit – IV : Branch Accounts and Departmental Accounts.

Unit – V : Hire Purchase System.

- **Topics reduced from**

Unit – I : Meaning and Definition of Accounting, Function, Limitations, Accounting Concepts and Conventions, Double Entry System, Journal, Ledger, Trial Balance and Subsidiary Books.

Unit – IV : Consignment and Joint Venture.

Unit – V : Single Entry System, Depreciation, Provisions and Reserves.

## **2. Core Course – II (19UCO1CC2) - Management Principles and Application**

- **Portion of Self-study is given in each unit**

Unit – I - Scientific Management and Modern Management Thoughts.

Unit – II - Rational Decision-Making Process.

Unit – III - Centralization and Decentralization.

Unit – IV - Types of Motivation.

Unit – V - Techniques of effective Co-ordination.

**Topics included in**

Unit – I : Management thoughts.

Unit – III : Centralization and De-centralization.

Unit – IV : Motivation and Leadership.

Unit – V : Controlling and Co-ordination.

**Topics reduced from**

Unit – I : Contributions of various authors.

Unit – III : Staffing, Career Development and Performance Appraisal.

Unit – IV : Communication.

## **3. Allied Course – I (19UCO1AC1) - Business Economics**

- **Portion of Self-study is given in each unit**

Unit – I - Fundamental concepts of managerial economics.

Unit – II - Advertising and demand, demand distinctions.

Unit – III - Forecasting demand for new products.

Unit – IV - Elasticity of Supply.

Unit – V - Monopoly, Oligopoly and Duopoly – Simple concepts only.

- **Topics included in**

Unit – III : Requirements for Demand forecasting, Approaches, Methods and Features of a good forecasting method.

Unit – IV : Law of Variable Proportions, Economics of Scale and Production function.

- **Topics reduced from**

Unit – III : Production Function.

Unit – IV : Cost and Revenue Analysis.

**Resolution No.: BOS/06/02**

Resolved to approve the PSO, Programme Structure and I semester syllabus of B.Com. CA for 2022 - 2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following revision of syllabus for

**1. Core Course – I (19UCC1CC1) - Principles of Accountancy**

- **Portion of Self-study is given in each unit**

Unit – I - Bases of Accounting.

Unit – II - Difference between Trial Balance and Balance Sheet

Unit – III - Classification of Capital and Revenue items.

Unit – IV - Difference between Bills Receivable and Bills Payable.

Unit – V - Various types of royalty.

- **Topics included in**

Unit – V : Fire Insurance Claims and Royalty Accounts.

- **Topics reduced from**

Unit – III : Bills of Exchange

Unit – IV : Consignment and Joint Venture.

**2. Core Course – II (19UCC1CC2) - Modern Management Concepts**

- **Portion of Self-study is given in each unit**

Unit – I - Environmental factors that a manager should consider in an organization.

Unit – II - Forecasting and its techniques.

Unit – III - Organization chart and manual.

Unit – IV - Information Technology in management control.

Unit – V - Contemporary managerial approaches.

- **Topics included in**

Unit – III : Organizing and Motivation.

Unit – III : Contemporary Issues

- **Topics reduced from**

Unit – V : Recent trends in management.

### **Resolution No.: BOS/06/03**

Resolved to approve the PSO, Programme Structure and I semester syllabus of M.Com. for 2022 - 2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following revision of syllabus for

#### **1. Core Course – I (19PCO1CC1) - Corporate Finance**

- **Portion of Self-study is given in each unit**

Unit – I - Agency Problem and Agency Cost.

Unit – II - Capital Rationing.

Unit – III - Optimal Capital Structure.

Unit – IV - Dividend Policies of Indian Companies.

Unit – V - Recent Trends in Financial Management.

- **Entirely modified all units.**

#### **2. Core Course – III (19PCO1CC4) - Strategic Management**

- **Portion of Self-study is given in each unit**

Unit – I - Strategic Planning Practices.

Unit – II - Recent trends in Micro and Macro Environment.

Unit – III - Problems of control system.

Unit – IV - Uncertainty – Impact of environmental development and ability to adjust.

Unit – V - Encouraging Ethical Behaviour.



- **Topics included in**

Unit – IV : Competitive advantages, New Distribution Channels, Economic shift, Changes in Government Regulations and Response option.

Unit – V : Social Responsibilities in strategic management, Social Responsibility of Strategic Decision Makers, Responsibilities of Business Firm, Corporate Stakeholders, Ethical Decision Making and Reasons for Unethical Behaviour.

- **Topics reduced from**

Unit – IV : Implementing strategic Change, Strategic Alternatives, Diversifications, Mergers and Acquisitions, Disinvestment and Liquidation strategies, Case Studies

Unit – V : Social Responsibility, Social and ethical issues, Emerging issues in Managing technology and innovations.

### **3. Elective Course – I (19PCO1EC1A) - Business Ethics, Corporate Social Responsibility and Governance**

- **Portion of Self-study is given in each unit**

Unit – I - Professional Ethics, Conflicts of interest, Ethical Challenges.

Unit – II - Global Market, Banking Ombudsman Scheme, Contemporary Technology.

Unit – III - Corporate democracy, Corporate mis-governance, Governance Mechanisms.

Unit – IV - Perspectives CSR, New economy initiatives.

Unit – V - Era of Globalization.

- **Topics included in**

Unit – II : Marketing Ethics, Ethical issues in HRM, Financial Management and Perspective of IT industry.

- **Topics reduced from**

Unit – II : Ethics in business functional areas.

#### **Newly introduced Courses:**

**1. Core Course – II – Economic and Environment Laws.**

**2. Core Course – IV - Organisational Behaviour.**

**Resolution No.: BOS/06/04**

Resolved to approve the modification in the Programme Structure of B.Com. (2021 – 2024) batch and the third semester syllabi, the Allied Course III – Customer Relationship Management (19UCO3AC3) was changed as Business Statistics (21UCO3AC3) and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**Resolution No.: BOS/06/05**

Resolved to approve the ratification made to replace

- Skill Based Elective – II SPSS (19UCO5SBE2AP) as Introduction to MS-Excel and PowerPoint (21UCO5SBE2AP) / Advertising and Sales Promotion (19UCO5SBE2B) as Digital Designs for Business Application (Practical) 21UCO5SBE2BP.
- Skill Based Elective – III Personality Development (19UCO5SBE3A) as Commerce – Practical (21UCO5SBE3AP) in V Semester Programme Structure of B.Com. (2020 – 2021 Batch and onwards) and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**Resolution No.: BOS/06/06**

Resolved to approve the ratification made to replace

- Skill Based Elective – II SPSS (19UCC5SBE2AP) as Tally ERP – Practical (21UCC5SBE2AP) / Advertising and Sales Promotion (19UCC5SBE2B) as Digital Designs for Business Application (Practical) 21UCC5SBE2BP.
- Skill Based Elective – III Personality Development (19UCO5SBE3A) as Commerce – Practical (21UCC5SBE3AP) in V Semester Programme Structure of B.Com. CA (2020 – 2021 Batch and onwards) and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**Resolution No.: BOS/06/07**

Resolved to include the Project Work (21UCO6PW) in VI Semester Programme Structure for B.Com. and B.Com. CA (2020 – 2021 Batch and onwards) and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**Resolution No.: BOS/06/08**

Resolved to approve the modification of B.Com. (2021 – 2024) IV Semester syllabi of Core Course VII – Business Statistics (19UCO4CC7) to be replaced as Management Accounting (21UCO4CC7) and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**Resolution No.: BOS/06/09**

Resolved to approve the modification in the Programme Structure and V Semester syllabi of Part III – Core and Major Based Elective course for B.Com. (2021 – 2022 and onwards),

- Core Course X – Entrepreneurship and Small Business Management (19UCO5CC10) was changed as Business Correspondence and Reporting (21UCO5CC10).
- Major Based Elective I – Business Correspondence and Reporting (19UCO5MBE1A) was changed as GST (21UCO5MBE1A) / E-Retailing (19UCO5MBE1B) was changed as Entrepreneurship and Small Business Management (21UCO5MBE1B).
- Core Course XI was replaced with Major Based Elective II – A. Business Mathematics (21UCO5MBE2A) and B. E-Commerce (21UCO5MBE2B) and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**Resolution No.: BOS/06/10**

Resolved to approve the modification in the Programme Structure and VI Semester syllabi of Part III – Core and Major Based Elective for B.Com. (2021- 2022 and onwards),

- Core Course XII – Management Accounting (19UCO6CC12) was replaced by Core Course X – Direct Taxation (21UCO6CC11).
- Core Course XIII – Direct Taxation (19UCO6CC13) was changed to Core Course XI – Financial Management (21UCO6CC12).
- Major Based Elective II – Human Resource Management (19UCO6MBE2A) was changed as Company Law and Secretarial Practice (21UCO6MBE2A) / E-Commerce (19UCO6MBE2B) was changed as Human Resource Management (21UCO6MBE2B).
- Major Based Elective III – Financial Services (19UCO6MBE3A) was changed as Corporate Governance (21UCO6MBE3A) / Organizational Behaviour (19UCO6MBE3B) was changed as Financial Services (21UCO6MBE3B) and

recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy - 18.

**Resolution No.: BOS/06/11**

Considered and approved the panel of names for appointment of examiners and question paper setters and suggested to the Academic Council, Cauvery College for Women (Autonomous), Trichy - 18.

**Resolution No.: BOS/06/12**

Prof. Dr. N. Savithri, Chairperson and HoD expressed her deep sense of gratitude for the valuable suggestions given by the external BoS members during the meetings for the period 2019 – 2022 and thanked all the members of Board of Studies of Commerce.

**Chairman**

## PROGRAMME OUTCOMES FOR B.COM., B.COM. CA, B.B.A. PROGRAMMES

<b>PO NO.</b>	<b>Programme Outcome On completion of B.Com. /B.Com. CA / B.B.A. Programme, The students will be able to</b>
<b>PO 1</b>	<b>PROGRAMME KNOWLEDGE AND ENVIORNMENT SUSTAINABILITY</b> Acquire a strong foundation in the areas of Commerce, Management and Information Technology that needs to respond to the constantly changing Business and Legal environment.
<b>PO 2</b>	<b>CRITICAL THINKING AND DECISION MAKING SKILLS</b> Analyse and develop solutions through various computational techniques for real time problems in all areas of Business Management specially Finance, Marketing, Human Resources and Operations.
<b>PO 3</b>	<b>ENTREPRENEURSHIP SKILLS AND COMPETENCY DEVELOPMENT</b> Apply the competencies and creativity required to undertake entrepreneurship as a desirable and feasible career option or be employed in various positions in industry, academia and Government.
<b>PO 4</b>	<b>TEAM WORK AND PROFICIENCY DEVELOPMENT</b> Imbibe professionalism to embrace new opportunities of emerging technologies, leadership and team work in a dynamic ethical business scenario.
<b>PO 5</b>	<b>PROFESSIONAL SKILLS AND EMPLOYABILITY</b> Internalize the learned concept of Business and Commerce that will enable them to become skilled professionals and to enhance the career prospects.

### PROGRAMME SPECIFIC OUTCOMES FOR B.COM.

#### **B.Com.**

#### **CURRICULUM [2022–2023Onwards]**

<b>PSO NO</b>	<b>Programme Specific Outcomes Students of B.Com. will be able to</b>	<b>POs Addressed</b>
PSO1	Acquire fundamental knowledge in the fields of Commerce, Management, Accounts, Finance and overall general legal framework of the business.	PO1, PO2
PSO2	Inculcate critical thinking and problem solving skills to excel in technologies and its services used ethically in various sector.	PO2
PSO3	Identify business opportunities to create and manage innovations and entrepreneurship.	PO3
PSO4	Become acquainted with commercial knowledge and professional skills to react the most appropriate way when faced with challenges.	PO4, PO5
PSO5	Obtain the knowledge and skills required for further professional education and research.	PO5



**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18**  
**DEPARTMENT OF COMMERCE**  
**B.Com. – PROGRAMME STRUCTURE**  
**(For the candidates admitted from the academic year 2022 – 2023 onwards)**

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
								Internal	External	
I	I	Language Course - I (LC)	ஹிந்தி இலக்கியம் மற்றும் வரலாறு - I	22ULT1	6	3	3	25	75	100
			Hindi Literature & Grammar - I	22ULH1						
			History of Popular Tales Literature and Sanskrit Story	22ULS1						
			Basic French -I	22ULF1						
	II	English Language Course - I (ELC)	Functional English for Effective Communication - I	22UE1	6	3	3	25	75	100
	III	Core Course - I (CC)	Financial Accounting - I	22UCO1CC1	6	5	3	25	75	100
		Core Course - II (CC)	Management Principles and Application	22UCO1CC2	6	5	3	25	75	100
		First Allied - I (AC)	Business Economics	22UCO1AC1	4	3	3	25	75	100
	IV	UGC Jeevan Kaushal	Universal Human Values	22UGVE	2	2	3	25	75	100
			<b>Total</b>			<b>30</b>	<b>21</b>			

II	I	Language Course - II (LC)	ஹிந்தி இலக்கியம் மற்றும் வரலாறு - II, இலக்கணம்	22ULT2	5	3	3	25	75	100
			Hindi Literature & Grammar - II	22ULH2						
			Poetry, Textual Grammar and Alakara	22ULS2						
			Basic French -II	22ULF2						
	II	English Language Course - II (ELC)	Functional English for Effective Communication - II	22UE2	6	3	3	25	75	100
	III	Core Course - III (CC)	Financial Accounting - II		6	5	3	25	75	100
		Core Course - IV(CC)	Fundamentals of Marketing		6	5	3	25	75	100
		First Allied - II (AC)	Banking Theory Law and Practice		5	3	3	25	75	100
	IV	Ability Enhancement Compulsory Course (AECC) - I	Environmental Studies		2	2	3	25	75	100
			Extra Credit Course	SWAYAM		As per UGC Recommendations				
		<b>Total</b>			<b>30</b>	<b>21</b>				<b>600</b>

III	I	Language Course - III (LC)	□□□□□□□□□□, □□□□□□□□	22ULT3	5	3	3	25	75	100
			Hindi Literature & Grammar - III	22ULH3						
			Prose, Textual Grammar and Vakyarachana	22ULS3						
			Intermediate French -I	22ULF3						
	II	English Language Course III (ELC)	Learning Grammar through Literature - I	22UE3	6	3	3	25	75	100
	III	Core Course - V (CC)	Cost Accounting		6	5	3	25	75	100
		Core Course - VI (CC)	Business Correspondence and Reporting		5	5	3	25	75	100
		Second Allied – I (AC)	Business Law		4	3	3	25	75	100
	IV	Ability Enhancement Compulsory Course (AECC) - II	Innovation and Entrepreneurship		2	1				100
		Generic Elective – I (GE)	Elements of Insurance		2	2	3	25	75	100
			Basic Tamil							
	Special Tamil									
	Extra Credit Course	Swayam Online Course		As per UGC Recommendations						
<b>Total</b>				<b>30</b>	<b>22</b>					<b>700</b>

\*15 Days INTERNSHIP during Semester Holidays.

IV	I	Language Course - IV (LC)	□□□□□□ □□□□□□□□	22ULT4	6	3	3	25	75	100
			Hindi Literature & Functional Hindi	22ULH4						
			Drama, History of Drama Literature	22ULS4						
			Intermediate French -II	22ULF4						
	II	English Language Course-IV (ELC)	Learning Grammar through Literature - II	22UE4	6	3	3	25	75	100
	III	Core Course - VII (CC)	Business Statistics		5	4	3	25	75	100
		Core Practical - I (CP)	Accounting Package - Practical		5	4	3	40	60	100
		Second Allied – II (AC)	E-Commerce and Web Designing		4	3	3	25	75	100
	Internship					2				100
	IV	Generic Elective – II (GE)	Advertisement Management		2	2	3	25	75	100
			Basic Tamil							
			Special Tamil							
		Skill Enhancement Course - I	A. Introduction to MS-Word (Practical)		2	2	3	40	60	100
B. Creative Advertising (Practical)		25	75							
Extra Credit Course	Swayam Online Course		As per UGC Recommendations							
<b>Total</b>				<b>30</b>	<b>23</b>					<b>800</b>

V	III	Core Course - VIII (CC)	Corporate Accounting		6	5	3	25	75	100
		Core Course - IX (CC)	Financial Management		5	5	3	25	75	100
		Core Practical – II (CP)	SPSS - Practical		5	5	3	25	75	100
		Discipline Specific Elective – I (DSE)	A. Business Mathematics		4	4	3	25	75	100
			B. Retail Management							
	Discipline Specific Elective – II (DSE)	A. Goods and Services Tax		4	4	3	25	75	100	
		B. Entrepreneurship and Small Business Management								
	IV	Skill Enhancement Course - II	A. Introduction to MS-Excel and Power Point (Practical)		2	2	3	40	60	100
			B. Digital Designs for Business Application (Practical)					25	75	
		Skill Enhancement Course - III	A. Skills for Competitive Examination		2	2	3	-	100	100
			B. Commerce - Practical					25	75	
		UGC Jeevan Kaushal	Professional Skills		2	1	3	25	75	100
	Extra Credit Course	Swayam Online Course		As per UGC Recommendations						
<b>Total</b>					<b>30</b>	<b>28</b>				<b>800</b>

VI	III	Core Course - X (CC)	Management Accounting		6	5	3	25	75	100
		Core Course - XI (CC)	Direct Taxation		5	4	3	25	75	100
		Core Course - XII (CC)	Auditing		5	5	3	25	75	100
		Discipline Specific Elective – III (DSE)	A. Industrial Relations and Labour Law		4	3	3	25	75	100
			B. Human Resource Management							
		Discipline Specific Elective – IV (DSE)	A. Corporate Governance		4	3	3	25	75	100
			B. Financial Services							
Project	Project Work		5	3	-	-	100	100		
V		Gender Studies		1	1	3	25	75	100	
		Extension Activities		-	1	-	-	-	-	
<b>Total</b>					<b>30</b>	<b>25</b>				<b>700</b>
<b>Grand Total</b>					<b>180</b>	<b>140</b>				<b>4200</b>



Semester I	Internal Marks: 25	External Marks: 75		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs. / Week	CREDITS
22UCO1CC1	FINANCIAL ACCOUNTING – I	CORE	6	5

### Course Objective

- To enable the students to understand the Accounting Standards and to apply the accounting principles in the Rectification of Errors, preparation of Final Accounts of sole trader, Non-Profit Organization, Bank Reconciliation Statement and Bills of Exchange.
- To provide accounting knowledge in Branch, Departmental and Hire Purchase businesses.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Define the fundamentals of Accounting Standards.	K1
CO2	Explain the financial statements of Sole Trader and Non -Profit Organisation.	K2
CO3	Apply the accounting practice in Branch, Departmental and Hire Purchase businesses.	K3
CO4	Analyze the accounting procedures related to Bills of Exchange, Account Current and Calculation of Average Due date.	K4
CO5	Examine the reasons for disparities in Cash Book & Pass Book and reconcile them.	K4

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	3	3	3	3	3	2	3	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3
CO4	3	2	2	3	3	3	3	2	2	3
CO5	3	3	2	3	3	3	3	2	3	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### Syllabus

#### UNIT - I

(18 Hours)

Introduction to Accounting Standards. Rectification of Errors – Classification – Suspense Account. Final Accounts of a Sole Trader: Manufacturing Account – Trading Account – Profit and Loss Account – Balance Sheet – Adjustments.

**UNIT - II** (18 Hours)  
Bank Reconciliation Statement – Favourable and Unfavourable Balances. Bills of Exchange - Average Due Date – Account Current.

**UNIT - III** (18 Hours)  
Accounts of Non-Profit Organisation – Receipt & Payment Accounts – Income & Expenditure Accounts – Balance Sheet – Adjustments.

**UNIT - IV** (18 Hours)  
Branch Accounts (Dependent Branches: Debtor System and Stock & Debtor System only) Departmental Accounts – Apportionment of Expenses – Inter –departmental Transfer at cost and Invoice price.

**UNIT - V** (18 Hours)  
Hire Purchase System: Accounting Treatment – Calculation of Interest – Default and Repossession – Hire Purchase Trading Account: Debtors System and Stock & Debtor System.

**UNIT – VI Self Study for Enrichment (Not included for Examination)**

Difference between Balance Sheet and Trial Balance, Adjustment and Closing Entries - Negotiable Instrument, Difference between Promissory note and Bills of Exchange - Difference between Branch and Department - Capital and Revenue items - Difference between Hire Purchase and Instalment Purchase.

*Note: Self study must be tested through Seminars, Assignments and Quiz.*

**Distribution of Marks: Theory 20% & Problem 80%**

#### **Text Book**

1. Reddy, T.S, & Murthy A. (2021), *Financial Accounting* , Margham Publication.
2. Jain S.P, & Narang K.L. (2016), *Business Accounting*, Kalyani Publishers.

#### **Reference Books**

1. Dalston L Cecil & Jenitra L Merwin (2015) *Business Accounting*, Learn Tech Publishers.
2. Gupta R.L, & Radhaswamy M. (2018), *Financial Accounting*, Sultan Chand & Sons.
3. Arulanandam M.A, & Raman K.S. (2018), *Advanced Accountancy*, Himalaya Publishing House.

## **Web References**

1. <https://www.icai.org/post/icai-publications-accounting-standards-board>
2. <https://cleartax.in/s/accounting-standards>
3. [https://newhorizonindia.edu/nhc\\_kasturinagar/wp-content/uploads/2020/06/AFA-4.pdf](https://newhorizonindia.edu/nhc_kasturinagar/wp-content/uploads/2020/06/AFA-4.pdf)
4. <https://www.britannica.com/topic/bill-of-exchange>
5. <https://cleartax.in/g/terms/hire-purchase-agreements>
6. <https://corporatefinanceinstitute.com/resources/knowledge/strategy/npo-non-profit-organization/>

## **Pedagogy**

Chalk and Talk, PPT, Discussion, Assignment, Demo, Quiz and Seminar.

## **Course Designer**

Dr. C. Subha, Assistant Professor, Department of Commerce.

Semester I	Internal Marks: 25	External Marks: 75		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs. / Week	CREDITS
22UCO1CC2	MANAGEMENT PRINCIPLES AND APPLICATION	CORE	6	5

### Course Objective

- To familiarize the students on the basic concepts of management in order to aid in understanding how an organization functions and the challenging issues a manager confronts in today's business firm.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Define the basic principles and functions of management	K1
CO2	Classify the types of decision-making process and apply the various skills in planning	K2
CO3	Identify the nature and purpose of organizing and classify the functions of line and staff authority	K3
CO4	Develop leadership skills and categories the types of motivation	K3
CO5	Analyze the various techniques in controlling and co-ordination	K4

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	3	2	3	3	2	3	2	3
CO2	3	2	3	3	3	3	3	2	3	2
CO3	3	3	2	3	3	3	2	2	3	3
CO4	3	2	3	3	2	3	3	2	3	3
CO5	2	3	2	3	3	3	3	2	2	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### Syllabus

#### UNIT - I

(18 Hours)

Management – Meaning – Definition – Nature and Scope – Features-Level of management –Management roles and skills –Management as an art or a science or a profession - Management thoughts: Scientific Management and Modern Management Thoughts - Principles and Functions of Management.

**UNIT - II** (18 Hours)

Nature and Purpose of Planning – Planning Process – Types of Plans – Objectives – Management by Objectives (MBO) – Strategies – Types of Strategies – Policies – Decision Making – Types of Decision – Decision Making Process – Rational Decision-Making Process – Decision Making Under Different Conditions.

**UNIT - III** (18 Hours)

Nature and Purpose of Organizing – Organization Structure – Line and Staff Authority – Departmentation – Span of Control – Centralization and Decentralization – Delegation of Authority.

**UNIT - IV** (18 Hours)

Motivation – Meaning – Definition – Nature - Types of motivation - Theories of motivation - Leadership – Functions – Styles – Theories.

**UNIT - V** (18 Hours)

Controlling – Meaning – Definition – Characteristics - Steps in controlling – Effective control - Control techniques.

Co-ordination: Definition-Features and benefits of Co-ordination - Techniques of effective Co-ordination.

**UNIT – VI Self Study for Enrichment (Not included for Examination)**

Scientific Management and Modern Management Thoughts - Rational Decision-Making Process - Centralization and Decentralization - Types of Motivation - Techniques of effective Co-ordination.

*Note: Self study must be tested through Seminars, Assignments and Quiz.*

**Text Book**

1. Prasad L. M. (2021), *Principles and Practice of Management*, Sultan Chand & Sons.
2. Tripathi K.D. (2017), *Principles of Management*, McGraw Hill Education.

**Reference Books**

1. Ramasamy T. (2017), *Principles of Management*, Himalaya Publishing House.
2. Dr. Saksena S.C. (2019), *Principles of Business Management*, Sahitya Bhawan Publications.

### **Web References**

1. <https://cbseacademic.nic.in>
2. <https://ncert.nic.in/textbook/pdf>
3. <http://www.freebookcentre.net>
4. <https://www.egyankosh.ac.in>
5. <https://www.yourarticlelibrary.com>
6. <http://courses.washington.edu>
7. <http://www.nou.ac.in/econtent>
8. <https://www.toppers.com>

### **Pedagogy**

Chalk and Talk, PPT, Discussion, Assignment, Quiz, Seminar and Group Discussion.

### **Course Designer**

Ms. B. Lavanya, Assistant Professor, Department of Commerce.

Semester I	Internal Marks: 25	External Marks: 75		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs. / Week	CREDITS
22UCO1AC1	BUSINESS ECONOMICS	ALLIED	4	3

### Course Objective

- To enable the students to interpret the demand function and elasticity interlinked with optimal pricing decisions and recognize different market structures.

### Course Outcomes

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Recall the concept of business economics	K1
CO2	Explain the demand and identify the determinants of demand	K2 & K3
CO3	Apply the law of variable proportions and to develop the production function	K2 & K3
CO4	Make use of demand forecasting methods and the application of cost techniques	K3
CO5	Categorize the different costs and Revenue concepts for fixation of profit	K4

### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	2	1	3	2	1	1	1	1
CO2	2	2	3	2	3	1	2	2	2	2
CO3	3	3	3	2	3	2	3	2	3	3
CO4	3	3	3	2	3	3	3	2	2	3
CO5	3	3	3	2	3	3	2	2	3	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### Syllabus

#### UNIT - I

(12 Hours)

Business Economics - Meaning – Definitions - Characteristics – Distinction between Business Economics and Economics – Scope – Objectives – Roles and responsibilities of business economist.

#### UNIT - II

(12 Hours)

Theory of Demand Analysis: Demand determinants – Law of demand – Characteristics – Exceptions – Elasticity of demand – Price elasticity – Types – Determining

factors – Change in demand and Elasticity of demand – Business applications of price elasticity – Concepts of income and cross elasticity of demand – Price elasticity of demand – Measurement of price elasticity of demand.

**UNIT - III (12 Hours)**

Demand Forecasting Methods: Introduction – Objectives – Types – Requirements for demand forecasting, Approaches, Methods – Features of a good forecasting method.

**UNIT - IV (12 Hours)**

Production Function: Introduction – Factors, Law of Variable Proportions – Law of returns to Scale, Producer's equilibrium – Economics of Scale – ISO Quant Analysis – Cobb Douglas Production Function.

**UNIT - V (12 Hours)**

Cost and Revenue Analysis: Cost classification – Real cost – Opportunity cost – Money cost – Explicit cost and implicit cost – Economic cost – Fixed cost and Variable cost – Total and Marginal cost – Behavior of short run and long run cost – Cost and output relations – Revenue concepts – Break Even Analysis – Profit Management – Nature, Theories and Measurement.

**UNIT – VI Self Study for Enrichment (Not included for Examination)**

Fundamental concepts of managerial economics - Advertising and demand, demand distinctions - Forecasting demand for new products - Elasticity of Supply - Monopoly, Oligopoly and Duopoly – Simple concepts only.

*Note: Self study must be tested through Seminars, Assignments and Quiz.*

**Text Book**

1. Ahuja H. L, (2016), *Business Economics*, Sultan Chand & Sons.
2. R Cauvery, Sudhanayak U.K, Girija M, Meenakshi M.R, (2008), *Managerial Economics*, S.Chand& Company Ltd.

**Reference Books**

1. Arymala T,(2013), *Business Economics*, Vijay Nicole Imprints Pvt. Ltd.
2. Chaturvedi D.D. & Gupta S.L, (2010), *Business Economics*, Vikas Publication.



### **Web References**

1. <https://www.ncertbooks.guru/b-com-economics-notes/>
2. <https://www.toppr.com/guides/business-economics/theory-of-demand/demand-forecasting/>
3. <https://www.investopedia.com/ask/answers/121514/what-are-major-differences-between-monopoly-and-oligopoly.asp>

### **Pedagogy**

Chalk and Talk, PPT, Discussion, Assignment, Demo, Quiz, and Seminar.

### **Course Designer**

Capt. Dr. P. Kavitha, Associate Professor, Department of Commerce.

Semester I	Internal Marks: 25	External Marks: 75		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs. / Week	CREDITS
22UGVE	UNIVERSAL HUMAN VALUES	Part -IV	2	2

### Course Objectives

- To enable the learners to learn the values of love and compassion.
- To foster the values of righteousness and service among the learners.
- To enhance the morale of the learners by inculcating the values renunciation and peace.
- To inspire the learners to practice the basic human values so as to make them become responsible citizens of the Nation.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Define the values of Love and Compassion	K1
CO2	Understand the value of Truth and <b>Non - Violence</b>	K2
CO3	Explain the value of <b>Righteousness and Service</b>	K3
CO4	Practice the values of <b>Renunciation (sacrifice) &amp; Peace</b>	K4
CO5	Prioritize Human Values in their day today life	K5

### Syllabus

#### UNIT - I

(6 Hours)

##### Love and Compassion

- **Introduction:** what is love? Forms of love for self, parents family friend, spouse community, nation, humanity and other beings both for living and non-living.
- Love and Compassion and Inter-relatedness
- Love, compassion, empathy, sympathy and nonviolence
- Individuals who are remembered in history for practicing compassion and love.
- Narratives and anecdotes from history, literature including local folklore.

#### UNIT - II

(6 Hours)

##### Truth and Non - Violence

- **Introduction:** what is truth? Universal truth, truth as value, truth as fact (veracity. sincerity, honesty among others)
- Individuals who are remembered in history for practicing this value
- Narratives and anecdotes from history, literature including local folklore
- **Introduction:** what is non-violence? Its need. Love, compassion, empathy sympathy for others as pre-requisites for non-violence
- Ahimsa as non -violence and non- killing.

- Individuals and organisations that are known for their commitment to non - violence
- Narratives and anecdotes about non - violence from history and literature including local folklore

### **UNIT - III**

**(6 Hours)**

#### **Righteousness and Service**

- **Introduction:** What are Righteousness and service?
- Righteousness and dharma, Righteousness and Propriety
- Forms of service for self, parents, family, friend, spouse, community, nation, humanity and other beings- living and non-living persons in distress for disaster.
- Individuals who are remembered in history for practicing Righteousness and Service
- Narratives and anecdotes dealing with instances of Righteousness and Service from history, literature, including local folklore.

### **UNIT - IV**

**(6 Hours)**

#### **Renunciation (sacrifice) & Peace**

- Introduction: what is renunciation? Renunciation and sacrifice. Self-restraint and ways of overcoming greed. Renunciation with action as true renunciation. What is peace? It's need, relation with harmony and balance.
- Individuals who are recommended in history for practicing Renunciation and sacrifice. Individuals and organisations that are known for their commitment to peace.
- Narratives and anecdotes from history and literature including local folklore about individuals who are remembered for their renunciation and sacrifice. Narratives and anecdotes about peace from history and literature including local folklore practicing peace

### **UNIT - V**

**(6 Hours)**

#### **Practicing human values**

- What will learners learn/gain if they practice human values? What will learners lose if they Don't Practice human values?
- Sharing learner's individual and/ or group experience(s)
- Simulated situations
- Case studies

### **Pedagogy**

Chalk & Talk, Seminar, PPT Presentation, Group Discussion, Blended Method, and Case Study.

### **Course Designer**

Dr. G. Mettilda Buvanewari.

**PROGRAMME OUTCOMES FOR B.COM., B.COM. CA, B.B.A. PROGRAMMES**

<b>PO NO.</b>	<b>Programme Outcome On completion of B.Com. /B.Com. CA / B.B.A. Programme, The students will be able to</b>
<b>PO 1</b>	<b>PROGRAMME KNOWLEDGE AND ENVIORNMENT SUSTAINABILITY</b> Acquire a strong foundation in the areas of Commerce, Management and Information Technology that needs to respond to the constantly changing Business and Legal environment.
<b>PO 2</b>	<b>CRITICAL THINKING AND DECISION MAKING SKILLS</b> Analyse and develop solutions through various computational techniques for real time problems in all areas of Business Management specially Finance, Marketing, Human Resources and Operations.
<b>PO 3</b>	<b>ENTREPRENEURSHIP SKILLS AND COMPETENCY DEVELOPMENT</b> Apply the competencies and creativity required to undertake entrepreneurship as a desirable and feasible career option or be employed in various positions in industry, academia and Government.
<b>PO 4</b>	<b>TEAM WORK AND PROFICIENCY DEVELOPMENT</b> Imbibe professionalism to embrace new opportunities of emerging technologies, leadership and team work in a dynamic ethical business scenario.
<b>PO 5</b>	<b>PROFESSIONAL SKILLS AND EMPLOYABILITY</b> Internalize the learned concept of Business and Commerce that will enable them to become skilled professionals and to enhance the career prospects.

**PROGRAMME SPECIFIC OUTCOMES FOR B.COM. COMPUTER APPLICATIONS**

**B.Com. COMPUTER APPLICATONS  
CURRICULUM [2022–2023Onwards]**

<b>PSO NO</b>	<b>Programme Specific Outcomes Students of B.Com. CA will be able to</b>	<b>POs Addressed</b>
PSO1	Understand the various concepts related to Commerce and Computer Applications.	PO1, PO2
PSO2	Inculcate critical thinking and problem solving skills to excel in technologies and its services used ethically in various sector.	PO2
PSO3	Adopt frameworks for sustainable development in their career with virtuous to become a successful entrepreneur and application developer.	PO3
PSO4	Become acquainted with commercial knowledge and professional skills to react the most appropriate way when faced with challenges.	PO4, PO5
PSO5	Exhibit proficiency in globally relevant multidisciplinary areas of computing with environmental considerations.	PO5



**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18**  
**DEPARTMENT OF COMMERCE**

**B.Com. CA – PROGRAMME STRUCTURE**

**(For the candidates admitted from the academic year 2022 – 2023 onwards)**

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total									
								Internal	External										
I	I	Language Course - I (LC)	இக்கால இலக்கியம்	22ULT1	6	3	3	25	75	100									
			Hindi Literature & Grammar - I	22ULH1															
			History of Popular Tales Literature and Sanskrit Story	22ULS1															
			Basic French -I	22ULF1															
	II	English Language Course - I (ELC)	Functional English for Effective Communication - I	22UE1	6	3	3	25	75	100									
	III	Core Course - I (CC)	Principles of Accountancy	22UCC1CC1	6	5	3	25	75	100									
											Core Course - II (CC)	Modern Management Concepts	22UCC1CC2	6	5	3	25	75	100
	IV	UGC Jeevan Kaushal	Universal Human Values	22UGVE	2	2	3	25	75	100									
	<b>Total</b>					<b>30</b>	<b>21</b>				<b>600</b>								

II	I	Language Course - II (LC)	இடைக்கால இலக்கியமும், புதினமும்	22ULT2	5	3	3	25	75	100									
			Hindi Literature & Grammar - II	22ULH2															
			Poetry, Textual Grammar and Alakara	22ULS2															
			Basic French -II	22ULF2															
	II	English Language Course - II (ELC)	Functional English for Effective Communication - II	22UE2	6	3	3	25	75	100									
	III	Core Course - III (CC)	Modern Marketing		6	5	3	25	75	100									
											Core Course - IV(CC)	Web Designing		6	5	3	25	75	100
	IV	Ability Enhancement Compulsory Course (AECC) - I	Environmental Studies		2	2	3	25	75	100									
	Extra Credit Course		SWAYAM		As per UGC Recommendations														
<b>Total</b>					<b>30</b>	<b>21</b>				<b>600</b>									

III	I	Language Course - III (LC)	காப்பியமும், நாடகமும்	22ULT3	5	3	3	25	75	100	
			Hindi Literature & Grammar - III	22ULH3							
			Prose, Textual Grammar and Vakyarachana	22ULS3							
			Intermediate French -I	22ULF3							
	II	English Language Course III (ELC)	Learning Grammar through Literature - I	22UE3	6	3	3	25	75	100	
	III	Core Course - V (CC)	Business Accounting		6	5	3	25	75	100	
			Core Course - VI (CC)	Database Management Systems		5	5	3	25	75	100
			Second Allied – I (AC)	Business Law		4	3	3	25	75	100
	IV	Ability Enhancement Compulsory Course (AECC) - II	Innovation and Entrepreneurship		2	1				100	
			Generic Elective – I (GE)	Office Management		2	2	3	25	75	100
				Basic Tamil							
	Special Tamil										
Extra Credit Course		Swayam Online Course		As per UGC Recommendations							
<b>Total</b>				<b>30</b>	<b>22</b>					<b>700</b>	

\*15 Days INTERNSHIP during Semester Holidays.

IV	I	Language Course - IV (LC)	பண்டைய இலக்கியம்	22ULT4	6	3	3	25	75	100	
			Hindi Literature & Functional Hindi	22ULH4							
			Drama, History of Drama Literature	22ULS4							
			Intermediate French -II	22ULF4							
	II	English Language Course-IV (ELC)	Learning Grammar through Literature - II	22UE4	6	3	3	25	75	100	
	III	Core Course - VII (CC)	Cost Accounting		5	4	3	25	75	100	
			Core Practical - I (CP)	Database Management Systems - Practical		5	4	3	40	60	100
			Second Allied – II (AC)	Business Tools for Decision Making		4	3	3	25	75	100
	Internship					2				100	
	IV	Generic Elective – II (GE)	E-Business		2	2	3	25	75	100	
			Basic Tamil								
			Special Tamil								
Skill Enhancement Course - I	A. Fundamentals of Accounting with Tally			2	2	3	40	60	100		
		B. Creative Advertising (Practical)					25	75			
Extra Credit Course		Swayam Online Course		As per UGC Recommendations							
<b>Total</b>				<b>30</b>	<b>23</b>					<b>800</b>	

V	III	Core Course - VIII (CC)	Accounting for Managerial Decisions		6	6	3	25	75	100
		Core Course - IX (CC)	R for Data Analysis		5	5	3	25	75	100
		Core Practical – II (CP)	SPSS - Practical		5	5	3	25	75	100
		Discipline Specific Elective – I (DSE)	A. Business Correspondence and Reporting		4	4	3	25	75	100
			B. E-Retailing							
		Discipline Specific Elective – II (DSE)	A. Digital Marketing		4	3	3	25	75	100
	B. Mobile Applications									
	IV	Skill Enhancement Course - II	A. Tally with GST					40	60	100
			B. Digital Designs for Business Application (Practical)		2	2	3	25	75	
		Skill Enhancement Course - III	A. Skills for Competitive Examination		2	2	3	-	100	100
			B. Commerce - Practical					25	75	
		UGC Jeevan Kaushal	Professional Skills		2	1	3	25	75	100
	Extra Credit Course	Swayam Online Course		As per UGC Recommendations						
<b>Total</b>					<b>30</b>	<b>28</b>				<b>800</b>

VI	III	Core Course - X (CC)	Corporate Accounting		6	5	3	25	75	100
		Core Course - XI (CC)	Income Tax Theory Law and Practice		5	4	3	25	75	100
		Core Course - XII (CC)	Entrepreneurial Development		5	5	3	25	75	100
		Discipline Specific Elective – III (DSE)	A. Modern Banking		4	3	3	25	75	100
			B. Cyber Security							
		Discipline Specific Elective – IV (DSE)	A. Management Information System		4	3	3	25	75	100
			B. Auditing							
Project	Project Work		5	3	-	-	100	100		
V		Gender Studies		1	1	3	25	75	100	
		Extension Activities		-	1	-	-	-	-	
<b>Total</b>					<b>30</b>	<b>25</b>				<b>700</b>
<b>Grand Total</b>					<b>180</b>	<b>140</b>				<b>4200</b>

Semester I	Internal Marks: 25	External Marks: 75		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs. / Week	CREDITS
22UCC1CC1	PRINCIPLES OF ACCOUNTANCY	CORE	6	5

### Course Objective

- Understand the significance of preparing the different books of accounts of a firm and the preparation of final accounts, Non – Trading Organization, Bank Reconciliation Statement.
- Realize the meaning and importance of Fire Insurance, Royalty and its accounting treatment.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Define the accounting concepts, conventions, principles and the reasons for disparities in Cash and Pass book in BRS.	K1
CO2	Summarize the financial statements of a sole trader	K2
CO3	Identify the preparation of Receipts and payments, Income and expenditure accounts in Non – trading Organization.	K3
CO4	Distinguish between double entry and single entry system and classify the depreciation under various methods.	K4
CO5	Examine the importance of fire insurance and calculation of Royalty	K4

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	2	3	3	3	3	2	3	3
CO2	3	3	2	3	2	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3
CO4	3	2	3	2	2	3	3	3	3	3
CO5	3	2	2	2	3	3	3	2	3	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### Syllabus

#### UNIT - I

(18 Hours)

Meaning and scope of Accounting - Basic Accounting concepts and conventions - Accounting Standards – Double entry system – Journal, Ledger and Trial Balance - Subsidiary books – Bank Reconciliation Statement: Favorable and Unfavorable Balance.

#### UNIT - II

(18 Hours)

Rectification of Errors: Errors disclosed by Trial balance – Errors not disclosed by Trial Balance – Suspense Account. Final Accounts of sole traders: Trading Account – Profit &



Loss Account – Balance Sheet – Adjustment.

**UNIT - III** (18 Hours)  
Accounts of Non-Trading Concerns: Receipts & Payment Account – Income & Expenditure Account – Balance Sheet. Average Due Date – Account Current.

**UNIT - IV** (18 Hours)  
Single Entry System: Difference between Single Entry and Double Entry System of accounting – Ascertainment of profit - Net worth Method – Conversion Method. Depreciation: Meaning – Importance - Methods of providing Depreciation.

**UNIT - V** (18 Hours)  
Fire Insurance: Meaning – Importance - Loss of Stock – excluding Loss of Profit – various methods of calculating Loss of Stock.  
Royalty Accounts: Analytical table – Accounting Treatment in the books of Lessor and Lessee - excluding sublease.

**UNIT – VI Self Study for Enrichment (Not included for Examination)**

Bases of Accounting - Difference between Trial Balance and Balance Sheet - Classification of Capital and Revenue items - Difference between Bills Receivable and Bills Payable - Various types of royalty.

*Note: Self study must be tested through Seminars, Assignments and Quiz.*

**Distribution of Marks: Theory 20% & Problem 80%**

#### **Text Book**

1. T.S. Reddy & Murthy A. (2021), Financial Accounting, Margham Publication.
2. Jain S.P and Narang K.L. (2016), Financial Accounting, Kalyani Publishers.

#### **Reference Books**

1. Dalston L Cecil and Jenitra L Merwin (2015), Business Accounting, Learn Tech Publishers.
2. R.L. Gupta & Radhaswamy M. (2018), Financial Accounting, Sultan Chand Sons.
3. Shukla & Grewal (2018), Advanced Accountancy, Sultan Chand Sons.

## **Web References**

1. [www.accountingcoach.com](http://www.accountingcoach.com)
2. [www.accountingstudyguide.com](http://www.accountingstudyguide.com)
3. [www.futureaccountant.com](http://www.futureaccountant.com)
4. [www.onlinelibrary.wiley.com](http://www.onlinelibrary.wiley.com)

## **Pedagogy**

Chalk and Talk, PPT, Discussion, Assignment, Demo, Quiz, and Seminar.

## **Course Designer**

Dr. D. Ramya, Assistant Professor, Department of Commerce.

<b>Semester I</b>	<b>Internal Marks: 25</b>		<b>External Marks: 75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hrs. / Week</b>	<b>CREDITS</b>
<b>22UCC1CC2</b>	<b>MODERN MANAGEMENT CONCEPTS</b>	<b>CORE</b>	<b>6</b>	<b>5</b>

### Course Objective

- To familiarize the students on the modern management concepts in order to aid in understanding how an organization functions and the challenging issues a management confronts in today's business firm.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

<b>CO Number</b>	<b>CO Statement</b>	<b>Cognitive Level</b>
	On the successful completion of the course, students will be able to	
CO1	Define the concepts of modern management	K1
CO2	Demonstrate the roles, skills and functions of management	K2
CO3	Explain various types of planning and decision-making process	K2
CO4	Identify issues and challenges of management	K3
CO5	Analyze different processes in organizing and controlling	K4

#### Mapping of CO with PO and PSO

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	3	2	2	3	2	3	2	3	3	3
CO2	2	3	3	3	3	2	3	3	3	3
CO3	1	2	3	3	3	2	2	2	2	2
CO4	1	3	3	3	3	2	3	3	2	2
CO5	2	2	2	2	2	1	3	3	3	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### Syllabus

#### UNIT - I (18 Hours)

Management – Definition - Meaning – Nature and Scope - Functions, Skills of a Manager, Process of Management, Pioneer thoughts of management; contribution of Henry Fayol and F.W. Taylor – George Elton Mayo – Douglas McGregor – Rensis Likert – Mary Parker Follett – Chester I Barnard - Chris Argyris – Herbert A Simon - Peter F.

#### UNIT - II (18 Hours)

Planning – Nature – Process - Types- Importance - Decision making: types of Decision - Process of decision making - Models & Issues.

**UNIT - III****(18 Hours)**

Organization - Structure and Types – Departmentation - Centralization-Decentralization, Delegation- Span of management - Line & Staff Organization - Matrix Organization - Motivation – Meaning – Definition - Nature - Types of motivation - Theories of motivation.

**UNIT - IV****(18 Hours)**

Co-ordination and Controlling – Principle – Process-Control – Tools and Techniques – MBO (Management by Objectives) – MBE (Management by Exception) – MBP (Management by Participation) - MBS (Management by Systems).

**UNIT - V****(18 Hours)**

Contemporary Issues – Objectives – Changing Environment – Recent trends and Challenges and challenges for the future manager – Changing Indian Business Environment – Role of managers in twenty first century – Emerging issues and challenges of management – Trends in management and its challenges – Emerging principles of management.

**UNIT – VI Self Study for Enrichment (Not included for Examination)**

Environmental factors that a manager should consider in an organization - Forecasting and its techniques - Organization chart and manual - Information Technology in management control - Contemporary managerial approaches.

*Note: Self study must be tested through Seminars, Assignments and Quiz.*

**Text Book**

1. C.B. Gupta (2018), *Business Management*, Sultan Chand & Sons.
2. Koontz, O'Donnell & Weihrich (2020), *Essentials of Management*, Tata McGraw-Hill.

**Reference Books**

1. R.N. Gupta (2018), *Principles of Management*, S Chand & Co.
2. Robbins & Coulter (2019), *Management*, Pearson education, 12th edition.

## **Web References**

1. <https://cbseacademic.nic.in>.
2. <https://ncert.nic.in/textbook>.
3. <http://www.freebookcentre.net>.
4. <https://www.egyankosh.ac.in>.
5. <https://www.yourarticlelibrary.com>.
6. <http://courses.washington.edu>.
7. <https://www.googleadservices.com>.
8. <https://www.toppers.com>.

## **Pedagogy**

Chalk and Talk, PPT, Discussion, Assignment, Demo, Quiz and Seminar.

## **Course Designer**

Ms. B. Lavanya, Assistant Professor, Department of Commerce.

COURSE CODE	COURSE TITLE	CATEGORY	Hrs. / Week	CREDITS
22UCC1AC1	FUNDAMENTALS OF COMPUTER AND INTERNET	ALLIED	4	3

### Course Objective

- At the end of the course the students shall be able to get the basic knowledge about computer, memory, input and output devices, OS, DB, networks, security and internet.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Describe the fundamental concepts of computer and its parts, OS, DB, networks, security and internet.	K1
CO2	Summarize the concepts of memory representation, OS, DB, networks, security and internet.	K2
CO3	Interpret the concepts of input, output devices, algorithm, types of OS, hacking and firewalls in security and internet connections.	K3
CO4	Apply the Number system conversions and the real time usage of internet, sketch the flowchart ,Use the Computer-Based Information System(CBIS)	K3
CO5	Distinguish the different types of memories, number systems, OS, networks and internet.	K4

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	2	3	2	2	1	-
CO2	3	2	2	3	2	3	2	1	1	-
CO3	2	2	1	1	2	2	2	1	2	1
CO4	3	3	3	2	3	3	2	1	2	-
CO5	2	2	1	1	1	2	1	1	1	1

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### Syllabus

#### UNIT - I

(12 Hours)

Introduction to Computer: Characteristics of Computer - Classification of Computer – The Computer System – Application of Computers. The Computer System Hardware: Central Processing Unit. Computer Memory: Memory Representation – Memory Hierarchy – CPU Registers – Cache Memory – Primary Memory – Secondary Memory. Input and Output devices: Input-Output Unit – Input devices – Output devices.

**UNIT - II** **(12 Hours)**

Data Representation: Number System – Conversions – Binary Arithmetic. Computer Programming Fundamentals: Program Development Life Cycle – Algorithm – Control Structures – Flowchart.

**UNIT - III** **(12 Hours)**

Interaction of User and Computer: Types of Software - System Software - Application Software. Operating System (OS): Introduction – Objectives of OS – Type of OS – Function of OS - Examples of OS. Information Systems (IS): Data, Information and Knowledge - Characteristics of Information - Information System (IS) - Computer-based Information System (CBIS) - Need for Efficient Information System - Categories of Information System - Operations support System - Management Support System - Specialized Information System - Careers in information System.

**UNIT - IV** **(12 Hours)**

Data Communication and Computer Network: Importance of Networking - Computer Network – Network types – LAN Topologies – Communication Protocol – Network Devices – Wireless Networking. Computer Security: Security Thread and Security Attack – Malicious Software – Hacking – Security Services – Firewall – User Identification and Authentication.

**UNIT - V** **(12 Hours)**

Introduction – Internetworking Protocol – The Internet Architecture – Managing the Internet – Connecting to Internet – Internet Connections – Internet Addresses - World Wide Web – Electronic Mail – Uses of Internet.

**UNIT – VI Self Study for Enrichment (Not included for Examination)**

E-mail Address Creation – Send and Receive Mails – Chatting – Search Engines – Search and Download E-Books – Online Course Registration – Online Purchasing and Cancellation – Creating a Meet ID through zoom and Google meet.

*Note: Self study must be tested through Seminars, Assignments and Quiz.*

*@ Portion for Self Study.*

**Text Book**

1. Anita Goel. ( 2022), *Computer Fundamentals*, Pearson India Education Services Pvt. Ltd. Thirty Fourth Impression.

## **Reference Books**

1. Dr. Shalii Jain & Geeta M. (2016), *Course on Computer Concepts*, BPB Publications.
2. Paul E. Hoffman (2016), *The Internet Instance Reference*, BPB Publications.

## **Web References**

1. [https://www.tutorialspoint.com/computer\\_fundamentals/index.htm](https://www.tutorialspoint.com/computer_fundamentals/index.htm)
2. <https://www.javatpoint.com/computer-fundamentals-tutorial>

## **Pedagogy**

Chalk and Talk, PPT, Discussion, Assignment, Demo, Quiz and Seminar.

## **Course Designer**

Ms. V. Yasodha, Assistant Professor, Department of Computer Applications.



Semester I	Internal Marks: 25	External Marks: 75		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs. / Week	CREDITS
22UGVE	UNIVERSAL HUMAN VALUES	Part -IV	2	2

### Course Objectives

- To enable the learners to learn the values of love and compassion.
- To foster the values of righteousness and service among the learners.
- To enhance the morale of the learners by inculcating the values renunciation and peace.
- To inspire the learners to practice the basic human values so as to make them become responsible citizens of the Nation.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Define the values of Love and Compassion	K1
CO2	Understand the value of Truth and <b>Non - Violence</b>	K2
CO3	Explain the value of <b>Righteousness and Service</b>	K3
CO4	Practice the values of <b>Renunciation (sacrifice) &amp; Peace</b>	K4
CO5	Prioritize Human Values in their day today life	K5

### Syllabus

#### UNIT - I

(6 Hours)

##### Love and Compassion

- **Introduction:** what is love? Forms of love for self, parents family friend, spouse community, nation, humanity and other beings both for living and non-living.
- Love and Compassion and Inter-relatedness
- Love, compassion, empathy, sympathy and nonviolence
- Individuals who are remembered in history for practicing compassion and love.
- Narratives and anecdotes from history, literature including local folklore.

#### UNIT - II

(6 Hours)

##### Truth and Non - Violence

- **Introduction:** what is truth? Universal truth, truth as value, truth as fact (veracity. sincerity, honesty among others)
- Individuals who are remembered in history for practicing this value
- Narratives and anecdotes from history, literature including local folklore
- **Introduction:** what is non-violence? Its need. Love, compassion, empathy sympathy for others as pre-requisites for non-violence
- Ahimsa as non -violence and non- killing.

- Individuals and organisations that are known for their commitment to non - violence
- Narratives and anecdotes about non - violence from history and literature including local folklore

### **UNIT - III**

**(6 Hours)**

#### **Righteousness and Service**

- **Introduction:** What are Righteousness and service?
- Righteousness and dharma, Righteousness and Propriety
- Forms of service for self, parents, family, friend, spouse, community, nation, humanity and other beings- living and non-living persons in distress for disaster.
- Individuals who are remembered in history for practicing Righteousness and Service
- Narratives and anecdotes dealing with instances of Righteousness and Service from history, literature, including local folklore.

### **UNIT - IV**

**(6 Hours)**

#### **Renunciation (sacrifice) & Peace**

- Introduction: what is renunciation? Renunciation and sacrifice. Self-restraint and ways of overcoming greed. Renunciation with action as true renunciation. What is peace? It's need, relation with harmony and balance.
- Individuals who are recommended in history for practicing Renunciation and sacrifice. Individuals and organisations that are known for their commitment to peace.
- Narratives and anecdotes from history and literature including local folklore about individuals who are remembered for their renunciation and sacrifice. Narratives and anecdotes about peace from history and literature including local folklore practicing peace

### **UNIT - V**

**(6 Hours)**

#### **Practicing human values**

- What will learners learn/gain if they practice human values? What will learners lose if they Don't Practice human values?
- Sharing learner's individual and/ or group experience(s)
- Simulated situations
- Case studies

### **Pedagogy**

Chalk & Talk, Seminar, PPT Presentation, Group Discussion, Blended Method, and Case Study.

### **Course Designer**

Dr. G. Mettilda Buvanewari.

## PROGRAMME OUTCOMES FOR M.COM. PROGRAMME

PO NO.	<b>Programme Outcome</b> <b>On completion of M.Com. Programme,</b> <b>The students will be able to</b>
<b>PO 1</b>	<b>GENERIC AND DOMAIN KNOWLEDGE</b> Articulate, illustrate, analyse, synthesis and apply the knowledge of principles and frameworks of commerce and allied domains to the solutions of different business scenario.
<b>PO 2</b>	<b>CRITICAL THINKING AND PROBLEM SOLVING</b> Conduct investigation of multi-dimensional business problems using research based knowledge and provide innovative solutions frameworks to real world complex problems.
<b>PO 3</b>	<b>ENTREPRENEURSHIP AND EMPLOYMENT SKILLS</b> Identify entrepreneurial opportunities to create and manage startups as well as professionalizing and growing family businesses.
<b>PO 4</b>	<b>LEADERSHIP AND TEAM WORK</b> Collaborate in an organizational context and across organizational boundaries and lead themselves in the achievement of organizational goals and optimize outcomes for all stakeholders.
<b>PO 5</b>	<b>SOCIAL RESPONSIVENESS AND ETHICS</b> Exhibit a broad appreciation of the ethical and value sustaining of managerial choices in political, cross-cultural, globalized, digitized and socio-economic environment.

### PROGRAMME SPECIFIC OUTCOMES FOR M.COM.

M.Com.

CURRICULUM [2022–2023 Onwards]

PSO NO	<b>Programme Specific Outcomes</b> <b>Students of M.Com. will be able to</b>	<b>POs</b> <b>Addressed</b>
PSO1	Gain an in-depth understanding of core and functional management concepts, business environment and domain specific knowledge.	PO1
PSO2	Develop skills for analyzing of the business data, application of relevant analysis and problem solving in other functional areas such as marketing, finance, business strategy, human resources and information technology.	PO1, PO2
PSO3	Inculcate entrepreneurship and managerial skills to establish and manage the business efficiently.	PO3
PSO4	Ability to apply knowledge, skills and right attitude necessary to provide effective leadership in a global environment and to develop proactive thinking so as to perform efficiency in the dynamic socio-economic and business eco-system.	PO4, PO5
PSO5	Develop competent professionals with strong ethical values, capable of a pivotal role in various sectors of the Indian Economy and Society, aligned with the national priorities.	PO5



**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18**  
**DEPARTMENT OF COMMERCE**  
**M.Com. – PROGRAMME STRUCTURE**  
**(For the candidates admitted from the academic year 2022 – 2023 onwards)**

**I Semester**

Semester	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
							Internal	External	
I	Core Course – I (CC)	Corporate Finance	22PCO1CC1	6	4	3	25	75	100
	Core Course – II (CC)	Economic & Environment Law	22PCO1CC2	6	4	3	25	75	100
	Core Course – III (CC)	Strategic Management	22PCO1CC3	6	4	3	25	75	100
	Core Course – IV (CC)	Organisational Behaviour	22PCO1CC4	6	4	3	25	75	100
	Elective Course – I (EC)	A. Business Ethics, Corporate Social Responsibility & Governance	22PCO1EC1A	6	4	3	25	75	100
B. Services Marketing		22PCO1EC1B							
C. International Human Resource Management		22PCO1EC1C							
		<b>Total</b>		<b>30</b>	<b>20</b>				<b>500</b>

\*15 Days INTERNSHIP during Semester Holidays.



**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18**  
**DEPARTMENT OF COMMERCE**  
**M.Com. – PROGRAMME STRUCTURE**  
 (For the candidates admitted from the academic year 2022 – 2023 onwards)

**II Semester**

Semester	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
							Internal	External	
II	Core Course – V (CC)	A. Operations Research		6	5	3	25	75	100
		B. Advanced Business Statistics							
	Core Course – VI (CC)	A. Business Analytics		6	5	3	25	75	100
		B. Data Science Visualization							
	Core Course – VII (CC)	A. Research Methodology		6	5	3	25	75	100
		B. Insurance & Risk Management							
	Core Practical – I (CP)	A. SPSS - Practical		6	5	3	25	75	100
		B. Advanced Computer Application in Business							
	Elective Course – II (EC)	A. Retail Management		6	4	3	25	75	100
		B. International Trade Finance							
C. Business Information System									
	Internship				2				100
	<b>Total</b>			<b>30</b>	<b>26</b>				<b>600</b>



**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18**  
**DEPARTMENT OF COMMERCE**  
**M.Com. – PROGRAMME STRUCTURE**  
**(For the candidates admitted from the academic year 2022 – 2023 onwards)**

**III Semester**

Semester	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
							Internal	External	
III	Core Course – VIII (CC)	A. Advanced Corporate Accounting		6	5	3	25	75	100
		B. Managerial Communication							
	Core Course – IX (CC)	A. Commerce for Competitive Examinations		6	5	3	-	100	100
		B. Teaching and Research Aptitude							
	Core Course – X (CC)	A. Logistics & Supply Chain Management		6	5	3	25	75	100
		B. Indian Securities Market							
	Core Practical – II (CP)	A. Data Analytics using Excel – Practical		6	5	3	40	60	100
		B. Advanced Computer Application in Business							
	Elective Course – III (EC)	A. Security Analysis and Portfolio Management		6	4	3	25	75	100
		B. Advertisement and Sales Promotion							
C. Disaster Management									
	<i>Extra Credit Course</i>	<i>Swayam Online Course</i>		<i>As per UGC Norms</i>					
		<b>Total</b>		<b>30</b>	<b>24</b>				<b>500</b>



**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18**  
**DEPARTMENT OF COMMERCE**  
**M.Com. – PROGRAMME STRUCTURE**  
**(For the candidates admitted from the academic year 2022 – 2023 onwards)**

**IV Semester**

Semester	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
							Internal	External	
IV	Core Course – XI (CC)	A. Business Taxation		6	4	3	25	75	100
		B. Bank Management							
	Core Course – XII (CC)	A. Cost & Management Accounting		6	4	3	40	60	100
		B. Knowledge Management							
	Elective Course – IV (EC)	A. Managerial Behaviour & Effectiveness		6	4	3	25	75	100
		B. Enterprise Resource Planning							
		C. Corporate Tax Planning							
	Elective Course – V (EC)	A. Digital Marketing		6	4	3	25	75	100
		B. Project Management							
		C. Entrepreneurship & New Venture Creation							
Project Work	Project Work		6	4			100	100	
<b>Extra Credit Course</b>	<b>Swayam Online Course</b>		<b>As per UGC Norms</b>						
		<b>Total</b>		<b>30</b>	<b>20</b>				<b>500</b>
		<b>Grand Total</b>		<b>120</b>	<b>90</b>				<b>2100</b>

Semester I	Internal Marks: 25		External Marks:75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs. / Week	CREDITS
22PCO1CC1	CORPORATE FINANCE	CORE	6	4

### Course Objective

- To make students understand various issues involved in financial management of a company and equip them with advanced analytical tools and techniques which can enhance their analytical ability for making sound financial decisions and policies in a company.

### Prerequisite

Basic knowledge in Financial Management and Corporate Accounting.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Develop theoretical framework for understanding and analyzing major financial problems of the firm	K3
CO2	Analyse complex investment appraisal situations and the relationship of an agent and principal in raising funds, allocating capital and distributing returns.	K4
CO3	Explain the corporate capital structure, payout policy and risk policy impact upon investment decisions.	K5
CO4	Evaluate different management decisions and its influence on corporate performance and value.	K5
CO5	Create an awareness about corporate restructuring and contemporary issues in financial management.	K6

#### Mapping of COwithPO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	3	3	3	3	2	3	2	3	3
CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.



## **Syllabus**

### **UNIT – I**

**(18 Hours)**

Corporate Finance – Meaning, Nature, Scope, Importance – Objectives of Financial Management; Measurement of Shareholders' Wealth – Finance as a Strategic Function – Role of Finance Manager – Concepts of Risk, Return and Time Value of Money – Financial decision making and types of financial decisions – Risk – return trade off in Financial Decisions – Agency Problem and Agency Costs.

### **UNIT – II**

**(18 Hours)**

Capital Budgeting Decision – Nature, Significance and Types of Capital Budgeting Decisions – Capital Budgeting Process – Principles of Cash Flow Estimation – Estimation of Cash Flows – Capital Budgeting Techniques – Capital Budgeting decision under inflation – Capital Rationing and Multi period budget constraints – Capital budgeting decision under risk and uncertainty – Techniques for incorporating risk and uncertainty in Capital Budgeting Decisions – Risk adjusted Discount Rate Method (RADR) – Certainty equivalent Method – DCF Break Even Analysis – Simulation Method – Probability Distribution Method – Decision tree Analysis – Backward induction Method – Sensitivity Analysis and Scenario analysis.

### **UNIT – III**

**(18 Hours)**

Cost of Capital And Capital Structure Decision: Specific Costs Of Capital – Weighted Average Cost Of Capital, Weighted Marginal Cost Of Capital – Theories Of Capital Structure – Operating Income Theory – Traditional Theory – MM Hypothesis Without And With Corporate Taxes – Merton Miller Argument With Corporate And Personal Taxes – Trade Off Theory – Pecking Order Theory – Market Timing Theory – Signaling Theory And Effect Of Information Asymmetry On Capital Structure – Financial Leverage And Evaluation Of Financial Plans (EBIT – EPS Analysis) – The Concept Of Present Value Of Interest Tax Shield – Determination Of Beta Of Levered Firm And Optimal Capital Structure – Factors Affecting Choice Of Capital Structure In Practice.

### **UNIT – IV**

**(18 Hours)**

Dividend Decision – Issues in dividend decision – Theories of relevance and irrelevance of dividend in firm valuation – Pure Residual Theory – Walter's theory, Gordon's Model, MM Hypothesis, Bird – in – hand theory and dividend signaling theory – relevance of dividend under Market Imperfections – Traditional and Radical Position on Dividend – Types of Dividend Policies in practice – Determinants of dividend policy in practice – Lintnet's Model of Corporate Dividend Behavior – Working Capital Management – Concepts and Types of Working Capital – Operating Cycle and Cash Cycle – Estimation of Working Capital Requirement – Approaches of Working Capital Financing – Determinants of Working Capital – Components of Working Capital Management.

### **UNIT – V**

**(18 Hours)**

Corporate Restructuring and Contemporary Issues in Financial Management –

Corporate restructuring and its various forms – Mergers and Acquisitions – Types, Motives, Benefits, Valuations and Financing – Leveraged Buyouts – Management Buyouts – Demerger, Split Up, Spin offs – Divestiture – Bases for calculation of Share Exchange Ratio – Determination of Minimum and Maximum Exchange Ratio – Contemporary Issues in Financial Management.

#### **UNIT –VI Self Study for Enrichment (Not included for Examination)**

Agency Problem and Agency Cost - Capital Rationing - Optimal Capital Structure - Comparative analysis on dividend policies of Indian Companies, Foreign Companies and Foreign Direct Investment (FDI) - Recent Trends in Financial Management.

*Note: Self study must be tested through Seminars, Assignments and Quiz.*

**Distribution of Marks: Theory 40% and Problem 60%**

#### **Text Book**

1. Pandey.I.M,(2012), Financial Management, Vikas Publishing House Pvt., Ltd., 12th Edition.
2. Khan, M.Y, (2011), Indian Financial System, Tata McGraw Hill, 6th Edition.
3. Krishnamurthy & Viswanathan, (2011), Advanced Corporate Finance, PHI Learning.

#### **Reference Books**

1. Richard A. Brealey, Stewart C. Myers & Mohanthy, (2011), Principles of Corporate Finance, Tata McGraw Hill, 9th Edition
2. Brigham & Ehrhardt, (2011), Corporate Finance - A Focused Approach, Learning, 2nd Edition
3. Smart, Megginson, & Gitman, (2011), Corporate Finance, Cengage Learning.
4. Besley, Brigham, Parasuraman, (2015), Corporate Finance, Cengage Learning.
5. Madura, (2014), International Corporate Finance, Cengage Learning, 10th edition

#### **Web References**

1. <https://www.geektonight.com/corporate-finance-pdf/>
2. <http://library.ku.ac.ke/wp-content/downloads/2011/08/Bookboon/Finance/corporate-finance.pdf>
3. <https://www.drnishikantjha.com/booksCollection/Merger%20Acquisition%20and%20Corporate%20Restructuring.pdf>
4. <http://www.jiwaji.edu/pdf/ecourse/commerce/UNIT-4%20Capital%20Budgeting.pdf>

#### **Pedagogy**

Lecture, Power Point Presentation, Assignment, Seminar, Group Discussions

#### **Course Designers**

Prof. Dr. N. Savithri, Department of Commerce.

<b>Semester I</b>	<b>Internal Marks: 25</b>		<b>External Marks:75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hrs. / Week</b>	<b>CREDITS</b>
22PCO1CC2	ECONOMIC AND ENVIRONMENT LAW	CORE	6	4

### Course Objective

- To help the students to understand the laws related to Business and Corporate.

### Prerequisite

Basic knowledge in Company laws.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Identify the Provisions of Companies Act relating to Meetings, Resolutions and Company Management.	K3
CO2	Analyze the rules and regulations of FEMA with regard to Foreign Exchange Dealings	K4
CO3	Appraise the Competition Act, 2002 and to compare with MRTP	K5
CO4	Discuss the Legal aspects of Environment Pollution Act and Consumer Protection Act	K6
CO5	Elaborate the concepts relating to Information Technology Act 2000 and to Discuss the powers of State, Central and Advisory Committee.	K6

#### Mapping of CO with PO and PSO

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	2	1	2	2	3	2	3	2	2
CO2	3	2	2	2	3	3	1	2	3	2
CO3	2	3	1	2	2	3	2	2	3	2
CO4	2	3	2	2	3	2	3	2	3	2
CO5	3	3	1	2	2	2	3	3	3	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### Syllabus

#### UNIT – I

(18 Hours)

Provisions of Companies Act 1956, relating to Company Administration – Board of Directors – Managing Director – Independent Director – Provisions relating to various types of meeting - Latest Amendments in Companies Act 2013 relating to Company Administration and Governance.

**UNIT – II****(18 Hours)**

Foreign Exchange Management Act, 1999 – Definition – Regulation and Management of Foreign Exchange – Authorized Persons – Contravention and Penalties – Adjudication and Penalties – Directorate of Enforcement.

**UNIT – III****(18 Hours)**

The Competition Act, 2002 – Introduction – Interpretation – MRTP versus Competition – Scope – Prohibition of Certain Agreements, Abuse of Dominant position and Regulation of Combinations.

**UNIT – IV****(18 Hours)**

The Environment (protection) Act 1986 – Definition – Powers of the Central Government to Prevent and Control Environmental Pollutions – Appointing Officers. Consumer Protection Act 1986 – Definition – State and Central Consumer Protection Council – Disputes Redressal Agencies – District Forum – Appointment of Members – Appeal – State and Central Commission.

**UNIT – V****(18 Hours)**

Information Technology Act 2000 - Introduction – Definition – Digital Signature – Certificates – Electronic Governance – Regulations of Certifying Authorities – Duties of Subscriber – Penalties and Adjudication – The Cyber Regulation Appellate Tribunal – Offences – Power of State and Central Government to make Rules – Constitution of Advisory Committee

**UNIT –VI Self Study for Enrichment (Not included for Examination)**

Comparison on provisions of Companies Act 1956 and Companies Amendment Act 2013 and causes for amendment - Prevention of Money Laundering Act, 2002 - Competition Commission of India Prevention of Black Marketing and Maintenance of Supplies of Essential Commodities Act, 1980 - Telecom Regulatory Authority of India Act, 1997.

*Note: Self study must be tested through Seminars, Assignments and Quiz.*

**Text Book**

1. Sharma J. P, (2012), Corporate Laws, Ane Books Pvt. Ltd, New Delhi.
2. Daniel Albuquerque, (2014), Legal Aspects of Business, Oxford University, New Delhi.
3. Kuchhal M. C, (2018), Mercantile Law, Vikas Publishing House Pvt. Ltd.

**Reference Books**

1. Kapoor G. K, & Surl K. P, (2012), Corporate Laws, Taxman's Publications.
2. Kannel S. & Sowrirajan V.S,(2009), Company Law Procedure, Taxman's Publications.
3. Gower LCB , (2013), Principles of Modern Company Law, Stevens & Sons, London.

4. B. S. Raman B.S, (2008), Business Law, United Publishers.

#### **Web References**

1. [https://legislative.gov.in/sites/default/files/A1999-42\\_0.pdf](https://legislative.gov.in/sites/default/files/A1999-42_0.pdf)
2. [https://www.indiacode.nic.in/bitstream/123456789/13116/1/it\\_act\\_2000\\_updated.pdf](https://www.indiacode.nic.in/bitstream/123456789/13116/1/it_act_2000_updated.pdf)
3. [http://ncdrc.nic.in/bare\\_acts/consumer%20protection%20act-1986.html](http://ncdrc.nic.in/bare_acts/consumer%20protection%20act-1986.html)

#### **Pedagogy**

Chalk and talk, PPT, Discussion, Assignment, Quiz, Seminar

#### **Course Designers**

Capt. Dr. P. Kavitha, Associate Professor, Department of Commerce.

Semester I	Internal Marks: 25		External Marks: 75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs. / Week	CREDITS
22PCO1CC3	STRATEGIC MANAGEMENT	CORE	6	4

### Course Objective

- To furnish an integrated approach and also to utilize the organizational skills within the context of real – world business case studies.

### Prerequisite

Basic knowledge in Organization Behaviour and Corporate Governance.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Analyse the conceptual framework of strategic management and its formulation	K4
CO2	Identify the strategic business unit and apply in the strategic environment	K3
CO3	Evaluate the Strategic Implementation and illustrate the guidelines for proper control.	K5
CO4	Infer response options available to companies	K6
CO5	Formulate the different remedial measures to overcome the emerging issues in strategic management	K6

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	3	3	2	2	2	3	3	3	3
CO2	2	3	2	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### Syllabus

#### UNIT – I

(18 Hours)

Overview of Strategic Management – Nature and Scope – Concepts – Characteristics – Approaches – Models – Elements in Strategic Management Process – Corporate Level Strategy – Corporate Vision, Mission and Objectives – Types – Strategy Formulation Process and Tools.

**UNIT – II** **(18 Hours)**

Strategic Business Unit (SBU) – Operational, Financial, Marketing and Human Resource Strategy – Environmental Analysis – External environment and Internal Environment – Resource Based Strategy – Approaches – SWOT, GAP and Industry Analysis – Michael Porter’s Five Forces Model of Competition – Competitive Advantage – Resources, Capabilities and Competencies.

**UNIT – III** **(18 Hours)**

Strategic Implementation – Issues – Project Implementation – Procedural – Resource Allocation – Budgets – Organization Structure – Matching Structure and Strategy – Behavioural Issues – Corporate Culture – Values – Power – Building a Capable Organization – Functional Issues. Strategy Evaluation and Control – Importance – Establishing Strategic Controls – Operations Control and Strategic Control – Role of organizational Systems in Evaluation.

**UNIT – IV** **(18 Hours)**

Responding to shifts in Competitive Advantages – New Development affecting Competitive Advantage – New Technology – New Distribution Channels, Economic Shift – Change in the Neighbouring Industries and change in Government Regulations. Response Option – Prospecting, Defending and Harvesting

**UNIT – V** **(18 Hours)**

Social Responsibility and Ethics in Strategic Management – Social Responsibility of Strategic Decision Makers – Responsibilities of Business Firm – Corporate Stakeholders – Ethical Decision Making – reasons for Unethical Behaviour.

**UNIT –VI Self Study for Enrichment (Not included for Examination)**

Strategic Planning Practices - Recent trends in Micro and Macro Environment - Problems of control system - Uncertainty – Impact of environmental development and ability to adjust - Encouraging Ethical Behaviour and reasons for Unethical Behaviour.

*Note: Self study must be tested through Seminars, Assignments and Quiz.*

**Text Book**

1. Thomas L. Wheelen & David Hunger. J, (2012), Concepts in Strategic Management and Business Policy toward Global Sustainability, Prentice Hall.
2. Subba Rao. P, (2009), Strategic Management, Himalaya Publications.

**Reference Books**

1. Rao. V.S.P (2008), Strategic Management – Text and Cases, Excel.
2. Bhattacharya S.C, (2005), Strategic Management: Concepts and Cases, Wheeler Publishing, NewDelhi.

3. John A. Pearce II, Richard B. Robinson Jr. & Amita Mital, (2010), Strategic Management– Formulation, Implementation and Control, Tata MC- Graw-Hill – Publishing Company Limited, New Delhi.
4. Arthur A. Thompson Jr. & Strickland A.J, (2010), Strategic Management, Mc Graw-Hill.

### **Web References**

1. <https://www.basic-concept.com/c/basics-of-strategic-management>
2. <https://creately.com/blog/diagrams/swot-analysis-vs-gap-analysis/>
3. <https://online.hbs.edu/blog/post/strategy-implementation-for-managers>
4. [https://www.investopedia.com/terms/c/competitive\\_advantage.asp](https://www.investopedia.com/terms/c/competitive_advantage.asp)
5. <https://pressbooks.lib.vt.edu/strategicmanagement/chapter/11-4-corporate-ethics-and-social-responsibility/>
6. [https://www.researchgate.net/publication/340816273\\_SOCIAL\\_RESPONSIBILITY\\_AND\\_ETHICS\\_IN\\_STRATEGIC\\_MANAGEMENT](https://www.researchgate.net/publication/340816273_SOCIAL_RESPONSIBILITY_AND_ETHICS_IN_STRATEGIC_MANAGEMENT)

### **Pedagogy**

Lecture, Power Point Presentation, Assignment, Seminar, Group Discussions, Case Studies.

### **Course Designers**

Dr. S. Sudha, Associate Professor, Department of Commerce.



<b>Semester I</b>	<b>Internal Marks: 25</b>		<b>External Marks: 75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hrs. / Week</b>	<b>CREDITS</b>
22PCO1CC4	ORGANIZATIONAL BEHAVIOUR	CORE	6	4

### Course Objective

- To have an understanding about the structure and behaviour of organization.
- To enable students to describe how people behave under different conditions and understand why people behave as they do.

### Prerequisite

Basic knowledge in Business Management and Human Resource Management.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Develop the concept of organizational behavior to understand the behaviour of people in the organization.	K3
CO2	Analyse the Attitude, change of attitude and aspects of personality	K4
CO3	Categorise the complexities associated with management of the group behavior in the organization.	K4
CO4	Explain how the organizational behavior can integrate in understanding the motivation(why) behind behaviour of people in the organization.	K5
CO5	Adapt Group behavioural influence in the organization	K6

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	2	3	3	2	2	3	3	3
CO2	2	3	3	3	3	3	3	3	2	3
CO3	3	3	3	2	3	3	3	3	3	2
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### Syllabus

#### UNIT – I

(20 Hours)

Organizational Behaviour – Meaning – Definition – Fundamental Concepts – Approaches – Characteristics – Scope – Limitations – Challenges and Opportunities – Models of Organizational Behaviour.

**UNIT – II** **(15 Hours)**

Personality: Meaning – Definition – Features – Types of Personality – Determinants of Personality – Big Five Model – MBTI – Managerial Implications of Personality

Perceptions: Meaning – Definition – Concept of Perception – Features – Importance of Perception – Factors affecting Perception – Process of Perception – Measures for improving Perception.

**UNIT – III** **(20 Hours)**

Learning: Meaning – Definition – Nature of Learning – Learning Process – Factors affecting Learning – Learning Theories – Classical and operant conditioning – Differences – Reinforcement – Positive and Negative Reinforcement

Attitude: Meaning – Definition – Components of Attitude – Characteristics of Attitude – Types of Attitude – Theories of Attitude Formation – Functions of Attitude – Formation of Attitude – Attitude Change – Methods of Attitude Change – Developing Positive Attitude by Individuals.

**UNIT – IV** **(20 Hours)**

Motivation: Meaning – Definition – Concept – Nature – Importance – Types – Motivation Process – Theories of Motivation

Leadership: Meaning – Definition – Concept – Importance of Leadership – Qualities of good leader – Leadership Styles – Leadership Theories – Leadership Development.

**UNIT – V** **(15 Hours)**

Groups and Teams: Meaning – Definition – Features – Types of Groups – Group Development – Stages – Group vs. Teams – Types of Teams – Creating Effective Teams – Managing and Developing Effective Teams

Conflict Management: Meaning – Definition – Concept of Conflict – Stages / Process of Conflict – Types of Conflict – Conflict Resolution – Negotiation – Bargaining Strategies – Negotiation Process.

**UNIT –VI Self Study for Enrichment (Not included for Examination)**

Importance of Organizational Behaviour Capital Rationing - Distortion in Perception - Principles of Learning - Leadership effectiveness - Conflict Management Techniques.

*Note: Self study must be tested through Seminars, Assignments and Quiz.*

**Text Book**

1. Prasad L.M, (2019), Organisational Behavior, Sultan Chand & Sons.
2. Stephen P. Robbins (2018), Organisational Behaviour, Pearson 18th Edition.

### **Reference Books**

1. Aswathappa. K, (2016), Organizational Behavior, Himalaya Publishing House , New Delhi.
2. Khanka.S.S (2006), Organizational Behavior, S. Chand Publishing.
3. Robbins, Stephen P , (2008), Organizational Behavior, Prentice Hall, New Delhi.

### **Web References**

1. [https://www.tutorialspoint.com/organizational\\_behavior/organizational\\_behavior\\_conflict\\_management.html](https://www.tutorialspoint.com/organizational_behavior/organizational_behavior_conflict_management.html)
2. <https://www.sscasc.in/wp-content/uploads/downloads/BBM/Organizational-Behaviour>
3. [http://www.tmv.edu.in/pdf/Distance\\_education](http://www.tmv.edu.in/pdf/Distance_education)

### **Pedagogy**

Chalk and talk, Power Point Presentation, Discussion, Assignment, Seminar

### **Course Designers**

Dr. S. Shameem, Associate Professor, Department of Commerce.

Semester I	Internal Marks: 25	External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs. / Week	CREDITS
22PCO1EC1A	BUSINESS ETHICS, CORPORATE SOCIAL RESPONSIBILITY & GOVERNANCE	ELECTIVE	6	4

### Course Objective

- To outline the role of business ethics that influences the decision making process and also promotes an understanding on the issues of ethics in the areas of functional management along with the benefits of corporate social responsibility.
- To exhibit a broad appreciation of the ethical values in corporate governance as well as IT Sector in the context of globalized economic and its social relations.

### Prerequisite

Basic knowledge in Corporate Governance and Business Ethics.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Apply the Theoretical Concepts of Business Ethics in the various Functional Management areas.	K3
CO2	Examine the Ethical Issues in Cyber Network	K4
CO3	Determine the Ethical Practices in Corporate Governance	K5
CO4	Explain the Issues and Challenges of Corporate Social Responsibility in the Current Scenario	K5
CO5	Discuss the role of MNC's in Globalization	K6

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	2	3	3	3	2	3	2	3
CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	2	2	2	3	3	2	2	2	3
CO4	3	3	2	2	3	3	3	3	3	3
CO5	3	2	3	3	3	3	2	3	3	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### Syllabus

#### UNIT- I

(18 Hours)

Meaning – Definition – Nature – Need – Importance, Benefits and Approaches to Business Ethics – Determinant of Work Ethics – Internal and External Ethics of Business

– Whistle blowing – Digital Business Ethics. Case Studies: Infosys Technologies – The best among Indian Corporations.

## **UNIT- II**

**(18 Hours)**

Marketing Ethics – Context of Indian Economy – Normative Marketing Ethics – Areas in Marketing Ethics. Ethical Issues in Human Resources – Scope – Different aspects – Emerging challenges of HRM – Role of HRM in creating an Ethical Organization Financial Management: An overview. Ethical Perspective of IT Industry – Fast changing face of Cyber Crimes – Protection from Cyber Criminals. Case Studies: Credit Card Data Fraud, Cyber Crimes – the Glitches Amidst the glow.

## **UNIT- III**

**(18 Hours)**

Meaning – Definition – Significance – Principles of Corporate Governance, Issues – Strategies and Techniques to Sound Corporate Governance – Corporate Governance in India – Indian Model – Obligation: Investors, Employees, Customers, Managerial – Legislative Changes. Case Studies: Tata Steel – A Company which produces the best Steel in Indian Corporations.

## **UNIT- IV**

**(18 Hours)**

Meaning – Corporate Philanthropy – CSR an Overlapping Concept – Corporate sustainability Reporting – CSR through Triple Bottom Line – CSR and Business Ethics – CSR and Corporate Governance – Environmental aspect of CSR – CSR Models – Drivers of CSR – Global Reporting Initiatives – Major Codes on CSR – Initiatives in India – Case Studies : Dr. Reddy's Laboratories – Commitment to All Round Corporate Excellence.

## **UNIT- V**

**(18 Hours)**

Growth of global corporations – Factors facilitating Globalization – Role of MNC's – Benefits of MNC's to Host Nation – Challenges of Globalization in the context of Growing Market – Key Global Issues for Business – Case Studies: Sterlite – using Money Clout to Maximum Advantages.

## **UNIT –VI Self Study for Enrichment (Not included for Examination)**

Professional Ethics, Conflicts of interest, Ethical Challenges - Global Market, Banking Ombudsman Scheme, Contemporary Technology - Corporate democracy, Corporate mis-governance, Governance Mechanisms - Perspectives CSR, New economy initiatives - Era of Globalization.

***Note: Self study must be tested through Seminars, Assignments and Quiz.***

### **Text Book**

1. Fernando, A.C, (2012), Business Ethics – An Indian Perspective, Dorling Kinder sky, Pearson Education in south Asia Pvt. Ltd.
2. Saha.,P.K, (2009), Business Ethics, Pacific Publication, New Delhi.
3. Khanka.S.S, (2014), Business Ethics and Corporate Social Responsibility, Sultan Chand & Company.

### **Reference Books**

1. Parveen Parboteeah K, & John B.Cullen, (2012), Business Ethics, Routledge,
2. John R. Boatright., & Bibhu Prasan Patra, (2011), Ethics and Conduct of Business, Sixth Edition, Pearson.
3. Ferrell, O.C., Fraedrich, John, & Ferrell, Linda, (2018), Business Ethics, Ethical Decision Making & Cases, Cengage learning.

### **Web References**

1. <http://www.businessethics.ca/>
2. <https://www.investopedia.com/terms/b/business-ethics.asp>
3. <https://business-ethics.com/>
4. <https://www.csr.gov.in/content/csr/global/master/home/home.html>
5. <https://www.investopedia.com/terms/c/corporategovernance.asp>

### **Pedagogy**

PPT, Discussion, Assignment, Quiz, Seminar

### **Course Designers**

Dr. D. Ramya, Assistant Professor, Department of Commerce.

<b>Semester I</b>	<b>Internal Marks: 25</b>		<b>External Marks:75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hrs. / Week</b>	<b>CREDITS</b>
<b>22PCO1EC1B</b>	<b>SERVICES MARKETING</b>	<b>ELECTIVE</b>	<b>6</b>	<b>4</b>

### Course Objective

- To enable the students to know the Principles, Practices, Development and Challenges in Services Marketing.

### Prerequisite

Basic knowledge in Customer Relationship Marketing.

### Course Outcomes

### Course Outcome and Cognitive Level Mapping

<b>CO Number</b>	<b>CO Statement</b> On the successful completion of the course, students will be able to	<b>Cognitive Level</b>
CO1	Identify the Concepts of Services Marketing	K3
CO2	Develop and justify marketing planning and control systems appropriate to service based activities	K3
CO3	Examine the Marketing Mix Strategies to be adopted in Service Marketing	K4
CO4	Evaluate the Services Marketing Development Process in various Sectors	K5
CO5	Discuss the Strategic approach of Services Marketing in Global Scenario	K6

### Mapping of CO with PO and PSO

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	3	2	2	2	2	2	2	2	2	2
CO2	3	3	2	3	2	2	2	2	2	2
CO3	3	3	2	3	3	2	2	2	2	2
CO4	3	3	2	3	2	3	2	2	2	2
CO5	3	2	2	3	3	3	2	2	2	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### Syllabus

#### UNIT – I

(18 Hours)

Service – Meaning – Characteristics – Classification of Services – Growth of Service Sector and Service Industries – Difference between Goods and Services – Service Marketing – Evolution – Need – Growth in Services Marketing – Challenges and Issues in Services Marketing.

**UNIT – II****(18 Hours)**

Introduction – Service Environment – Service Blueprinting – Demand – Supply Management – Management of Service Capacity and Relationship – Relationship Marketing – Service Recovery – Customer – Service Expectation – Service Encounter – Service Quality – Service Quality Gap – Service Quality Audit – SERVQUAL – Development of New Service Product – Branding – Leadership – Strategy – Service Triangle.

**UNIT – III****(18 Hours)**

Introduction – Marketing Mix – Concept – Product Mix – Levels of Product – Line – Development – Process – Package – Price Mix – Place Mix – Promotional Mix – Advertising – Publicity – Sales Promotion – Personal Selling – Telemarketing Process – Physical Evidence and Attractiveness and People.

**UNIT – IV****(18 Hours)**

Meaning – Overview of Different Service Sectors – Banking – Insurance – Education – Tourism – Airlines – Hospitality – Healthcare – Online Services – Professional Services – Social Service by NGOs – BPO & IT Sectors.

**UNIT – V****(18 Hours)**

Introduction – Strategic Approach – E-Commerce – E- Marketing – Tele marketing – Research for Global Markets and Rural Markets – Innovations – Ethical Aspects in Service Marketing.

**UNIT –VI Self Study for Enrichment (Not included for Examination)**

Characteristics of services and their marketing implications – CRM – Identifying and satisfying customer needs – Relationship Marketing – Customer Satisfaction – Managing service brands.

*Note: Self study must be tested through Seminars, Assignments and Quiz.*

**Text Book**

1. Jha S.M, (2011), Services Marketing, Himalaya Publication.
2. Ravi Shankar, (2006), Services Marketing, Excel Books.
3. VasanthiVenugopal Raghu V.N, (2006), Services Marketing, Himalaya Publication.
4. Dr. L. Natarajan, (2013), Services Marketing, Margham Publication.

**Reference Books**

1. Sherlekar, S.A and Krishnamoorthy R, (2010), Marketing Management, Himalaya Publishing House.
2. Publishing House.



3. Dhruv Grewal, (2018), Marketing, Tata McGraw Hill, India.
4. Kotler Philip, (2015), Marketing Management, Sultan Chand & Sons.

#### **Web References**

1. <https://www.managementstudyguide.com/changing-face-of-services-marketing.htm>
2. <https://www.yourarticlelibrary.com/services/7-elements-used-in-marketing-mix-for-services/34003>
3. <https://www.accountingnotes.net/marketing/service-marketing/service-marketing/17625>
4. <https://www.educba.com/service-marketing-strategies/>
5. <https://www.marketingtutor.net/service-marketing/>

#### **Pedagogy**

Power Point Presentation, Assignment, Quiz, Seminar & Group Discussions

#### **Course Designers**

Dr. S. Sudha, Associate Professor, Department of Commerce.

<b>Semester I</b>	<b>Internal Marks: 25</b>		<b>External Marks:75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hrs. / Week</b>	<b>CREDITS</b>
<b>22PCO1EC1C</b>	<b>INTERNATIONAL HUMAN RESOURCE MANAGEMENT</b>	<b>ELECTIVE</b>	<b>6</b>	<b>4</b>

### Course Objective

- The course is intended to provide a basic understanding about the finer aspects of international business to the students.
- It is aimed at making the students realize that International Business is a combination of multiple disciplines brought together in a systematic manner.

### Prerequisite

Basic Knowledge in Human Resource Management.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

<b>CO Number</b>	<b>CO Statement</b>	<b>Cognitive Level</b>
	On the successful completion of the course, students will be able to	
CO1	Apply the principles of International Human resource management and its models	K3
CO2	Analyze the Strategies for International Growth	K4
CO3	Determine the functions of International recruitment, selection and Staffing	K5
CO4	Appraise the various methods of global training and development.	K5
CO5	Construct the International Compensation and International Employment Laws	K6

#### Mapping of CO with PO and PSO

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	3	3	3	2	2	2	3	3	3	3
CO2	3	3	2	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	2	3	3	3
CO4	3	3	3	2	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### UNIT – I

(18 Hours)

Introduction - IHRM – Concept, Scope, Nature of IHRM - Approaches to IHRM - Difference between domestic HRM and IHRM - Models of IHRM - Matching model, Harvard Model, Contextual Model, 5P Model European Model.

**UNIT – II** (18 Hours)

Strategies for International Growth: Exploiting global integration- the logic of global integration, differentiation, Mastering expatriation, the traditional expatriate model, advantages and disadvantages of global integration. Managing alliances and joint ventures - IHRM and International Alliances, IHRM and International Joint Ventures.

**UNIT – III** (18 Hours)

International Workforce planning and staffing: International labour market International Recruitment function; head-hunters, cross-national advertising, e-recruitment; International staffing choice, different approaches to multinational staffing decisions, types of international assignments, Selection criteria and techniques, use of selection tests, interviews for international selection, international staffing issues, successful expatriation, role of an expatriate, female expatriation, repatriation, re-entry and career issues – Case Study.

**Unit – IV** (18 Hours)

Developing Global Mindset: Global Leadership, Cross cultural context and international assignees, Current scenario in international training and development, training & development of international staff, types of expatriate training, sensitivity training, Career Development, repatriate training, developing international staff and multinational teams, knowledge transfer in multinational companies – Case Study.

**Unit –V** (18 Hours)

International Compensation and International Employment Laws: International compensation and international assignees, Forms of compensation, key components of international compensation, Approaches to international compensation, compensation practices across the countries, emerging issues in compensation management. Establishment of labour standards by International Institutions, The global legal and regulatory context of MNE, The International framework of Ethics and Labour standards, Key issues in International Industrial Relations, Trade Unions and MNE's, Response of Trade Unions to MNE's, Non-Union worker representation – Case Study.

**UNIT –VI Self Study for Enrichment (Not included for Examination)**

Organizational dynamics in IHRM - Limits of global integration - Digitalized Selection Process - Issues and challenges in international performance management - Emerging impact in compensation management.

*Note: Self study must be tested through Seminars, Assignments and Quiz.*

**Text Book**

1. Aswathappa K(2017), Human Resource and Personnel Management, Tata McGraw Hill, 8<sup>th</sup> Edition.
2. Charles W L Hill (2017), International Business, Tata McGraw Hill, 13<sup>th</sup> Editions.
3. Cynthia D Fisher, Lyle F Schoenfeldt, James B Shaw (2006), Human Resource Management, Houghton Mifflin Co, 6<sup>th</sup> Editions.

### **Reference Books**

6. Ian Beardwell & Len Holden (2003), Human Resource and Personnel Management, FT Prantice Hall, 4<sup>th</sup> Edition
7. Peter J Dowling, Marison Festing (2013), International Human Resource Management, Cengage Learning, 6<sup>th</sup> Edition.

### **Web References**

1. <https://mlritm.ac.in/assets/img/INTERNATIONAL%20HUMAN%20RESOURCE%20MANAGEMENT.pdf>
2. <https://www.ftms.edu.my/images/Document/MOD001055%20-%20International%20Business/CHAPTER%208.pdf>
3. [https://faculty.ksu.edu.sa/sites/default/files/international\\_human\\_resource\\_management\\_6th\\_edition.pdf](https://faculty.ksu.edu.sa/sites/default/files/international_human_resource_management_6th_edition.pdf)
4. <https://nscpolteksby.ac.id/ebook/files/Ebook/Business%20Administration/ARMSTRONG%20HANDBOOK%20OF%20HUMAN%20RESOURCE%20MANAGEMENT%20PRACTICE/8%20-%20International%20HRM.pdf>

### **Pedagogy**

Lecture, Power Point Presentation, Assignment, Seminar, Group Discussions

### **Course Designers**

Dr.S.Jayalakshmi, Assistant Professor, Department of Commerce



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**PG & Research Department of Mathematics**

**THE AGENDA FOR THE SIXTH MEETING OF THE BOS**

**ITEM NO. BOS/06/01**

To consider and to approve the PSO, the Programme Structure and I Semester syllabus of **B.Sc. Mathematics** for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**ITEM NO. BOS/06/02**

To consider and to approve the syllabus of **Allied Course-I and Allied Course-II** offered to the Department of Computer Science, Information Technology and Computer Applications for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**ITEM NO. BOS/06/03**

To consider and to approve the syllabus of **Allied Course-I and Allied Course-II** offered to the Department of Computer Science (Computer Science with Cognitive Systems) for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**ITEM NO. BOS/06/04**

To consider and to approve the PSO, the Programme structure and I Semester syllabus of **M.Sc. Mathematics** for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18

**ITEM NO. BOS/06/05**

To consider and to approve the PSO, the I Semester syllabus of core course Mathematical Foundation for **M.Sc. Computer Science** offered to Department of Computer Science for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**ITEM NO. BOS/06/06**

To consider and to approve the syllabus of **Allied Course-I and Allied Course-II** offered to the Department of Physics and Department of Chemistry for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**ITEM NO. BOS/06/07**

To suggest panel of names for appointment of examiners and Question paper setters to the Academic Council, Cauvery College for Women (Autonomous), Trichy -18.

**ITEM NO. BOS/06/08**

To thank the members of BOS.

**ITEM NO. BOS/06/09**

Any other matter with the permission of the Chair



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**PG & RESEARCH DEPARTMENT OF MATHEMATICS**

**MINUTES OF THE SIXTH MEETING OF THE BOS**

**DATE:** 07.05.2022

**TIME:** 10.00 a.m.

**VENUE:** D3 & Google Meet

**Members Present:**

- |                       |                                  |
|-----------------------|----------------------------------|
| 1. Dr. S. Premalatha  | Chairperson, Professor & HOD     |
| 2. Dr. C. Durairajan  | University Nominee               |
| 3. Dr. R. Srikanth    | Nominated BOS Member             |
| 4. Dr. M. Pitchaimani | Subject Expert, Other University |
| 5. Dr. R. Tamilselvi  | Subject Expert                   |
| 6. Dr. G. Janaki      | Member                           |
| 7. Dr. V. Geetha      | Member                           |
| 8. Dr. S. Sasikala    | Member                           |
| 9. Dr. S. Saridha     | Member                           |
| 10. Dr. R. Radha      | Member                           |
| 11. Dr. E. Litta      | Member                           |
| 12. Dr. P. Shalini    | Member                           |
| 13. Dr. P. Saranya    | Member                           |

14. Dr. S. Vidhya	Member
15. Dr .C. saranya	Member
16. Ms. L. Mahalakshmi	Member
17. Ms. P. Geethanjali	Member
18. Dr. R. Divya	Member
19. Dr. K. Kalaiarasi	Member
20. Ms. P. Sangeetha	Member
21. Ms. V. Manimozhi	Member
22. Dr. P. Sudha	Member
23. Ms. R. Soundaria	Member
24. Dr. R. Buvaneswari	Member
25. Ms. A. Gowri Shankari	Member

**The leave of absence was granted to:**

- |                    |               |
|--------------------|---------------|
| 1. Ms. A. Hamsasri | Alumna Member |
|--------------------|---------------|

**ACTION TAKEN REPORT OF BOS HELD ON 02.06.2021**

The BoS Meeting was held online on 02.06.2021 through Google Meet, The Chairman of the BoS read the minutes of the meeting and Resolution BoS/5/01 pertaining to V Semester for B.Sc Mathematics (2019-2020 Batch and onwards) , Resolution BoS/5/02 referring to the Curriculum and Syllabus of VI Semester, B.Sc Mathematics for Core courses and Major Based Elective Courses (2019-2020 onwards) , Resolution BoS/5/03 pertaining to I Semester Syllabus of B.Sc Mathematics (2021-2022 Batch and onwards) was confirmed.

**MINUTES OF THE SIXTH MEETING OF BOS HELD ON 07.05.2022**

The following Resolutions were passed by the BoS members

**RESOLUTION NO. BOS/06/01**

Resolved to approve the PSO, the Programme Structure and I Semester syllabus of **B.Sc. Mathematics** for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following changes

Revision of syllabus for

- Core course 19UMA1CC1- Differential Calculus and Trigonometry**
  - Portion of Self-study is given in each Unit**



Unit I: Meaning of the Derivative: Geometrical interpretation– Meaning of the sign of the differential coefficient

Unit II: Radius of curvature when the curve is given in polar coordinates.

Unit III: The expansions of  $\sin \theta$  and  $\cos \theta$  to find the limits of certain expressions.

Unit IV: Logarithms of complex quantities: Logarithms of complex quantities - To find the logarithm of  $x + iy$  - General value of logarithm of  $x + iy$ .

Unit V: Tracing of Curves – Tracing of curves whose equation is in Cartesian coordinates.

- Topics included in Unit V: Applications of Differential Calculus
- Topics removed from Unit V: Summation of Series

## 2. Core Course 19UMA1CC2-Integral Calculus

- Portion of Self-study is given in each Unit

Unit I :  $\int \frac{dx}{a \cos x + b \sin x}$

Unit II : Bernoulli's formula

Unit III: Applications of Multiple Integrals

Unit IV: Applications of Gamma functions to multiple integrals

Unit V: Approximate Integration

- Topics included in Unit II: Properties of definite integrals  
Unit V: Geometrical Applications of Integration
- Topics removed from Unit IV,V: Fourier Series

## 3. First Allied Course 19UMA1AC1 - Mathematical Statistics -I

- Portion for Self study is given in each Unit

Unit I : Independent Random Variables

Unit III: Uniqueness Theorem of Characteristic Function

Unit IV: Limits for the Rank Correlation Coefficient

Unit V: Graph of t-distribution - Critical Values of t

- Topics included in Unit IV : Correlation and Linear Regression  
Unit V : Exact sampling Distributions
- Topics removed in Unit I : Theory of Probability  
Unit V: Index numbers  
Unit IV: Chebychev's inequality, Weak Law of Large numbers, Bernoulli's Law of large numbers

## 4. First Allied Course 19UMA1AC1P - Mathematical Statistics -II

- Five (3Theory +2 Practical) Hours reduced to Two hours Practical.
- Twenty Programs in the existing list is reduced to fifteen programs
- Program list is modified with
  - Arithmetic Mean, Geometric Mean and Harmonic Mean
  - Median and Mode
  - Quartile Deviation and Mean Deviation
  - Standard Deviation and Co-efficient of Variation
  - Karl Pearson's Co-efficient of Skewness
  - Bowley's Co-efficient of Skewness
  - Moments and Kurtosis
  - Karl Pearson's Co-efficient of correlation
  - Rank Correlation
  - Fit the regression line
  - Test the hypothesis for the difference between two sample means
  - Test the hypothesis for single proportion
  - Test the significance of hypothesis using 't' test
  - Test the significance of hypothesis using 'F' test
  - Test the significance of hypothesis using chi-square test

#### **RESOLUTION NO. BOS/06/02**

Considered and approved the PSO, the Programme structure and I Semester syllabus of **M.Sc. Mathematics** for 2022-2023 batch and onwards and forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following changes.

Revision of syllabus of

#### **1. Core Course 19PMA1CC1 - Algebra -I**

- **Portion for Self study is given in each Unit**  
 Unit I : Cyclic Groups  
 Unit II : Homomorphisms  
 Unit III: Applications of the Sylow Theorem  
 Unit IV: Some Noncommutative examples  
 Unit V : Homomorphism of Rings
- Topics removed in Unit III: Group Action on a Set, Applications of G, Sets to Counting

#### **2. Core Course 19PMA1CC2 - Ordinary Differential Equations**

- **Portion for Self study is given in each Unit**  
 Unit I : The Homogeneous Equation with Constant Coefficients  
 Unit II : Regular Singular Points  
 Unit III: The Second Order Linear Equation  
 Unit IV: Sturm Liouville Problems  
 Unit V : Simple Critical Points of Nonlinear Systems

- Topics removed in Unit V: Simple critical points of Non-linear systems
- 3. Core Course 19PMA1CC3 - Integral Equations, Calculus of Variations and Transforms**
- **Portion for Self study is given in each Unit**
    - Unit I : Sturm-Liouville problems
    - Unit II : Finite Fourier transforms - Finite sine Fourier transforms
    - Unit III: Parseval's Theorem
    - Unit IV: An Approximate Method – Fredholm Integral Equation of the First Kind
    - Unit V : Fredholm's Third Theorem.
  - Topics removed in Unit II: Finite Fourier transforms
- 4. Core Course 19PMA1CC4 - Algebraic Number Theory**
- **Portion for Self study is given in each Unit**
    - Unit I : Primes
    - Unit II : Primitive Roots and Power Residues.
    - Unit III: Positive Definite Binary Quadratic Forms
    - Unit IV: Recurrence Functions
    - Unit V : Assorted Examples
  - Topics removed in Unit IV: Binary Quadratic Forms, Equivalence and Reduction of Binary Quadratic Forms – Sums of two squares
  - Topics included in Unit III: Binary Quadratic Forms, Equivalence and Reduction of Binary Quadratic Forms – Sums of two squares
- 5. Core Course 19PMA1CC5 - Discrete Mathematics**
- **Portion for Self study is given in each Unit**
    - Unit I : Regular Expressions
    - Unit II: Blocks – Cyclical Edge-Connectivity of a Graph.
    - Unit III: Edge-Independent Sets
    - Unit IV: Dual of a Plane Graph
    - Unit V : Solutions Using Generating Functions
  - Topics removed in Unit V: Cryptography
  - Topics included in Unit V: Combinatorics and Recurrence Relations

**RESOLUTION NO. BOS/06/03**

Considered and approved the PSO, the Programme structure and I Semester syllabus of Allied Course I and Allied Course II offered to Department of Computer Science, Information Technology and Computer Applications for 2022-2023 batch and onwards and forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following changes

Revision of syllabus of

**1. Allied course I - 19UCS1AC1 /19UCA1AC1 / 19UIT1AC1 Essential Mathematics**

- **Portion for Self study is given in each Unit**  
Unit I : Symmetric matrix – Skew symmetric matrix – Hermitian and skew Hermitian matrices  
Unit II: Concavity and Convexity  
Unit III: Integration by parts  
Unit IV: Linear equation.  
Unit V: Hamiltonian Paths and Circuits.
- Topics removed in Unit IV: Variable Separable

**2. Allied course -II – 19UCS1AC2 /19UCA1AC2 / 19UIT1AC2 Numerical Analysis and Statistics**

- **Portion for Self study is given in each Unit**  
Unit I : The method of False Position and Central Differences  
Unit II: Trapezoidal rule  
Unit III: Solution by Taylor's Series and Milne's Method  
Unit IV: Range and Quartile Deviation  
Unit V: Rank Correlation with repetition
- Topics removed in Unit III : Picard's method of successive approximations  
Unit V: Recursion coefficients and its equations

**RESOLUTION NO. BOS/06/04**

Considered and approved the PSO, the Programme structure and I Semester syllabus of Allied Course I and Allied Course II offered to Department of Computer Science (Computer Science with Cognitive Systems) for 2022-2023 batch and onwards and forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following changes

Revision of syllabus of

**1. Allied course -I – 21UCG1AC1 - Essential Mathematics**

- **Portion for Self study is given in each Unit**  
Unit I : Symmetric matrix – Skew symmetric matrix – Hermitian and skew Hermitian matrices  
Unit II: Concavity and Convexity  
Unit III: Integration by parts  
Unit IV: Linear equation.  
Unit V: Hamiltonian Paths and Circuits.
- Topics removed in Unit IV: Variable Separable

**2. Allied course -II - 21UCG2AC2 - Statistics**

- **Portion for Self study is given in each Unit**  
Unit I : Distrust Of Statistics – Fallacies in Statistics.  
Unit II: Harmonic Mean  
Unit III: Range, interquartile Range  
Unit IV: Rank Correlation  
Unit V: Chi Square Distribution: Test of Independence of Attributes
- Topics removed in Unit I:Representation of Graphical Method
- Topics included in Unit I: Diagrammatic Representation
- Text book included - Theory and Practice by R.S.N.Pillai & Bhagavathi

**RESOLUTION NO. BOS/06/05**

Considered and approved the PSO, the Programme structure and I Semester syllabus of Core Course Mathematical Foundation for M.Sc., Computer Science offered to Department of Computer Science for 2022-2023 batch and onwards and forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following changes

Revision of syllabus of

**Core Course - 19PCS1CC1 - Mathematical Foundations for Computer Science**

- **Portion of Self-study is given in each Unit**  
Unit I: Equivalence of Formulas  
Unit II: First order linear Recurrence Relation  
Unit III: The Application of Residue Arithmetic to Computers :  
Introduction to Number Systems – Residue Arithmetic.  
Unit IV: Operations on Graph, Spanning Trees  
Unit V: Fuzzy Complements
- **Topics reduced in**  
Unit II: The Pigeonhole Principle  
Unit V: Theorem Proofs are omitted
- Topics merged :Units : III, IV are considered as Unit IV
- Topics removed in Unit IV: Rooted and Binary Trees
- Topics included in Unit III: Algebraic Structures

**RESOLUTION NO. BOS/06/06**

Considered and approved the PSO, the Programme structure and I Semester syllabus of Allied Course I and Allied Course II offered to Department of Physics and Department of Chemistry for 2022-2023 batch and onwards and forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following changes

Revision of syllabus of

## 1. Allied course -I – 19UPH1AC1/19UCH1AC1- Mathematics I

- **Portion for Self study is given in each Unit**

Unit I : Radius of curvature when the curve is in polar co-ordinates

Unit II: (i)  $\int \frac{dx}{ax^2 + bx + c}$  (ii)  $\int \frac{dx}{\sqrt{ax^2 + bx + c}}$

Unit III: (i)  $\int \cos^n x dx$  (ii)  $\int_0^{\frac{\pi}{2}} \cos^n dx$

Unit IV : Triple Integrals in simple cases(Problems Only)

Unit V: Half range Fourier series: Development in cosine series - Development in sine series.

Topics removed in Unit II : Trigonometric substitution

Unit III: Evaluation of definite integrals

Unit V : (i) Change of interval

(ii) Combination of series

- All Text books updated to 2015 version.

## 2. Allied course -II - 19UPH1AC2/19UCH1AC2 - Mathematics-II

- **Portion for Self study is given in each Unit**

Unit I : Series which can be summed up by the Logarithmic series..

Unit II: Simple applications only.(proof not needed).

Unit III: The equation of the tangent plane to the sphere at a point.

(Only problems in all the above).

Unit IV: Expansion of  $\tan \theta$  in terms of powers of  $\theta$  .

Unit V : Separation of real and imaginary parts of  $\tanh(x+iy)$ .

- Topics removed in Unit III : Plane
- Text Book 1 and 2 updated to 2015
- Text Book 3 updated to 2016

### RESOLUTION NO. BOS/06/07

The chairman informed the members that the Department held more than five meetings with faculty members from the Department of Mathematics to discuss the PSO and the contents of the

syllabus to be framed by the Department. The chairman thanked the members of the Board of Studies for their outstanding contributions of preparing the syllabus.

The Board of Studies meeting was completed with a recommendation for the PSO of UG Mathematics - Program Structure (I to VI Semester) and Syllabus of I Semester and PG Mathematics - Program Structure (I to IV Semester) and Syllabus of I Semester Mathematics for the batch 2022-2023 of Mathematics to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

#### **RESOLUTION NO. BOS/06/08**

Considered and approved the Panel of names for Appointment of Examiners and Question Paper Setters and suggested to the Academic Council, Cauvery College for Women (Autonomous), Trichy -18.

#### **RESOLUTION. BOS/06/09**

Dr. S. Premalatha, Chairperson, Professor & HOD expressed her gratitude for the valuable suggestions given by the external BoS members during the BOS meetings for the period 2019-2022 and thanked all the members of BOS.

#### **RESOLUTION. BOS/06/10**

#### **Any other matter with the permission of the Chair**

The members of the board discussed the components of the internal and external marks and the Question Paper Pattern for Under Graduate and Post Graduate Programme and concluded to

- No change in Question Paper Pattern for B.Sc and M.Sc Mathematics for the 2022 – 2023 Batch and onwards.

# CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

(Nationally Re-accredited (III cycle) with 'A' (CGPA 3.41 out of 4)

ISO 9001:2015 Certified by IRCLASS and Accredited by NABCB

Grade by NAAC



PG AND RESEARCH DEPARTMENT OF MATHEMATICS

B.Sc MATHEMATICS

AUTONOMOUS SYLLABUS

(2022-2023 ONWARDS)



## PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

<b>PEOs</b>	<b>Statements</b>
<b>PEO1</b>	<b>LEARNING ENVIRONMENT</b> To facilitate value-based holistic and comprehensive learning by integrating innovative learning practices to match the highest quality standards and train the students to be effective leaders in their chosen fields.
<b>PEO2</b>	<b>ACADEMIC EXCELLENCE</b> To provide a conducive environment to unleash their hidden talents and to nurture the spirit of critical thinking and encourage them to achieve their goal.
<b>PEO3</b>	<b>EMPLOYABILITY</b> To equip students with the required skills in order to adapt to the changing global scenario and gain access to versatile career opportunities in multidisciplinary domains.
<b>PEO4</b>	<b>PROFESSIONAL ETHICS AND SOCIAL RESPONSIBILITY</b> To develop a sense of social responsibility by formulating ethics and equity to transform students into committed professionals with a strong attitude towards the development of the nation.
<b>PEO5</b>	<b>GREEN SUSTAINABILITY</b> To understand the impact of professional solutions in societal and environmental contexts and demonstrate the knowledge for an overall sustainable development.

## BACHELOR OF SCIENCE (Mathematics, Physics and Chemistry)

### PROGRAMME OUTCOMES -BASIC SCIENCES

After completing a B.Sc., programme, a learner will be able to

<b>PO1</b>	<b>DOMAIN KNOWLEDGE:</b> Analyse, design and develop solutions by applying from fundamental concepts of basic sciences and expertise in discipline.
<b>PO2</b>	<b>PROBLEM SOLVING:</b> Ability to think abstractly, to evaluate and concentrates effectively on problem-solving, as well as knowledge of global challenges.
<b>PO3</b>	<b>CREATIVE THINKING AND TEAM WORK:</b> Develop prudent decision-making skills and mobility to work in teams to solve multifaceted problems.
<b>PO4</b>	<b>EMPLOYABILITY:</b> Self-study acclimatize them to observe effective interactive practices for practical learning enabling them to be a successful science graduate.
<b>PO5</b>	<b>LIFE LONG LEARNING:</b> Assure consistent improvement in the performance and arouse interest to pursue higher studies in premium institutions.

### PROGRAMME SPECIFIC OUTCOMES FOR B.Sc MATHEMATICS

#### CURRICULUM [2022–2023 Onwards]

<b>PSO NO.</b>	<b>Students of B.Sc Mathematics will be able to</b>	<b>POs Addressed</b>
<b>PSO1</b>	Procure a precise understanding of the mathematical concepts.	PO1, PO3
<b>PSO2</b>	Excel by enhancing interpersonal skills, overcoming procedural challenges and intending career paths.	PO3, PO4
<b>PSO3</b>	Recognize, strengthen and analyse mathematical problems in order to acquire better conclusion.	PO4, PO5
<b>PSO4</b>	Manipulate numerical abilities across a variety of domains.	PO2, PO5
<b>PSO5</b>	Develop and desire to learn more about advanced mathematics and its applications.	PO5



**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**  
**PG AND RESEARCH DEPARTMENT OF MATHEMATICS**  
**B.Sc MATHEMATICS PROGRAMME STRUCTURE**  
**(For the candidates admitted in the year 2022-2023 Onwards)**

Semester	Part	Course	Title	Course Code	Inst.Hrs./ week	Credits	Exam			Total
							Hrs.	Marks		
								Int.	Ext.	
I	I	Language Course – I (LC)	இக்கால இலக்கியம்	22ULT1	6	3	3	25	75	100
			Hindi Literature & Grammar - I	22ULH1						
			History of Popular Tales, Literature and Sanskrit Story	22ULS1						
			Basic French – I	22ULF1						
	II	English Language Course – I (ELC)	Functional English for Effective Communication – I	22UE1	6	3	3	25	75	100
	III	Core Course – I (CC)	Differential Calculus and Trigonometry	22UMA1CC1	5	5	3	25	75	100
				22UMA1CC2	4	3	3	25	75	100
		First Allied Course – I (AC)	Mathematical Statistics I	22UMA1AC1	5	4	3	25	75	100
				22UMA1AC1P	2	2	3	40	60	100
	IV	UGC Jeevan Kaushal	Universal Human Values	22UGVE	2	2	3	25	75	100
<b>TOTAL</b>					<b>30</b>	<b>22</b>	-	-	-	<b>700</b>
II	I	Language Course – II (LC)	இடைக்கால இலக்கியமும், புதினமும்	22ULT2	5	3	3	25	75	100
			Hindi Literature & Grammar - II	22ULH2						
			Poetry, Textual Grammar and Alakara	22ULS2						
			Basic French – II	22ULF2						
	II	English Language Course – II (ELC)	Functional English for Effective Communication – II	22UE2	6	3	3	25	75	100
	III	Core Course – III (CC)	Analytical Geometry (3D)	22UMA1CC3	5	5	3	25	75	100
				22UMA1CC4	4	4	3	25	75	100
		Core Practical – I (CP)	MATLAB Programming – Practical	22UMA1CP1	2	2	3	40	60	100
				22UMA1CP2	4	3	3	25	75	100
	IV	Ability Enhancement Compulsory Course (AECC) – I	Environmental Studies	22UMA1AEC1	2	1	3	25	75	100
			Innovation and Entrepreneurship	22UMA1AEC2	2	2	3	25	75	100
	V	Extra Credit Course	SWAYAM		As per UGC Recommendation					
	<b>TOTAL</b>					<b>30</b>	<b>23</b>	-	-	-

III	I	Language Course – III (LC)	காப்பியமும், நாடகமும்	22ULT3	5	3	3	25	75	100
			Hindi Literature & Grammar – III	22ULH3						
			Prose, Textual Grammar and Vakayarachana	22ULS3						
			Intermediate French – I	22ULF3						
	II	English Language Course – II (ELC)	Learning Grammar Through Literature – I	22UE3	6	3	3	25	75	100
	III	Core Course – V (CC)	Differential Equations and Laplace Transforms		5	5	3	25	75	100
			Core Course – VI (CC)	Classical Algebra and Theory of Numbers		5	3	3	25	75
	III	Second Allied Course – I (AC)	Python Programming		5	4	3	25	75	100
			Second Allied Course – II (AP)	Python Programming – Practical		2	2	3	40	60
	IV	Generic Elective – I (GE)	Mathematics for Competitive Examinations – I		2	2	3	25	75	100
Basic Tamil										
Special Tamil										
V	Extra Credit Course	SWAYAM		As per UGC Recommendation						
<b>TOTAL</b>				<b>30</b>	<b>22</b>	-	-	-	<b>700</b>	

**15 Days INTERNSHIP during Semester Holidays**

IV	I	Language Course – IV (LC)	பண்டைய இலக்கியம்	22ULT4	6	3	3	25	75	100
			Hindi Literature & Functional Hindi	22ULH4						
			Drama, History of Drama Literature	22ULS4						
			Intermediate French - II	22ULF4						
	II	English Language Course – IV (ELC)	Learning Grammar Through Literature - II	22UE4	6	3	3	25	75	100
	III	Core Course – VII (CC)	Sequences and Series		5	5	3	25	75	100
			Core Course – VIII (CC)	Methods in Numerical Analysis		5	3	3	25	75
	III	Second Allied Course – III (AC)	Internet of Things		4	3	3	25	75	100
			Internship		-	2	-	-	-	100
	IV	Generic Elective –II (GE)	Mathematics for Competitive Examinations - II		2	2	3	25	75	100
Basic Tamil										
Special Tamil										
IV	Skill Enhancement Course – I (SEC)	Introduction to R		2	2	3	25	75	100	
		Introduction to Statistical Tools and Techniques - SPSS								
V	Extra Credit Course	SWAYAM		As per UGC Recommendation						
<b>TOTAL</b>				<b>30</b>	<b>23</b>	-	-	-	<b>800</b>	

V	III	Core Course – IX (CC)	Abstract Algebra		5	4	3	25	75	100
		Core Course – X (CC)	Real Analysis		5	4	3	25	75	100
		Core Course – XI (CC)	Statics		5	4	3	25	75	100
		Discipline Specific Elective – I (DSE)	Operations Research		5	4	3	25	75	100
			Astronomy							
			Artificial Intelligence							
	Discipline Specific Elective – II (DSE)	Discrete Mathematics		4	4	3	25	75	100	
		Automata Theory								
		Essentials of Data Science								
	IV	UGC Jeevan Kaushal	Professional Skills		2	1	3	25	75	100
Skill Enhancement Course – II (SEC)		Statistical Tools and Techniques - R Programming – Practical		2	2	3	40	60	100	
		Statistical Tools and Techniques - SPSS – Practical								
Skill Enhancement Course – III (SEC)		LaTex – Practical		2	2	3	40	60	100	
	Geogebra – Practical									
V	Extra Credit Course	SWAYAM		As per UGC Recommendation						
<b>TOTAL</b>				<b>30</b>	<b>25</b>	-	-	-	<b>800</b>	
VI	III	Core Course – XII (CC)	Linear Algebra		5	4	3	25	75	100
		Core Course – XIII (CC)	Complex Analysis		6	5	3	25	75	100
		Core Course – XIV (CC)	Dynamics		5	3	3	25	75	100
		Discipline Specific Elective – III (DSE)	Graph Theory		4	4	3	25	75	100
			Mathematical Modelling							
			Fundamentals of Big Data Analytics							
	Discipline Specific Elective – IV (DSE)	Number Theory		4	4	3	25	75	100	
		Probability and Queuing Theory								
		Web Technology								
	Project Work			5	3	-	-	-	100	
V	Gender Studies	Gender Studies		1	1	3	25	75	100	
	Extension activities	Extension activities		-	1	-	-	-	-	
<b>TOTAL</b>				<b>30</b>	<b>25</b>	-	-	-	<b>700</b>	
<b>GRAND TOTAL</b>				<b>180</b>	<b>140</b>	-	-	-	<b>4500</b>	

**Note:**

Part – I - Language – Tamil/Hindi/French/Sanskrit

Part – II - English

**List of Allied Courses:**

Allied Course I- Mathematical Statistics

Allied Course II- Computer Science

Part	Course	No of Courses	Credits	Total Credits
I	Tamil/ Other Language	4	12	12
II	English	4	12	12
III	Core (Theory& Practical)	15	59	98
	Project Work	1	3	
	Internship	1	2	
	First Allied	3	9	
	Second Allied	3	9	
	DSE	4	16	
IV	GE	2	4	16
	SEC	3	6	
	Universal Human Values	1	2	
	Environmental Studies	1	2	
	Professional Skills	1	1	
	Entrepreneurial Development	1	1	
V	Gender Studies	1	1	02
	Extension Activities	-	1	
		4500		140

The Internal and External marks for Theory and practical papers are as follows:

Subject	Internal Marks	External Marks
Theory	25	75
Practical	40	60

**FOR THEORY:**

The passing minimum for CIA shall be 40% out of 25 marks [i.e. 10 marks].

The passing minimum for University Examinations shall be 40% out of 75 marks [ i.e. 30 marks].

**FOR PRACTICAL:**

The passing minimum for CIA shall be 40% out of 40 marks [i.e. 16 marks].

The passing minimum for University Examinations shall be 40% out of 60 marks [ i.e. 24 marks].

**SEMESTER I**  
**CORE COURSE – I (CC)**  
**DIFFERENTIAL CALCULUS AND TRIGONOMETRY**  
**(2022-2023 Onwards)**

Semester I	Internal Marks: 25		External Marks:75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs /Week	CREDITS
22UMA1CC1	DIFFERENTIAL CALCULUS AND TRIGONOMETRY	CORE	5	5

**Course Objective**

- **Compute** mathematical quantities using differential calculus and **interpret** their meaning.
- **Explore** fundamental concepts of single variable calculus
- **Apply** calculus concepts to solve real-world problems such as optimization and related rates problems.

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Explain the basic concepts of differentiation, extreme functions of two variables.	K2
CO2	Apply the concept of differentiation for explaining curvature/.	K3
CO3	Explore the solution of problems from a mathematical perspective.	K3
CO4	Associate various types of hyperbolic and inverse hyperbolic functions and Solve problems in summation of trigonometric series.	K4
CO5	Examine the conceptual understanding and fluency with trigonometric functions, techniques and manipulations necessary for success in calculus.	K4

**Mapping of CO with PO and PSO**

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3	3	3	2	2	1
CO2	3	2	3	3	3	3	3	3	2	3
CO3	3	3	3	3	3	3	3	3	3	3
CO4	3	2	3	3	2	3	3	2	2	3
CO5	3	2	3	3	2	3	3	3	3	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## **Syllabus**

### **UNIT I**

**(15 HOURS)**

#### **Successive Differentiation:**

The  $n^{\text{th}}$  derivative – Standard results – Method of splitting the fractional expressions into partial fractions – Trigonometrical transformation – Formation of equations involving derivatives – Leibnitz formula for the  $n^{\text{th}}$  derivative of a product – A complete formal proof by induction .

### **UNIT II**

**(15 HOURS)**

#### **Curvature:**

Curvature – Circle, radius and centre of curvature – Cartesian formula for the radius of curvature – The coordinates of the centre of curvature – Evolute and Involute – Radius of curvature when the curve is given in polar coordinates.

### **UNIT III**

**(15 HOURS)**

#### **Expansions:**

Expansions of  $\cos n\theta$  and  $\sin n\theta$  -Expansion of  $\tan n\theta$  in powers of  $\tan \theta$  –Expansion of  $\tan(A + B + C + \dots)$  (omitting examples on formation of equations) – Powers of sines and cosines of  $\theta$  in terms of functions of multiples of  $\theta$  – Expansions of  $\cos^n \theta$  when  $n$  is a positive integer – Expansions of  $\sin^n \theta$  when  $n$  is a positive integer – Expansions of  $\sin \theta$  and  $\cos \theta$  in a series of ascending powers of  $\theta$  .

### **UNIT IV**

**(15 HOURS)**

#### **Hyperbolic functions:**

Hyperbolic functions – Relation between hyperbolic functions – Relations between hyperbolic functions and circular functions – Inverse hyperbolic functions.

### **UNIT V**

**(15 HOURS)**

#### **Derivatives for Graphing and Applications:**

##### **Maxima and Minima:**

Maxima and Minima of functions of two variables – Working Rule – Lagrange's method of undetermined multiplier

Tracing of Curves – Tracing of curves whose equation is in Cartesian coordinates.

### **UNIT VI**

#### **Self Study for Enrichment:**

Meaning of the Derivative: Geometrical interpretation – Meaning of the sign of the differential coefficient -  $p$ - $r$  equation: Pedal equation of a curve – The expansions of  $\sin \theta$  and  $\cos \theta$  to find the limits of certain expressions – Logarithms of complex quantities: Logarithms of complex quantities – To find the logarithm of  $x+iy$  – General value of logarithm of  $x+iy$  – Tracing of Curves : Polar Equation.



## Text Books

1. Narayanan. S, .Manicavachagom Pillay. T. K. (2015). *Calculus Volume I*. S. Viswanathan (Printer & publishers) Pvt Ltd.
2. Narayanan. S, .Manicavachagom Pillay. T. K. (2013). *Trigonometry*. S. Viswanathan (Printer & publishers) Pvt Ltd.

UNIT-I Chapter III: Sections 1.1 – 1.6, 2.1, 2.2 [1]

UNIT-II Chapter X: Sections 2.1 – 2.6 [1]

UNIT-III Chapter III: Sections 1 - 4, 4.1, 5 [2]

UNIT- IV Chapter IV: Sections 1,2,2.1,2.2,2.3 [2]

UNIT- V Chapter VIII: Sections 4, 4.1,5 [1]

Chapter XIII: Sections 1.1 & 1.2 [1]

## Reference Books

1. Arumugam. S and Issac. (2014). *Calculus*. New Gamma Publishing House.
2. Singaravelu. A. (2003). *Differential Calculus and Trigonometry*. A.Singaravelu and R.Ramaa 1<sup>st</sup> edition, Nagapattinam, R Publication.
3. Bali. N.P. (2010). *Differential Calculus*. Laxmi Publications (P) Ltd. New Delhi.

## Web Links

1. <https://www.youtube.com/watch?v=s8hVridQ5IA>
2. <https://www.youtube.com/watch?v=KijGLjxKlsY>
3. <https://www.youtube.com/watch?v=IQJ0UiM91Z4>
4. <https://www.youtube.com/watch?v=43cMRs2pat4>
5. [https://www.youtube.com/watch?v=mAC88G\\_cc\\_M](https://www.youtube.com/watch?v=mAC88G_cc_M)
6. <https://www.youtube.com/watch?v=CioY8ElsjO4>
7. [https://youtu.be/zExo4\\_TpOAw](https://youtu.be/zExo4_TpOAw)

## Pedagogy

Power point presentations, Group Discussions, Seminar, Quiz, Assignment.

## Course Designers

1. Dr. P. Sudha

**CORE COURSE – II (CC)**  
**INTEGRAL CALCULUS**  
**(2022-2023 Onwards)**

Semester I	Internal Marks: 25		External Marks:75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22UMA1CC2	INTEGRAL CALCULUS	CORE	4	3

**Course Objective**

- Analyze the properties of definite integral and Reduction formulae.
- Explore the order of Integration, Triple Integrals, Beta and Gamma functions.
- Apply Geometrical Applications of Integration of area under plane curve.

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Apply the concepts of double, triple integrals.	K3
CO2	Distinguish the concepts of Beta and Gamma functions.	K3
CO3	Apply the concept of definite integral to solve various problems.	K3
CO4	Interpret the definite integral geometrically as the area under a plane curve.	K3
CO5	Evaluate the types of integration.	K5

**Mapping of CO with PO and PSO**

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3	3	2	2	3	2
CO2	3	2	3	3	2	2	2	3	3	3
CO3	3	3	3	3	3	2	3	2	2	2
CO4	3	2	3	3	2	3	3	3	2	2
CO5	3	3	3	3	3	2	2	2	3	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## Syllabus

### UNIT I

(12 HOURS)

Integration: Integration of rational algebraic functions:  $\int \frac{dx}{ax^2 + bx + c}$  –  $\int \frac{lx + m}{ax^2 + bx + c} dx$  –

Integration of Irrational functions  $\int \frac{px + q}{\sqrt{ax^2 + bx + c}} dx$  – Any expression of the form

$\int \frac{dx}{(x - k)\sqrt{ax^2 + bx + c}}$  –  $\int \frac{dx}{a + b \cos x}$  (Integration of these types only)

### UNIT II

(12 HOURS)

Properties of Definite Integrals – Integration by parts – Reduction formulae.

### UNIT III

(12 HOURS)

Multiple Integrals: Definition of the double integrals – Evaluation of the double Integrals – Triple Integrals

### UNIT IV

(12 HOURS)

Improper Integrals: Beta and Gamma functions: Definition – convergence of  $\Gamma(n)$  – Recurrence formula for gamma functions – Properties of Beta functions – Relation between Beta and Gamma functions – Definite integrals using Gamma functions

### UNIT V

(12 HOURS)

Geometrical Applications of Integration – Areas under plane curves: Cartesian Co-ordinates – Area of a closed curve – Examples – Area in polar co-ordinates

### UNIT VI

#### Self-study for Enrichment:

$\int \frac{dx}{a \cos x + b \sin x}$  – Bernoulli's formula – Applications of Multiple Integrals – Applications of

Gamma functions to multiple integrals – Approximate Integration.

## Text Books

1. Narayanan, S. & Manicavachagom Pillay, T.K.(2015), Calculus, Volume II, S. Viswanathan (Printers & publishers) Pvt Ltd.

UNIT – I Chapter 1: Sections 7.3 (Type I & II) 8 - Case II and case V, 9

UNIT – II Chapter 1: Sections 11, 12, 1.3( 13.1 – 13.9)

UNIT –III Chapter 5: Sections 2.1, 2.2 & 4

UNIT – IV Chapter 7: Sections: 2.1 – 2.3, 3 – 5

UNIT –V Chapter 2: Sections 1.1 – 1.4

## Reference Books

1. Shanti Narayan, Integral Calculus (2002), S. Chand & Company Ltd
2. Shanti Narayan & Mittal, P. K (2008) Integral Calculus, S. Chand & Company Ltd
3. Singh, U. P. Srivastava, R. J & Siddiqui, N. H. (2011) Integral Calculus, Wistom Press.

## Web Links

1. <https://youtu.be/w-T90XSM90s>
2. <https://youtu.be/VXSn6EY9klg>
3. <https://youtu.be/2l-SV8cwsW>
4. <https://youtu.be/bLhxQldbWW8>
5. <https://youtu.be/4KDenLHggDM>
6. [https://youtu.be/db7d\\_a0wiUg](https://youtu.be/db7d_a0wiUg)
7. <https://youtu.be/zFy-OpajEtA>
8. <https://youtu.be/j6A44yOrGfU>
9. <https://youtu.be/scKJXbQpePM>
10. <https://youtu.be/FsC3do74Ulo>

## Pedagogy

Power point presentations, Group Discussions, Seminar, Quiz, Assignment.

## Course Designers

1. Dr. P. Shalini

**FIRST ALLIED COURSE –I (AC)**  
**MATHEMATICAL STATISTICS I**  
**(2022-2023 Onwards)**

Semester I	Internal Marks: 25		External Marks:75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22UMA1AC1	MATHEMATICAL STATISTICS I	ALLIED	5	4

**Course Objective**

- **Enable** the students to acquire the knowledge of statistics.
- **Analyze** the properties of various statistical functions.
- **Explore** the concepts of some statistical distributions.

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Apply Student's t, Fisher's t and F statistics to derive their probability Distribution..	K3
CO2	Analyze how correlation is used to identify the relationships between variables and how regression analysis is used to predict outcomes.	K3
CO3	Solving mean, median, mode, moments and moment generating functions of discrete and continuous distributions.	K3
CO4	Distinguish between a discrete and a continuous random variable.	K4
CO5	Examine the various properties of expectation, variance and the concept of covariance.	K4

**Mapping of CO with PO and PSO**

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3	3	3	2	2	1
CO2	3	2	3	3	3	3	3	3	2	3
CO3	3	3	3	3	3	3	3	3	3	3
CO4	3	2	3	3	2	3	3	2	2	3
CO5	3	2	3	3	2	3	3	3	3	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## **Syllabus**

### **UNIT I**

**(18 HOURS)**

#### **Random Variables and Distribution Functions**

Random Variable – Distribution Functions – Properties of Distribution Function – Discrete Random Variable – Probability Mass Function – Discrete Distribution Function – Continuous Random Variable – Probability Density Function – Various Measures of Central Tendency, Dispersion, Skewness and Kurtosis for Continuous Probability Distribution – Continuous Distribution Function – Joint Probability Mass Function and Marginal and Conditional Probability Function – Joint Probability Distribution Function – Joint Density Function, Marginal Density Function - The Conditional Distribution Function and Conditional Probability Density Function.

### **UNIT II**

**(15 HOURS)**

#### **Mathematical Expectation**

Mathematical Expectation – Addition Theorem of Expectation – Multiplication Theorem of Expectation – Co-variance – Expectation of a Linear Combination of Random Variables – Variance of a Linear Combination of Random Variables – Expectation of a Continuous random variable – Conditional Expectation & Conditional Variance.

### **UNIT III**

**(14 HOURS)**

#### **Generating Functions**

Moment Generating Function – Theorems on moment Generating Functions– Cumulants– Additive Property of Cumulants – Effect of Change of Origin and Scale on Cumulants – Characteristic Function – Properties of Characteristic Function.

### **UNIT IV**

**(13 HOURS)**

#### **Correlation and Linear Regression**

Introduction – Meaning of Correlation – Scatter Diagram – Karl Pearson's Co-efficient of Correlation : Limits for Correlation Co-efficient – Assumptions Underlying Karl Pearson's Correlation Co-efficient – Rank Correlation : Spearman's Rank Correlation Co- efficient – Tied or Repeated Ranks – Repeated Ranks (continued) - Introduction – Linear Regression : Regression Co-efficient - Properties of Regression Co-efficient – Angle between two lines of Regression.

### **UNIT V**

**(15 HOURS)**

#### **Exact Sampling Distributions**

Chi-Square Distribution: Introduction – Derivation of the Chi-Square Distribution( $\chi^2$ ) – M.G.F. of Chi-Square Distribution : Cumulant Generating Function of  $\chi^2$ -Distribution – Limiting Form of  $\chi^2$ -Distribution for–Characteristic Function of  $\chi^2$ -Distribution – Mode and Skewness of  $\chi^2$ -Distribution – Additive Property of  $\chi^2$  Variates – Chi- Square Probability Curve – Students 't' Distribution : Derivation of the Students 't' Distribution – Fisher's 't' – Distribution of Fisher's 't' –

Constants of t-distribution – Limiting Form of t-distribution – F- Distribution : Derivation of Snedecor's F- Distribution – Constants of F- Distribution – Mode and Points of Inflexion of F- Distribution.

## UNIT VI

### Self-Study for Enrichment:

Independent Random Variables – Uniqueness Theorem of Characteristic Function – Limits for the Rank Correlation Coefficient – Graph of t-distribution – Critical Values of t .

### Text Books

1. Gupta, S.C. & Kapoor, V.K. (2004). *Elements Of Mathematical Statistics*. Sultan Chand & Sons, New Delhi.
2. Gupta, S.C. & Kapoor, V.K. (2015). *Fundamentals Of Mathematical Statistics*. Sultan Chand & Sons, New Delhi.

UNIT-I Chapter 5: Sections 5.1 to 5.5.3, 5.5.5 [1]

UNIT-II Chapter 6: Sections 6.1 to 6.8 [1]

UNIT-III Chapter 6: Sections 6.9 to 6.11.1 [1]

UNIT- IV Chapter 10: Sections 10.1 to 10.4.2 & 10.7, 10.7.1 to 10.7.3 [2]

Chapter 11: Sections 11.1 to 11.2.3 [2]

UNIT- V Chapter 15: Sections 15.1 to 15.3.6 [2]

Chapter 16: Sections 16.2 to 16.2.5, 16.5, 16.5.1 to 16.5.3 [2]

### Reference Books

1. Pillai, R.S.N. Pillai & Bhagavathi. (2008). *Statistics, Theory and Practice*. S.Chand & Sons.
2. Bhishma Rao, G.S.S. (2011). *Probability and Statistics*. Scitech Publications (India) Pvt Ltd.
3. Veerarajan, T. (2010). *Probability, Statistics and Random Processes*. Tata McGraw Hill Education Private Limited.

### **Web Links**

1. <https://www.youtube.com/watch?v=YXLVjCKVP7U>
2. <https://www.youtube.com/watch?v=xTpHD5WLuoA>
3. <https://www.youtube.com/watch?v=wjwLTNYOuI4>
4. <https://www.youtube.com/watch?v=zmyh7nCjmsg>
5. <https://www.youtube.com/watch?v=ux8zQvWWLk>

### **Pedagogy**

Power point Presentations, Group Discussions, Seminar, Quiz, Assignment and Smart Classroom.

### **Course Designers**

1. Ms. V. ManiMozhi



**FIRST ALLIED COURSE – II (AC)**  
**MATHEMATICAL STATISTICS II – PRACTICAL**  
**(2022-2023 Onwards)**

Semester I	Internal Marks: 40		External Marks:60	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22UMA1AC1P	MATHEMATICAL STATISTICS II – PRACTICAL	ALLIED	2	2

**Course Objective**

- **Understands** the basic concepts in quantitative data analysis.
- **Apply** the technical knowledge to **interpret** and **solve** the problems.
- **Explore** the ideas of Excel in Statistics.

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Explore various statistical concepts in Excel.	K3
CO2	Solve the Measures of Central Tendency and Measures of Dispersion using Excel.	K3
CO3	Compute Correlation and Regression co-efficient between two data sets and their applications.	K3
CO4	Analyze the concepts of testing the hypothesis and apply the test to the real-life problems.	K4
CO5	Make use of formulas, including the use of built-in functions.	K3

**Mapping of CO with PO and PSO**

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	1	2	3	2	2	2	3	2	2	2
CO2	1	2	3	2	2	2	3	2	2	2
CO3	1	2	3	2	2	2	3	2	2	2
CO4	1	2	3	2	2	2	3	2	2	2
CO5	1	2	3	2	2	2	3	2	2	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## **LIST OF PROGRAMS**

- 1) Arithmetic Mean, Geometric Mean and Harmonic Mean.
- 2) Median and Mode.
- 3) Quartile Deviation and Mean Deviation.
- 4) Standard Deviation and Co-efficient of Variation.
- 5) Karl Pearson's Co-efficient of Skewness.
- 6) Bowley's Co-efficient of Skewness.
- 7) Moments and Kurtosis.
- 8) Karl Pearson's Co-efficient of correlation.
- 9) Rank Correlation.
- 10) Fit the regression line.
- 11) Test the hypothesis for the difference between two sample means.
- 12) Test the hypothesis for single proportion.
- 13) Test the significance of hypothesis using 't' test.
- 14) Test the significance of hypothesis using 'F' test.
- 15) Test the significance of hypothesis using chi-square test.

## **Text Books**

1. Asha Chawla. & Seema Malik. (2017). *Statistical Analysis with MS Excel*. Avichal Publishing Company.

## **Reference Books**

1. Web Tech Sol. (2010). *Mastering Microsoft Excel Functions and Formulas*. Khanna Book Publishing Company.
2. Neil J. Salkind. (2015). *Excel Statistics a Quick Guide*. SAGE Publications, Inc.
3. Charles Zaiontz. (2015). *Statistics using Excel Succinctly*. E-Book.

## **Web links**

1. <https://www.youtube.com/watch?v=2rEhWFhSqnI>
2. <https://www.youtube.com/watch?v=L9TiYC6tQmU>
3. <https://www.youtube.com/watch?v=v5kYz3ADPBI>
4. <https://www.youtube.com/watch?v=9cXluqvGe8c>
5. <https://www.youtube.com/watch?v=egAvfCZTpz8>
6. <https://www.youtube.com/watch?v=7Y1g340tcbU>
7. <https://www.youtube.com/watch?v=OnsH74zXhA>
8. [https://www.youtube.com/watch?v=BIS11D2VL\\_U](https://www.youtube.com/watch?v=BIS11D2VL_U)
9. <https://www.youtube.com/watch?v=WNUfgZipww>

10. <https://www.youtube.com/watch?v=j966OJol0iA>
11. <https://www.youtube.com/watch?v=mUycvaTRrCw>
12. <https://www.youtube.com/watch?v=ckcUt3EyD-Q>

### **Pedagogy**

Power point presentations, Live Demo, Hands on training.

### **Course Designers**

1. Dr. P. Saranya
2. Dr. C. Saranya

# CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

(Nationally Re-accredited (III cycle) with 'A' (CGPA 3.41 out of 4)

ISO 9001:2015 Certified by IRCLASS and Accredited by NABCB

Grade by NAAC



**PG AND RESEARCH DEPARTMENT OF MATHEMATICS**

**AUTONOMOUS SYLLABUS**

**M. Sc MATHEMATICS**

**2022 – 2023 onwards**

## **PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)**

<b>PEOs</b>	<b>Statements</b>
<b>PEO1</b>	<b>LEARNING ENVIRONMENT</b>  To facilitate value-based holistic and comprehensive learning by integrating innovative learning practices to match the highest quality standards and train the students to be effective leaders in their chosen fields.
<b>PEO2</b>	<b>ACADEMIC EXCELLENCE</b>  To provide a conducive environment to unleash their hidden talents and to nurture the spirit of critical thinking and encourage them to achieve their goal.
<b>PEO3</b>	<b>EMPLOYABILITY</b>  To equip students with the required skills in order to adapt to the changing global scenario and gain access to versatile career opportunities in multidisciplinary domains.
<b>PEO4</b>	<b>PROFESSIONAL ETHICS AND SOCIAL RESPONSIBILITY</b>  To develop a sense of social responsibility by formulating ethics and equity to transform students into committed professionals with a strong attitude towards the development of the nation.
<b>PEO5</b>	<b>GREEN SUSTAINABILITY</b>  To understand the impact of professional solutions in societal and environmental contexts and demonstrate the knowledge for an overall sustainable development.

**MASTER OF SCIENCE (Mathematics, Physics and Chemistry)  
PROGRAMME OUTCOMES – M.Sc(Mathematics, Physics and Chemistry)**

<b>PO NO.</b>	<b>Programme Outcome On completion of M.Sc programme, the students will be able to</b>
<b>PO 1</b>	<b>Problem Analysis</b> Provide opportunities to develop innovative design skills, including the ability to formulate problems, to think creatively, to synthesize information, and to communicate effectively.
<b>PO 2</b>	<b>Scientific Skills</b> Create and apply advanced techniques and tools to solve the societal environmental issues.
<b>PO 3</b>	<b>Environment and Sustainability</b> Ascertain eco-friendly approach for sustainable development and inculcate scientific temper in the society.
<b>PO 4</b>	<b>Ethics</b> Imbibe ethical and social values aiming towards holistic development of learners.
<b>PO 5</b>	<b>Life long learning</b> Instill critical thinking, communicative knowledge which potentially leads to higher rate of employment and also for higher educational studies.

**PROGRAMME SPECIFIC OUTCOMES for M.Sc MATHEMATICS  
CURRICULUM [2022–2023 Onwards]**



	<b>Students of M.Sc will be able to</b>	<b>POs Addressed</b>
	Make a significant contribution to society's development through mathematical study	PO1, PO2, PO3
PSO2	Provide an in-depth and extensive functional understanding of mathematical basics.	PO1
PSO3	Develop the experimental abilities in order to solve scientific and technical problems.	PO1, PO5
PSO4	Promote the learners and explore the potential in emerging fields.	PO4, PO5
PSO5	Enhance problem-solving, thinking, and creative skills through assignments and project work.	PO4, PO5

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**  
**PG AND RESEARCH DEPARTMENT OF MATHEMATICS**  
**M. Sc MATHEMATICS PROGRAMME STRUCTURE**  
**(For the candidates admitted in the year 2022-2023 Onwards)**

SEM	Course	Course Title	Course Code	Ins. Hrs / Week	Credit	Exam Hrs	Marks		Total
							Int.	Ext.	
I	Core Course – I (CC)	Algebra –I	22PMA1CC1	6	5	3	25	75	100
	Core Course – II (CC)	Ordinary Differential Equations	22PMA1CC2	6	5	3	25	75	100
	Core Course – III (CC)	Integral Equations, Calculus of Variations and Transforms	22PMA1CC3	6	5	3	25	75	100
	Core Course – IV (CC)	Algebraic Number Theory	22PMA1CC4	6	5	3	25	75	100
	Elective Course - I (EC)	Advanced Numerical Analysis	22PMA1EC1A	6	3	3	25	75	100
		Mathematical Modelling	22PMA1EC1B						
Boundary Value Problems		22PMA1EC1C							
<b>TOTAL</b>				<b>30</b>	<b>23</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>500</b>

**15 Days INTERNSHIP during Semester Holidays**

SEM	Course	Course Title	Course Code	Ins. Hrs / Week	Credit	Exam Hrs	Marks		Total
							Int.	Ext.	
II	Core Course – V (CC)	Algebra - II		6	5	3	25	75	100
	Core Course – VI (CC)	Real Analysis - I		6	5	3	25	75	100
	Core Course – VII(CC)	Linear Algebra		6	5	3	25	75	100
	Core Course – VIII (CC)	Topology		6	5	3	25	75	100
	Elective Course – II (EC)	Partial Differential Equations		6	3	3	25	75	100
		Difference Equations							
		Non-Linear Differential Equations							
	Internship	-	-	-	2	-	-	-	100
	Extra Credit Course	SWAYAM		As per UGC Recommendation					
	<b>TOTAL</b>				<b>30</b>	<b>25</b>	<b>-</b>	<b>-</b>	<b>-</b>



SEM	Course	Course Title	Course Code	Ins. Hrs / Week	Credit	Exam Hrs	Marks		Total	
							Int.	Ext.		
III	Core Course – IX (CC)	Real Analysis – II		6	5	3	25	75	100	
	Core Course – X (CC)	Measure and Integration		6	5	3	25	75	100	
	Core Course – XI(CC)	Analytical Skills for Competitive Examinations		6	5	3	-	100	100	
	Core Course – XII(CC)	Discrete Mathematics		6	5	3	25	75	100	
	Elective Course – III(EC)	Probability Theory and Machine Learning	Stochastic Processes		6	3	3	25	75	100
			Tensor Analysis and Special Theory of Relativity							
			SWAYAM							
	Extra Credit Course	SWAYAM		As per UGC Recommendation						
<b>TOTAL</b>				<b>30</b>	<b>23</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>500</b>	

SEM	Course	Course Title	Course Code	Ins. Hrs / Week	Credit	Exam Hrs	Marks		Total
							Int.	Ext.	
IV	Core Course – XIII(CC)	Functional Analysis		6	5	3	25	75	100
	Core Course – XIV(CC)	Complex Analysis		6	5	3	25	75	100
	Elective Course – IV(EC)	Optimization Techniques		6	2	3	25	75	100
		Fuzzy Sets and their Applications							
		Combinatorics							
	Elective Course – V(EC)	Differential Geometry		6	2	3	25	75	100
		Automata Theory							
		Design Analysis and Algorithms							
	Project				6	5	-	-	-
<b>TOTAL</b>				<b>30</b>	<b>19</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>500</b>
<b>GRAND TOTAL</b>				<b>120</b>	<b>90</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2100</b>

**Note:**

Total Credits - 90

Total Marks - 2100

Core Courses	14
Elective Courses ( Can be placed anywhere from Semester I to IV)	05
Project	01
Internship	01
Total	21

Students will go for internship after completing the I Semester exams and the internship will be calculated in the II Semester and credits for internship is 02.

For each semester marks will be for 500(600 for II Semester due to internship)

The internal and external marks for theory and practical papers are as follows:

Subject	Internal	External
Theory	25	75
Practical	40	60

Separate passing minimum is prescribed for Internal and External

**For Theory:**

- The passing minimum for CIA shall be 40% out of 25 marks (i.e. 10 marks).
- The passing minimum for End Semester Examination shall be 40% out of 75 marks (i.e. 30 marks).
- The passing minimum not less than 50% in the aggregate.

**For Practical:**

- The passing minimum for CIA shall be 40% out of 40 marks (i.e. 16 marks)
- The passing minimum for End Semester Examinations shall be 40% out of 60 marks (i.e. 24 marks)
- The passing minimum not less than 50% in the aggregate.

**For Project:**

Project : 100 Marks  
Dissertation : 80 Marks  
Viva Voce : 20 Marks

**CORE COURSE – I (CC)**  
**ALGEBRA - I**  
**(2022-2023 Onwards)**

Semester I	Internal Marks: 25	External Marks: 75		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22PMA1CC1	ALGEBRA- I	CORE	6	5

**Course Objective**

- **Gain** expertise and confidence in proving theorems to progress in mathematical studies.
- **Acknowledge** the students with experience in axiomatic mathematics while keeping in close touch with the computational aspects of the subject.
- **Enhance** students to understand principles, concepts necessary to formulate, solve and analyze Algebra.

**Prerequisite:**

- Basic knowledge of sets, relations and functions.

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Apply the basic concepts of group theory with the help of numerous examples	K3
CO2	Examine in detail about Permutation Groups and Normal Groups and discuss about counting tricks in algebra	K4
CO3	Solve problems related to theorems	K3
CO4	Classify groups of finite order using Sylow's theorems	K4
CO5	Analyze the Field of Quotients of an integral domain	K4

## Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	3	3	3	3	3	2	2	2	3
CO2	2	3	3	2	2	2	3	2	2	3
CO3	2	2	3	3	3	3	3	2	3	3
CO4	3	3	2	2	3	3	3	3	2	2
CO5	2	2	3	3	2	3	2	2	2	3

“1” – Slight (Low) Correlation –

“2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation –

“-” indicates there is no correlation.

## Syllabus

### Unit I

Binary Operations – Groups – Subgroups - Permutations I - Permutations II.  
*Cyclic Groups.*

### Unit II

Isomorphism - Direct products - Finitely Generated Abelian Groups - Groups of Cosets-  
Normal Subgroups and Factor Groups.

### Unit III

Series of Groups - Isomorphism Theorems; Proof of the Jordan - Holder Theorem-  
Sylow Theorems.

### Unit IV

Rings - Integral domains - The Field of Quotients of an Integral Domain - Quotient  
Rings and Ideals.

### Unit V

Factorization of Polynomials over a Field - Unique Factorization Domains -Euclidean  
Domains -Gaussian Integers and Norms.

### Unit IV

#### Self-Study for Enrichment:

Cyclic Groups – Homomorphisms - Applications of the Sylow Theorem - Some  
Noncommutative examples - Homomorphism of Rings

### **Text Books**

1. John B. Fraleigh,( 2018(Reprint)), *A First Course in Abstract Algebra*, Narosa Publishing House, Third edition.

### **Chapters and Sections**

UNIT-I	Chapters 1 to 5[1]
UNIT-II	Chapters 7,8,9,11 and 12[1]
UNIT-III	Chapter 14,15 and 18[1]
UNIT-IV	Chapter 23,24,26 and 28[1]
UNIT-V	Chapter 31 to 34[1]

### **Reference Books**

1. David S. Dummit and Richard M. Foote, (2004), *Abstract Algebra*, Wileyandsons, Third Edition.
2. Joseph A. Gallian, (1999), *Contemporary Abstract Algebra*, Narosa Publishing House, Fourth Edition.
3. Herstein. I.N, (1975), *Topics in Algebra*, John Wiley, Second Edition.

### **Web Links**

1. [https://www.youtube.com/watch?v=g7L\\_r6zw4-c](https://www.youtube.com/watch?v=g7L_r6zw4-c)
2. <https://www.youtube.com/watch?v=VSB8jjsn9xI>
3. <https://www.youtube.com/watch?v=WwndchnEDS4>
4. <https://www.youtube.com/watch?v=xTCxmr4ISU4>
5. <https://www.youtube.com/watch?v=iobTKR4-19o>
6. <https://www.youtube.com/watch?v=NfmJQ1ah4vM>
7. <https://www.youtube.com/watch?v=vrFd-5uEv4k>

### **Pedagogy**

Power point presentations, Group Discussions, Seminar, Quiz, Assignment.

### **Course Designer**

1. Dr. K. Kalaiarasi

**CORE COURSE – II (CC)**  
**ORDINARY DIFFERENTIAL EQUATIONS**  
**(2022-2023 Onwards)**

Semester I	Internal Marks: 25		External Marks:75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22PMA1CC2	ORDINARY DIFFERENTIAL EQUATIONS	CORE	6	5

**Course Objective**

- **Recognize** certain basic types of first order ODEs for which exact solutions may be obtained and to apply the corresponding methods of solution
- **Qualitative Analysis** of Solutions of First Order Autonomous Equations.
- **Analyze** the concepts of existence and uniqueness of solutions.

**Prerequisite**

- Fundamental knowledge of ordinary differential equations in UG.

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

CO Number	CO Statement	Cognitive Level
	<b>On successful completion of this work, students will be able to</b>	
CO1	<b>Define</b> linear, non-linear, homogeneous and autonomous system of ordinary differential equations.	<b>K1</b>
CO2	<b>Understand</b> the Qualitative properties of solutions by Sturm separation and Sturm comparison theorems.	<b>K2</b>
CO3	<b>Diagnose</b> the power series solution for ordinary differential equations such as Gauss Hyper Geometric, Bessel's and Legendre equations.	<b>K4</b>
CO4	<b>Discriminate</b> the Qualitative properties of solutions for Boundary value problems by using Sturm theorems.	<b>K4</b>
CO5	<b>Analyze</b> the Stability nature of Linear and Non-Linear system for various methods.	<b>K4</b>

## Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3	3	3	3	2	3
CO2	3	3	3	3	3	3	3	3	2	3
CO3	3	3	3	3	3	3	3	3	2	3
CO4	3	3	2	3	3	3	3	3	2	3
CO5	3	3	3	3	3	3	3	3	2	3

“1” – Slight (Low) Correlation –

“2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation –

“-” indicates there is no correlation.

## Syllabus

### UNIT I

The General Solution of the Homogeneous Equation – The Use of a Known Solution to Find Another – The Method of Variation of Parameters – Power Series Solutions and Special Functions: Introduction: A Review of Power Series – Series Solutions of First Order Equations – Second Order Linear Equations. Ordinary Points.

### UNIT II

Regular Singular Points – Gauss’s Hypergeometric Equation – The Point at Infinity. Legendre Polynomials – Properties of Legendre Polynomials - Bessel Functions. The Gamma Function, Properties of Bessel Functions.

### UNIT III

Linear Systems – Homogeneous Linear Systems with Constant Coefficients – The Existence and Uniqueness of Solutions: The Method of Successive Approximations - Picard’s Theorem.

### UNIT IV

Qualitative Properties of Solutions: Oscillations and the Sturm Separation Theorem – The Sturm Comparison Theorem – Eigen Values , Eigen Functions and the Vibrating String.

### UNIT V

Nonlinear Equations: Autonomous Systems. The Phase Plane and Its Phenomena – Types Of Critical Points. Stability – Critical Points and Stability for Linear Systems – Stability by Liapunov’s Direct Method - Simple Critical Points of Nonlinear Systems.



## UNIT VI

### Self- Study for Enrichment:

The Homogeneous Equation with Constant Coefficients - Regular Singular Points (Continued) – Systems . The Second Order Linear Equation - Sturm Liouville Problems  
-Nonlinear Mechanics, Conservative systems.

### Text Books

1. George F. Simmons (2003). Differential Equations with Applications and Historical Notes, Second Edition. Tata McGraw- Hill Editions.

### Chapters and Sections

UNIT – I	Chapter 3	Sections 15, 16, 19
	Chapter 5	Sections 26 to 28
UNIT – II	Chapter 5	Sections 29, 31, 32
	Chapter 8	Sections 44 to 47
UNIT – III	Chapter 10	Sections 55, 56
	Chapter 13	Sections 68, 69
UNIT – IV	Chapter 4	Sections 24, 25
	Chapter 7	Sections 40
UNIT –V	Chapter 11	Sections 58 to 62

### Reference Books

1. Raisinghania M.D. (2005), Ordinary and Partial Differential Equations, S.Chand & Co.
2. Coddington E.A. and Levinson N. (1955), Theory of Ordinary Differential Equations, McGraw Hill Publishing Company, New york..
3. Chicone, Carmen. (2006), A Ordinary Differential Equations With Applications, Springer Verlag, New york.

## Web Links

1. <https://www.youtube.com/watch?v=gd1FYn86P0c>
2. <https://www.youtube.com/watch?v=6o7b9yyhH7k>
3. <https://www.youtube.com/watch?v=HAb9JbBD2ig>
4. <https://www.youtube.com/watch?v=kj-qTWhH5N4>
5. <https://www.youtube.com/watch?v=CV81OjuHUS8>
6. <https://www.youtube.com/watch?v=oTN7hGoSPMw>
7. [https://www.youtube.com/watch?v=IWm6Coa3\\_bQ](https://www.youtube.com/watch?v=IWm6Coa3_bQ)
8. <https://www.youtube.com/watch?v=1HUnrokDN0U>
9. <https://www.youtube.com/watch?v=1HUnrokDN0U>

## Pedagogy

Chalk and Talk method, Power point presentations, Group Discussions, Seminar, Quiz, Assignment.

## Course Designer

1. Dr. G. JANAKI

**CORE COURSE – III (CC)**  
**INTEGRAL EQUATIONS, CALCULUS OF VARIATIONS AND TRANSFORMS**  
**(2022-2023 Onwards)**

Semester I	Internal Marks: 25		External Marks:75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22PMA1CC3	INTEGRAL EQUATIONS, CALCULUS OF VARIATIONS AND TRANSFORMS	CORE COURSE	6	5

**Course Objective**

- To introduce the concept of calculus of variations and integral equations and their applications.
- To learn the different types of transforms and their properties.
- To give an experience in the implementation of Mathematical concepts like integral transforms, integral equations and calculus of variations in various field of Engineering.

**Prerequisite**

- Basic Knowledge of Integral Calculus and Fourier Series

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Apply the concepts of calculus of variations to find the maxima and minima of quantities defined as integrals containing unknown functions.	K3
CO2	Classify various kinds of Fourier sine and cosine transforms with their properties and simple problems.	K3
CO3	Explain the concept of Fourier transform, Hankel transform and its inverse transform.	K3
CO4	Recognize and solve particular cases of Fredholm and Volterra integral equations and variational problem	K4
CO5	Evaluate the integral equations by the method of successive approximations.	K5

## Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	3	3	3	3	3	2	2	2	3
CO2	2	3	3	2	2	2	3	2	2	3
CO3	2	2	3	3	3	3	3	2	2	3
CO4	3	3	2	2	3	3	3	2	2	2
CO5	2	2	3	3	2	3	2	2	2	3

“1” – Slight (Low) Correlation –

“2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation –

“-” indicates there is no correlation.

### Syllabus:

#### UNIT I

Calculus of variations and applications: Maxima and Minima – The simplest case – Illustrative examples - Natural boundary conditions and transition conditions – The Variational notation – The More general case – constraints and Lagrange multipliers – variable end points – Sturm-Liouville problems.

#### UNIT – II

Fourier transforms: Dirichlet’s conditions – Fourier series – Fourier’s Integral formula – Fourier transform or complex Fourier transform – Inversion theorem for complex Fourier transform – Fourier sine transform - Inversion formula for Fourier sine transform - Fourier cosine transform - Inversion formula for Fourier cosine transform – Linearity property of Fourier transform – Change of scale property – Shifting Property – Modulation Theorem – Multiple Fourier transforms - Convolution - The convolution or Faltung theorem for Fourier transforms - Parseval's identity for transforms – Relationship between Fourier and Laplace transforms – Fourier transform of the derivatives of a function – Problems related to integral equations.

#### UNIT III

Hankel Transforms : Definition – Inverse formula for the Hankel transform – Some important results for Bessel function – Linearity property – Hankel Transform of the derivatives of the function – Hankel Transform of differential operators.

#### UNIT IV

Definition, Regularity Conditions – Special Kind of Kernels – Eigen values and Eigen functions – Convolution Integral – The Inner or Scalar Product of Two Functions – Notation – Integral Equations with Separable Kernals: Reduction to a System of Algebraic Equations – Examples– Fredholm Alternative – Examples.

## UNIT V

Method of Successive Approximations: Iterative Scheme – Examples – Volterra Integral Equation – Examples – Some Results about the Resolvent Kernel - Classical Fredholm Theory: The Method of Solution of Fredholm – Fredholm’s First Theorem – Examples – Fredholm’s Second Theorem.

## UNIT VI

### Self-Study for Enrichment:

Hamilton’s Principle - Finite Fourier transforms- Parseval’s Theorem- An Approximate Method – Fredholm Integral Equation of the First Kind - Fredholm’s Third Theorem.

### Text books

1. Francis.B. Hildebrand,(1972), Methods of Applied Mathematics, Prentice – Hall of India Pvt Ltd, New Delhi.
2. Vasishtha.A.R. and Gupta.R.K,(2002), Integral Transforms, Krishna Prakashan Media Pvt Ltd
3. Ram.P.Kanwal,(1971), Linear Integral Equations, Academic Press.

### Chapters and Sections

Unit I	Chapter 2	Sections 2.1 to 2.8 [1]
Unit II	Chapter 6	Sections 6.1 to 6.20[2]
Unit III	Chapter 9	Sections 9.1 to 9.6[2]
Unit IV	Chapter 1	Sections 1.1 to 1.7[3]
	Chapter 2	Sections 2.1 to 2.4[3]
Unit V	Chapter 3	Sections 3.1 to 3.5[3]
	Chapter 4	Sections 4.1 to 4.4[3]

### Reference Books

1. Gupta,A.S.(2006), Calculus of Variations with Applications, Prentice Hall of India Private Limited, New Delhi.
2. Raisinghania,M.D. (2007), Integral Equations and Boundary Value Problems, S.Chand & Company Ltd, New Delhi.
3. Gupta.P.P and Sunjay Gupta,(2003), Integral Transforms, Kedarnath Ram Nath , Meerut.

## **Web Links**

1. <https://youtu.be/70lYJs2xL6Q>
2. <https://youtu.be/HlwYQqUdrQs>
3. <https://youtu.be/6HeQc7CSkZs>
4. <https://youtu.be/UKHBWzoOKsY>
5. <https://youtu.be/3OCYjT5h23w>
6. <https://youtu.be/pAwvErIGIV8>
7. <https://youtu.be/HH9QH692AZE>

## **Pedagogy**

Chalk and talk , Power point presentation, Discussion , Assignment, Quiz, Seminar.

## **Course Designers**

1. Dr. S.Sasikala.
2. Dr.R.Radha.

**CORE COURSE – IV (CC)**  
**ALGEBRAIC NUMBER THEORY**  
**(2022 – 2023 Onwards)**

Semester I	Internal Marks: 25	External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22PMA1CC4	ALGEBRAIC NUMBER THEORY	CORE	6	5

**Course Objective**

- **Explore** fundamental concepts of divisibility, Congruences and primes.
- **Analyze** the quadratic Residues, The Mobius Inversion formula, Diophantine equations and their problems.
- **Apply** the ideas of Pythagorean triangle and The Chinese remainder theorem to solve problems.

**Prerequisites**

Theory of Numbers, Abstract Algebra

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
<b>CO1</b>	Apply the concepts of divisibility, congruences, primes, primitive roots, quadratic residues, greatest integer functions and linear equations.	K3
<b>CO2</b>	Explore the concepts of arithmetic functions, prime modulus and congruences of Degree two.	K3
<b>CO3</b>	Relate the ideas of Chinese remainder theorem, quadratic reciprocity and The Mobius Inversion formula.	K3
<b>CO4</b>	Determine the solutions of congruences, techniques of numerical calculations, Jacobi symbol, recurrence functions and simultaneous linear equations.	K4
<b>CO5</b>	Examine the conceptual understanding in Pythagorean triangles, Legendre Symbol and related problems.	K4

## Mapping of CO with PO and PSO

O <sub>s</sub>	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3	3	3	2	2	3
CO2	2	3	2	3	2	2	2	2	2	3
CO3	3	3	2	3	3	3	2	2	2	3
CO4	3	3	3	3	3	3	3	2	2	3
CO5	3	3	3	3	3	3	3	2	2	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## Syllabus

### UNIT I

#### Divisibility and Congruences

Introduction – Divisibility – The Binomial Theorem – Congruences – Solutions of Congruences – The Chinese Remainder Theorem.

### UNIT II

#### Congruences

Techniques of Numerical Calculation — Prime Power Moduli – Prime Modulus – Congruences of Degree Two, Prime Modulus – Public Key Cryptography.

### UNIT III

#### Quadratic Reciprocity and Quadratic Forms

Quadratic Residues – Quadratic Reciprocity – The Jacobi Symbol – Binary Quadratic Forms – Equivalence and Reduction of Binary Quadratic Forms – Sums of Two Squares.

### UNIT IV

#### Some Functions of Number Theory

Greatest Integer Function – Arithmetic Functions – The Mobius Inversion Formula.

### UNIT V

#### Some Diophantine Equations

The Equation  $ax + by = c$  – Simultaneous Linear Equations – Pythagorean Triangles.



## UNIT VI

### Self-Study for Enrichment

Primes - Primitive Roots and Power Residues - Positive Definite Binary Quadratic Forms - Recurrence Functions - Assorted Examples.

#### Text Books

1. Ivan Niven, Herbert S. Zuckerman & Hugh L. Montgomery (2016) Reprint, *An Introduction to the Theory of Numbers, (Fifth Edition)*. Wiley Publishers.

UNIT – I	Chapter 1	Sections 1.1, 1.2 & 1.4
	Chapter 2	Sections 2.1 to 2.3
UNIT – II	Chapter 2	Sections 2.4 to 2.7 & 2.9
UNIT – III	Chapter 3	Sections 3.1 to 3.6
UNIT – IV	Chapter 4	Sections 4.1 to 4.3
UNIT – V	Chapter 5	Sections 5.1 to 5.3

#### Reference Books

1. David M. Burton (2012), *Elementary Number Theory*, Tata McGraw Hill Education Private Limited, New Delhi.
2. Telang S. G. (2005), *Number Theory*, Tata McGraw Hill Education Private Limited, New Delhi.
3. Melvyn B. Nathanson (2005), *Methods in Number Theory*, Springer-Verlag, New York, Inc.

#### Web Links

1. [https://www.youtube.com/watch?v=ChG\\_7jeNRHo](https://www.youtube.com/watch?v=ChG_7jeNRHo)
2. <https://www.youtube.com/watch?v=e8DtzQkjOMQ>
3. <https://www.youtube.com/watch?v=3W91U-aNclQ>
4. <https://www.youtube.com/watch?v=bg6CksAkZ-k>
5. <https://www.youtube.com/watch?v=4dVTIX4bwP0>
6. <https://www.youtube.com/watch?v=khfIH1H6iUg>
7. <https://www.youtube.com/watch?v=BC2BdenKsYs>

#### Pedagogy

Power point Presentations, Group Discussions, Seminar, Quiz, Assignment.

#### Course Designer

1. Dr. S. Vidhya.

**ELLECTIVE COURSE – I(EC)**  
**ADVANCED NUMERICAL ANALYSIS**  
**(2022-2023 Onwards)**

Semester I	Internal Marks: 25		External Marks:75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs /Week	CREDITS
22PMA1EC1A	ADVANCED NUMERICAL ANALYSIS	ELECTIVE	6	5

**Course Objective**

- To **know** the theory behind various numerical methods.
- To **apply** these methods to solve mathematical problems.
- To **train** the students to develop analytical thinking and the study of stability analysis.

**Prerequisite**

**Course Outcome and Cognitive Level Mapping**

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Apply various methods to solve transcendental and polynomial equations	K3
CO2	Use the concepts of interpolation analyze Eigen value problem with Techniques for Mathematical Problems arising in various fields	K4
CO3	Classify the various techniques of interpolation and approximation	K3
CO4	Compute the numerical differentiation problems	K3
CO5	Apply the knowledge of various methods to solve numerical integration problems	K3

## Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	3	3	2	3	2	3	2	3	3
CO2	3	3	3	3	3	3	3	3	3	3
CO3	2	2	3	2	3	3	3	2	2	3
CO4	2	2	2	2	3	2	2	2	2	3
CO5	3	3	3	3	3	3	3	3	2	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## Syllabus

### UNIT I

#### Transcendental and polynomial equations:

Rate of convergence – Polynomial equations: Descartes’ Rule of Signs - Iterative Methods: Birge-Vieta method - Bairstow’s method.

### UNIT II

#### System of Linear Algebraic equations and Eigen Value Problems:

Error Analysis for Direct methods – Iteration methods - Eigen values and Eigen vectors – Jacobi method for symmetric matrices - Power method.

### UNIT III

#### Interpolation and Approximation:

Hermite Interpolation - Piecewise and Spline Interpolation .

### UNIT IV

#### Differentiation:

Numerical Differentiation – Optimum choice of Step length – Extrapolation methods .

## UNIT V

### Integration:

Numerical Integration - Methods based on undetermined coefficients : Newton- Cotes methods: Trapezoidal Method - Simpson's Method - Gauss Legendre Integration Methods - Lobatto Integration Methods.

## UNIT VI

### Self -Study for Enrichment:

Direct Method - Graeffe's root squaring method - Gauss Seidel Iteration method - Bivariate Interpolation : Lagrange Bivariate interpolation - Partial Differentiation - Gauss-Chebyshev Integration Methods.

### Text Book

Jain. M. K, Iyengar. S. R. K. and Jain. R. K. Seventh Edition, (2019), *Numerical Methods for Scientific and Engineering Computation*, New Age International (P) Limited Publishers, New Delhi.

### Chapters and Sections

UNIT-I	Chapter 2	Sections 2.5 and 2.9( Page No. 83 - 93)
UNIT-II	Chapter 3	Sections 3.3 – 3.5, 3.7, 3.11
UNIT-III	Chapter 4	Sections 4.5 and 4.6
UNIT- IV	Chapter 5	Sections 5.2 - 5.4
UNIT- V	Chapter 5	Sections 5.6 (Page No. 348) and 5.8(Page No. 356-365, 380-382)

### Reference Books

1. Jain. M. K, (1983), *Numerical Solution of Differential Equations*, New Age International Pvt Ltd.,
2. Samuel. D. Conte and Carl. De Boor, (1988), *Elementary Numerical Analysis*, Mc Graw-Hill International.
3. Kendall E. Atkinson, (1989), *An Introduction to Numerical Analysis*, John Wiley & Sons.

### **Web Links**

1. [https://www.youtube.com/watch?v=hTVjuH6J\\_C8](https://www.youtube.com/watch?v=hTVjuH6J_C8)
2. <https://www.youtube.com/watch?v=EMPyjetvaDg>
3. <https://www.youtube.com/watch?v=YkrSgTBznek>
4. <https://www.youtube.com/watch?v=-fE3I-usIKk>
5. <https://www.youtube.com/watch?v=gyyKvonahXk>

### **Pedagogy**

Power point presentations, Group Discussions, Seminar, Quiz, Assignment.

### **Course Designers**

2. Ms. R. Soundaria
3. Dr. P.Sudha

**ELECTIVE COURSE – I (EC)  
MATHEMATICAL MODELLING**

(2022-2023 Onwards)

Semester I	Internal Marks: 25		External Marks:75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22PMA1EC1B	MATHEMATICAL MODELLING	ELECTIVE I	6	3

**Course Objective**

- **Analyze** the different mathematical models through Ordinary differential equation and Differential Equations.
- **Understand** the implementation of graph theoretical models.
- **Summarize** and implementation the kinds of Difference equations.

**Prerequisite**

Classification of ordinary differential equations,

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

CO Number	CO Statement	Cognitive Level
CO1	On the successful completion of the course, students will be able to Classify the models through Ordinary Differential equations.	K3
CO2	Evaluate the systems of Ordinary Differential equations for various models.	K4
CO3	Examine the Planetary motions through Ordinary Differential equations of second order.	K4
CO4	Explain the basic concepts of Difference equation.	K4
CO5	Compute various types of models through Difference equation.	K3

## Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	3	3	3	3	3	2	2	2	3
CO2	2	3	3	2	2	2	3	2	2	3
CO3	2	2	3	3	3	3	3	2	3	3
CO4	3	3	2	2	3	3	3	3	2	2
CO5	2	2	3	3	2	3	2	2	2	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## Syllabus

### UNIT I

#### Mathematical Modelling through Ordinary Differential Equations of First order :

Mathematical Modelling Through Differential Equations- Linear Growth and Decay Models – Non-Linear Growth and Decay Models – Compartment Models – Mathematical Modelling in Dynamics Through Ordinary Differential Equations of First Order.

### UNIT II

#### Mathematical Modelling through Systems of Ordinary Differential Equations of First Order :

Mathematical Modelling in Population Dynamics – Mathematical Modelling of Epidemics Through Systems of Ordinary Differential Equations of First Order – Compartment Models Through Systems of Ordinary Differential Equations – Mathematical Modelling in Medicine, Arms Race, Battles and International Trade in Terms of Systems of Ordinary Differential Equations – Mathematical Modelling in Dynamics Through Systems of Ordinary Differential Equations of First Order.

### UNIT III

#### Mathematical Modelling Through Ordinary Differential Equations of Second Order:

Mathematical Modelling in Planetary Motions – Mathematical Modelling in Circular Motion and Motion of Satellites – Mathematical Modelling Through Linear Differential Equations of Second Order.

## UNIT IV

### Mathematical Modelling Through Difference Equations :

The Need for Mathematical Modelling Through Differential Equations: Some Simple Models – Basic Theory of Linear Difference Equations with Constant Coefficients – Mathematical Modelling Through Differential Equations in Economics and Finance– Mathematical Modelling Through Differential Equations in Probability Theory.

## UNIT V

### Mathematical Modelling through Graphs :

Situations that can be Modelled Through Graphs – Mathematical Models in Terms of Directed Graphs–Mathematical Models in Terms of Signed Graphs–Mathematical Models in Terms of Weighted Digraphs.

## UNIT VI

### Self-Study for Enrichment:

Mathematical Modelling of Geometrical problems Through Ordinary Differential Equations of First Order - Mathematical Modelling in Economics Through Systems of Ordinary Differential Equations of First Order - Miscellaneous Mathematical Models Through Systems of Ordinary Differential Equations of Second Order - Mathematical Modelling Through Differential Equations in Population Dynamics and Genetics - Mathematical Modelling in Terms of Unoriented Graphs.

### Text Books

1. J N Kapur, (2001). *Mathematical Modelling*. New Age International (P) Limited, Publishers, New Delhi.

UNIT-I Chapter 2: Sections 2.1 to 2.5

UNIT-II Chapter 3 Sections 3.1 to 3.3 & 3.6

UNIT-III Chapter 4 Sections 4.1 to 4.3

UNIT- IV Chapter 5 Sections 5.1 to 5.3 & 5.5

Chapter 7 Sections 7.1 to 7.4

UNIT- IV Chapter 15 Sections 15.1 to 15.3.6 [2]

Chapter 16 Sections 16.2 to 16.2.5, 16.5, 16.5.1 to 16.5.3 [2].



### Reference Books

1. Bimal K.Mishra & Dipak K.Satpathi (2008). *Mathematical Modeling Applications, Issues and Analysis*. Ane Books Pvt. Ltd.
2. Kapur.J.N,(1981), *Mathematical Models in Biology and Medicine*, Affiliated East –West Press Pvt Limited, New Delhi.

### Web Links

1. <https://www.youtube.com/watch?v=3Yfsh1SnGIw>
2. <https://www.youtube.com/watch?v=EdtwK8KSwoO>
3. <https://www.youtube.com/watch?v=zcz5GhkylY>
4. <https://www.youtube.com/watch?v=-wVCKOvceok>
5. <https://www.youtube.com/watch?v=BZwp8gAxxUc>

### Pedagogy

Power point Presentations, Group Discussions, Seminar, Quiz, Assignment and Smart Classroom.

### Course Designer

1. Dr R. Buvanewari

**ELECTIVE COURSE – I(EC)  
BOUNDARY VALUE PROBLEMS  
(2022-2023 Onwards)**

Semester I	Internal Marks: 25	External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22PMA1EC1C	BOUNDARY VALUE PROBLEMS	ELECTIVE I	6	3

**Course Objective**

- **Gain** expertise and confidence in proving theorems to progress in mathematical studies.
- **Analyze** the implementation of boundary value problem through various models.
- **Summarize** the various aspects of boundary value problem.

**Prerequisite:**

- Exposure on Fourier series and Differential Equations.

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Apply real world scenarios in order to solve the problems using multiple approaches.	K3
CO2	Classify Boundary value problems and learn their distinguishing qualitative properties.	K3
CO3	Relate the applications of Laplace and Poisson Equations	K3
CO4	Determine the understanding of Fourier Bessel Series	K4
CO5	Analyze Dirichlet Problems and its solutions in various Regions.	K4

## Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	3	3	3	3	3	2	2	2	3
CO2	2	3	3	2	2	2	3	2	2	3
CO3	2	2	3	3	3	3	3	2	3	3
CO4	3	3	2	2	3	3	3	3	2	2
CO5	2	2	3	3	2	3	2	2	2	3

“1” – Slight (Low) Correlation –

“2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation –

“-” indicates there is no correlation.

## Syllabus

### UNIT I

One-sided Derivatives- An Integration Formula – Preliminary Theory – A Fourier Theorem- Discussion of the Theorem.

### UNIT II

Formal and Rigorous Solutions – The Vibrating String, Initially Displaced – Discussion of the Solution – Prescribed Initial Velocity – Nonhomogeneous Differential Equations – Elastic Bar- Temperatures in a Bar.

### UNIT III

A Dirichlet Problem – Fourier Series in Two Variable – An Application of Fourier Integrals – Temperatures  $u(x,t)$  in an Unlimited Medium

Fourier-Bessel Series-Temperatures in a Long Cylinder-Heat Transfer at the Surface of the Cylinder.

### UNIT IV

Dirichlet Problems in Spherical Regions – Steady Temperature in a Hemisphere.

## UNIT V

Cauchy Criterion for Uniform Convergence – Abel’s Test for Uniform Convergence – Uniqueness of Solutions of the Heat Equation – Example – Solutions of Laplace’s or Poisson’s Equation.

## UNIT VI

### Self-Study for Enrichment:

Other Forms of Fourier Series – The Orthonormal Trigonometric Functions - Other Boundary Conditions - Observations and Further Examples - Vibration of a circular Membrane - Other Orthogonal Sets - An Application.

### Text Books

1. Ruel V Churchill. (1963). Fourier Series and Boundary Value Problems (Second Edition). McGraw-Hill Book Company.

UNIT-I Chapter 4 Sections 38 to 42

UNIT-II Chapter 7 Sections 55 to 61

UNIT-III Chapter 7 Sections 63 to 66

Chapter 8 Sections 78 to 80

UNIT-IV Chapter 9 Sections 89 to 90

UNIT-V Chapter 10 Sections 92 to 96

### Reference Books

1. Raisinghania, M.D. (2014). Ordinary and Partial Differential Equations. S.Chand & Company Pvt.Ltd.
2. George F Simmons, (2003). Differential Equations with Applications and Historical Notes. Tata McGraw-Hill Publishing Company.
3. Sankara Rao, K. (2019). Introduction to Partial Differential Equations. Prentice-Hall of India.

### Web Links

1. <https://www.youtube.com/watch?v=m8aIO-GQkXE>
2. <https://www.youtube.com/watch?v=AgyeJEO2a-k>
3. [https://www.youtube.com/watch?v=O\\_HgMWx4a5w](https://www.youtube.com/watch?v=O_HgMWx4a5w)
4. <https://www.youtube.com/watch?v=1tDkXMdbvDg&t=119s>
5. <https://www.youtube.com/watch?v=USOmOW-IN3I>

**Pedagogy**

Power point presentations, Group Discussions, Seminar, Quiz, Assignment.

**Course Designer**

1. Ms. P.Geethanjali.



**MINUTES OF THE VIRTUAL BOARD OF STUDIES MEETING OF PG & RESEARCH DEPARTMENT OF PHYSICS, CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS) HELD ON THURSDAY, MAY 5, 2022 @ 10.30 A.M.**

The following members attended the meeting:

(1) Dr.G. Maheswari	Chairperson&Head
(2) Dr. T. R. Seshadri	Subject Expert
(3) Dr. R. Nagalakshmi	Subject Expert
(4) Prof.S.Rajaseker	Subject Expert
(5) Mrs. A. Santhakumari	Industrial Expert
(6) Mrs. C. Mercy Gnana Malar	Alumna
(7) Dr. S. Gowri	Member
(8) Dr. R. Meenakshi	Member
(9) Dr. R. Gayathri	Member
(10) Ms.S.Priya	Member
(11) Ms. D. Devi	Member
(12) Ms. A. Mary Girija	Member
(13) Dr. K. Kannagi	Member
(14) Ms. N. Manopradha	Member
(15) Ms. RA.Kiruthika	Member
(16) Dr. B. Anitha	Member
(17) Ms. J. Aarthi	Member
(18) Dr. M. Kavimani	Member
(19) Dr. T. Noorunnisha	Member
(20) Ms. R. Mekala	Member

The Agenda for the meeting was as follows:

**1. ITEM NO. BOS/06/01**

Ratification to replace the Skill Based Elective-II Courses, Physics concepts through Simulation (19UPH5SBE2A) with Physics concepts through Animation-Practical(19UPH5SBE2AP)/Cell Phone Servicing(19UPH5SBE2B) with Household Appliances Servicing-Practical (19UPH5SBE2BP) and Skill Based Elective –III Courses, Web Designing(19UPH5SBE3A) with Web Designing-Practical (19UPH5SBE3AP)/ Electrical Wiring(19UPH5SBE3B) with Electrical Wiring-Practical (19UPH5SBE3BP) of B.Sc., Physics Programme (2020-2021batch and onwards) in Semester-V and recommend to Academic Council, Cauvery College for Women(Autonomous),Tiruchirappalli-18.

**2. ITEM NO.BOS/06/02**

To Consider and approve the Second Allied I of III Semester and Second Allied II of IV Semester for B.Sc., Computer Science with Cognitive Systems Programme (2021-2022 batch and onwards) and recommend to Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli-18.

**3. ITEM NO. BOS/06/03**

To Consider and approve the Program Specific Outcome (PSO), the Program Structure and I Semester Syllabus of B.Sc., Physics Programme (2022-2023 batch and onwards) and recommend to Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli-18.

**4. ITEM NO. BOS/06/04**

To Consider and approve the Program Specific Outcome (PSO), the Program Structure and I Semester Syllabus of M.Sc., Physics Programme (2022-2023 batch and onwards) and recommend to Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli-18.

**5. ITEM NO. BOS/06/05**

To suggest panel of names for appointment of Examiners to the Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli-18.

**6. ITEM NO. BOS/06/06**

To discuss about the Internal, External marks, components of Internal Marks for each course.

## **7. ITEM NO. BOS/06/07**

To thank the members of Board of Studies

## **8. ITEM NO. BOS/06/08**

Any other item with the permission of chair.

Dr. G. Maheswari, Chairperson&Head, PG&Research Department of Physics extended the warm welcome to the members. Discussions based on the agenda were carried out.

## **1. RESOLUTION NO. BOS/06/01**

Ratified the Skill Based Elective-II Courses, Physics concepts through Simulation (19UPH5SBE2A) with Physics concepts through Animation-Practical(19UPH5SBE2AP)/Cell Phone Servicing(19UPH5SBE2B) with Household Appliances Servicing-Practical (19UPH5SBE2BP) and Skill Based Elective –III Courses, Web Designing(19UPH5SBE3A) with Web Designing-Practical (19UPH5SBE3AP)/ Electrical Wiring(19UPH5SBE3B) with Electrical Wiring-Practical (19UPH5SBE3BP)of B.Sc., Physics Programme (2020-2021batch and onwards) in Semester-V and recommend to Academic Council, Cauvery College for Women(Autonomous),Tiruchirappalli-18.with the following changes,

Revision of Syllabus of Skill Based Elective-II19UPH5SBE2AP-Physics concepts through Simulation –Practical

- Course title changed as Physics concepts through Animation-Practical

Revision of Syllabus of Skill Based Elective-II 19UPH5SBE2BP Household Appliances Servicing-Practical

- Rectifying problems in Compact Disc Player is removed & Rectifying problems in Smart Watches is added

Revision of Syllabus of 19UPH5SBE3BP-Skill Based Elective-III Electrical Wiring-Practical

- Simple experiments are combined with other experiments

## **2.RESOLUTION NO.BOS/06/02**

Considered and approved the Second Allied I of III Semester and Second Allied II of IV Semester for B.Sc., Computer Science with Cognitive Systems Programme (2021-2022 batch and onwards) and forwarded to Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli-18.



### **3. RESOLUTION NO. BOS/06/03**

Considered and approved the Program Specific Outcome (PSO), the Program Structure and I Semester Syllabus of B.Sc., Physics Programme 2022-2023 batch and onwards and forwarded to Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli-18 with the following changes,

Revision of Syllabus of Core Course-I 22UPH1CC1-Properties of Matter and Acoustics

- Portion for self study is given in each Unit
  - Unit I: Elasticity of rubber like materials
  - Unit II: Harmonic oscillator in Classical Mechanics
  - Unit III: Surface tension of polymeric liquids
  - Unit IV: Viscosity of Nano fluids
  - Unit V: Water Waves: Ripple and Gravity waves
- Core Course title changed as Properties of Matter, Waves and Acoustics
- Instructional hours changed as 22 hours in Unit-I
- Waves are included in Unit-IV

### **4. RESOLUTION NO. BOS/06/04**

Considered and approved the Program Specific Outcome (PSO), the Program Structure and I Semester Syllabus of M.Sc., Physics Programme (2022-2023 batch and onwards) and forwarded to Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli-18 with the following changes,

Revision of Syllabus of Core Course- I 22PPH1CC1-Mathematical Physics

- Portion for self study is given in each Unit
  - Unit I: Exact differential
  - Unit II: Sylvester's theorem, Formation of character table of  $C_{2v}$
  - Unit III: Cauchy's integral formula
  - Unit IV: Finite Fourier cosine transforms
  - Unit V: Laguerre differential equation using power series method, Generating Function, Rodrigues Formula, Recurrence relation, Orthogonality relations
- Order of UNIT-III(Fourier and Laplace's Integral Transforms)and UNIT-IV(Complex Variables) are interchanged
- Topics are included in Unit –II: Rank of a Matrix, System of linear equations, Types of matrix

Revision of Syllabus of Core Course- II 22PPH1CC2-Classical Dynamics and Relativity

- Portion for self study is given in each Unit
  - Unit I: Conservation theorems and concept of symmetry, homogeneity and isotropy properties
  - Unit II: Kepler problem in action angle variables
  - Unit III: Scattering problem to laboratory coordinates and centre of mass frames
  - Unit IV: The motion of a symmetric top under the action of gravity
  - Unit V: Lagrangian and Hamiltonian formulation of relativistic mechanics

- Orders of Unit-II(Central force Problems) and Unit-III (Hamilton's Formulation) are interchanged

Revision of Syllabus of Core Course- III 22PPH1CC3-Electronics

- Portion for self study is given in each Unit
  - Unit I: Gunn Diode
  - Unit II: Binary weighted and R - 2R ladder method
  - Unit III: Astable Multivibrator
  - Unit IV: one digit BCD adder and subtractor using IC 7483, serial and parallel adder units
  - Unit V: Synchronous counter and Ring counter
- Topics are included in Unit-I: Step Recovery diode and photo Multiplier tube
- Topics are included in Unit-II: Solving simultaneous equations

Revision of Syllabus of Core Course- IV 22PPH1CC4-Quantum Mechanics - I

- Portion for self study is given in each Unit
  - Unit I: Alpha emission
  - Unit IV: Coherent state
- Units are rearranged
- Self study portions are revised

#### **5. RESOLUTION NO. BOS/06/05**

Suggested the panel of names to the Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli-18 for appointment of Examiners.

#### **6. RESOLUTION NO. BOS/06/06**

Discussed about the Internal and External component for Project work and theory for B.Sc & M.Sc Physics and forwarded to Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli-18 with changes,

- Project work
  - Internal Component (40 Marks) - Review-I- 20 marks, Review-II 20 marks
  - External component (60 Marks) - Report Valuation-40 marks, Viva Voce-20 marks
- Theory
  - Internal component (25 marks) - Quiz-5 marks, Assignment-5 marks, Seminar-5 marks, CIA-I-5 marks, CIA-II- 5 marks
  - External component (75 marks)

#### **7. RESOLUTION NO. BOS/06/07**

Dr.G.Maheswari, BoS-Chairperson thanked all the members for their suggestions and substantial inputs provided in the meeting.

There being no other matter, the meeting was concluded with a vote of thanks to the chair.

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**  
**NATIONALLY ACCREDITED (III CYCLE) WITH “A” GRADE BY NAAC**  
**ISO 9001:2015 Certified**  
**TIRUCHIRAPPALLI – 18**

**PG AND RESEARCH DEPARTMENT OF PHYSICS**



**B.Sc., PHYSICS SYLLABUS**  
**(2022-2023 Onwards)**

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY-18.**  
**B.Sc., PHYSICS PROGRAMME STRUCTURE**  
**(For the candidates admitted from the Academic year 2022-2023 onwards)**

Semester	Part	Course	Title	Course Code	Inst.Hrs./ Week	Credits	Exam			Total		
							Hrs	Marks				
								Int	Ext			
I	I	Language Course - I (LC)	,f;fhy ,yf;fpak;	22ULT1	6	3	3	25	75	100		
			Hindi Literature & Grammar-I	22ULH1								
			History of Popular Tales, Literature and Sanskrit Story	22ULS1								
			Communication in French -I	22ULF1								
	II	English Language Course -I (ELC)	Functional English for Effective Communication - I	22UE1	6	3	3	25	75	100		
	III	Core Course - I (CC)	Properties of Matter, Waves and Acoustics	22UPH1CC1	5	5	3	25	75	100		
				Core Practical - I (CP)	Physics Practical – I	22UPH1CC1P	3	3	3	40	60	100
				First Allied I	Mathematics – I	22UPH1AC1	4	3	3	25	75	100
				First Allied II	Mathematics – II	22UPH1AC2	4	3	3	25	75	100
	IV	UGC Jeevan Kaushal	Universal Human Values	22UGVE	2	2	3	25	75	100		
<b>Total</b>					<b>30</b>	<b>22</b>				<b>700</b>		

Semester I	Internal Marks: 25		External Marks: 75	
COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
22UPH1CC1	PROPERTIES OF MATTER, WAVES AND ACOUSTICS	CC-I	5	5

### Course Objective

- To build the conceptual understanding of materials with mathematical skills and reviews the prior knowledge of properties of matter.
- To study the basics of bending of beams and its applications.
- To learn the concepts of viscosity and surface tension.
- To study concepts of waves and understand the acoustical phenomena.

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Define the basic ideas of elasticity and acquire the knowledge of experimental ideas of finding elasticity	K1
CO2	Understand the concept of bending movement of a beam in the form of cantilever	K2
CO3	Develop the concepts of surface tension and its methods	K3
CO4	Apply the properties of surface tension in fluids and analyze the capillarity nature in liquids	K3
CO5	Illustrate the concepts of intensity of sound and to Calculate the Reverberation time and identify the factors affecting the acoustics of buildings.	K2

### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	1	3	2	3	2	1
CO2	3	3	2	3	1	3	2	3	2	2
CO3	3	3	2	1	1	3	3	2	2	1
CO4	3	3	3	2	2	3	3	2	3	1
CO5	3	3	3	2	1	3	3	2	2	1

“1” – Slight (Low) Correlation; “2” – Moderate (Medium) Correlation;

“3” – Substantial (High) Correlation; “-” indicates there is no correlation.

## **CORE COURSE – I (CC)**

### **PROPERTIES OF MATTER, WAVES AND ACOUSTICS**

#### **Syllabus**

#### **UNIT- I: ELASTICITY AND BENDING OF BEAMS**

**(22 HOURS)**

Elasticity–Basic ideas–Work done in a strain- Relation between elastic constants and Poisson’s ratio- Twisting couple on a cylinder-Torsional pendulum (with and without weights)- Determination of rigidity modulus and moment of inertia -Bending of Beams-Bending moment- Depression for loaded end of a cantilever-Measurement of Young ‘s modulus- Non-uniform bending (pin and microscope method)- Uniform bending (mirror and telescope method)- Non-uniform and uniform bending of a beam-Koenig ‘s method

#### **Unit -II: HARMONIC OSCILLATIONS**

**(13 HOURS)**

Periodic Motion- Simple Harmonic Motion and Harmonic Oscillator- Energy of a Harmonic Oscillator- Composition of Two Simple Harmonic Motions of Equal Periods in a Straight Line - Lissajous Figures - Damping Force- Damped Harmonic Oscillator-Examples of Damped Harmonic Oscillator-Power Dissipation-Quality Factor-Forced Harmonic Oscillator.

#### **UNIT- III: SURFACE TENSION**

**(10**

**HOURS)**

Surface tension – Definition – Molecular forces – Measurement of angle of contact -Explanation of surface tension on kinetic theory –Excess pressure inside a curved liquid surface – Measurement of surface tension: capillary rise method - drop weight method - surface tension of solids and gases - empirical relations between surface tension and temperature.

#### **UNIT -IV: VISCOSITY**

**(10 HOURS)**

Newtonian and non-Newtonian fluids - critical velocity and Reynolds Number - Viscosity – Streamlined and turbulent motion–Poiseuille’s formula and its correction–Terminal velocity-Stokes formula-Stoke’s method for coefficient of viscosity- Searle’s viscometer- Viscosity of gas- Meyer’s formula

#### **Unit –V: WAVES AND ACOUSTICS**

**(20**

**HOURS)**

Wave Motion- Plane Progressive Harmonic Wave- Intensity of a Wave-Transverse Waves in Stretched Strings- Modes of Transverse Vibrations of Strings- Longitudinal Waves in Rods and Gases-Wave Velocity and Group Velocity-Intensity of sound-Decibel and Bel-Loudness of sound- Reverberation- Factors affecting the architectural acoustics and their remedy-Sound distribution in auditorium-Requisites for good acoustics- Noise and its measurement- Noise reduction sound insulation

#### **Unit-VI: SELF STUDY FOR ENRICHMENT**

Elasticity of rubber-like materials-An Harmonic Oscillator-Surface tension of polymeric liquids -Viscosity of Nano fluids and highly viscous liquids-Water Waves: Ripple and Gravity Waves.

### **TEXT BOOKS**

1. Murugesan, R., (2012). *Properties of Matter and Acoustics*. S.Chand& Co, New Delhi.
2. Newman, F.H., & Searle, V.H. L., (1961). *The General Properties of Matter*. E.Arnold,London.
3. Mathur, D.S., (2010). *ElementsofProperties of Matter*. S. Chand& Company, New Delhi.
4. Khanna, D.R., & Bedi, R.S., (1969). *Textbook of Sound*. Atmaram and sons,New Delhi.
5. Subrahmanyam, N., & BrijLal., (2015). *Textbook of Sound*. Vikas Publishing House, Chennai.

### **REFERENCE BOOKS**

1. Murugesan, R. & KiruthigaSivaprasath, (2012). *Properties of Matter and Acoustics*. S.Chand & Co, New Delhi.
2. Gulati, H.R., (1982). *Fundamentals of General Properties of Matter*. S.Chand & Co, New Delhi
3. Saighal, R.L., (1998). *Text Book of Sound*. S. Chand& Company, New Delhi.
4. Brown, R.C., (2005). *Mechanics and Properties of Matter*. Longmans Green and company,London.
5. David Halliday, Robert Resnick., (2013). *Fundamentals of physics*. Wiley Plus,United Kingdom.

### **Web References**

1. <https://www.insula.com.au/physics/1279/L7.html>
2. <https://www.insula.com.au/physics/1279/L7.html>
3. <https://www.youtube.com/watch?v=CQGJgu-8dmA>
4. <https://hyperphysics.phy-astr.gsu.edu/hbase/pbuoy.html>
5. [https://kanchiuniv.ac.in/coursematerials/Physics%20book\\_Final%20\(1\).pdf](https://kanchiuniv.ac.in/coursematerials/Physics%20book_Final%20(1).pdf)

### **Pedagogy**

Chalk and Talk ,Assignment,Group discussion and quiz

### **Course Designer**

Dr.S.Gowri

<b>Semester I</b>	<b>Internal Marks: 40</b>		<b>External Marks: 60</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>HRS/WEEK</b>	<b>CREDITS</b>
<b>22UPH1CC1P</b>	<b>PHYSICS PRACTICAL– I</b>	<b>CP-I</b>	<b>3</b>	<b>3</b>

#### Course Objective

- To help students enhance their experimental skills.
- To gain hands-on experience with a variety of techniques.
- To learn the basic principles and procedures of laboratory work.

#### Course Outcome and Cognitive Level Mapping

<b>CO Number</b>	<b>CO Statement</b>	<b>Cognitive Level</b>
	On the successful completion of the course, students will be able to	
CO1	Recognize the equipment and get the necessary accessories.	K1
CO2	Demonstrate the use of equipment for various measures.	K2
CO3	Carry out the experiment by arranging and assembling the equipment.	K3
CO4	Compute the physical quantity using the relevant formula after gathering accurate data through observations. Keep a detailed record of all laboratory activities.	K3
CO5	Apply experimental approaches to correlate with physics theory to develop practical understanding.	K3

#### Mapping of CO with PO and PSO

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	1	1	1	2	1	3	2	1	2	1
CO2	2	3	2	2	2	3	3	1	2	1
CO3	1	1	2	3	1	3	2	1	3	1
CO4	2	3	3	3	2	1	3	1	3	2



CO5	3	2	3	3	3	1	3	2	3	2
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“1” – Slight (Low) Correlation; “2” – Moderate (Medium) Correlation;  
“3” – Substantial (High) Correlation; “-” indicates there is no correlation.

## Syllabus

### List of experiments – Any 8

1. Young’s modulus – Uniform bending (Pin and Microscope).
2. Young’s modulus – Cantilever depression (scale and telescope).
3. Static Torsion: Determination of the Rigidity Modulus [N] of a material.
4. Rigidity modulus – Dynamic method.
5. Comparison of the co-efficient of viscosities of two liquids using the Burette method.
6. Surface Tension and Interfacial Surface Tension – Drop weight method.
7. Coefficient of viscosity of liquid – Variable pressure head.
8. Surface Tension – Capillary rise method.
9. Viscosity of liquid – Stoke’s method.
10. Sonometer –determination of frequency of tuning fork.
11. Long focus convex lens - f, R, refractive index-determination.
12. Air wedge – thickness of thin wire.

## Text Book

1. C.C.Ouseph, U.J.Rao & V.Vijayendran, (2016), *Practical Physics and Electronics*. S.Viswanathan, Printers & Publishers Pvt Ltd, Chennai.

## Reference Book

1. Prof.M.N.Namboodirippad, Prof.P.A.Daniel, (1982), *B.Sc., Practical Physics*. G.B.C. Publications, Cochin.

## Web References

1. <https://vlab.amrita.edu/?sub=1&brch=280&sim=550&cnt=1>
2. <https://vlab.amrita.edu/index.php?sub=1&brch=280&sim=1518&cnt=4>
3. <http://amrita.olabs.edu.in/?sub=1&brch=5&sim=225&cnt=4>
4. <http://www.olabs.edu.in/?sub=1&brch=5&sim=224&cnt=2>

## Pedagogy

Demonstration, practical sessions and viva voce

**Course Designer**

Ms.N.Manopradha

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)  
NATIONALLY ACCREDITED (III CYCLE) WITH “A”  
GRADE BY NAAC**

ISO 9001:2015 Certified  
TIRUCHIRAPPALLI – 18

PG & RESEARCH DEPARTMENT OF PHYSICS



M.Sc., PHYSICS SYLLABUS (2022-2024)

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**

**M.SC PHYSICS PROGRAMME STRUCTURE UNDER CHOICE BASED CREDIT SYSTEM  
(For the candidates admitted from the academic year 2022-2023)**

Sem	Course	Course Title	Course Code	Ins Hrs / Week	Credit	Exam Hrs	Marks		Total
							Int	Ext	
I	Core course - I	Mathematical Physics	22PPH1CC1	6	4	3	25	75	100
	Core course - II	Classical Dynamics and Relativity	22PPH1CC2	5	4	3	25	75	100
	Core course - III	Quantum Mechanics - I	22PPH1CC3	6	4	3	25	75	100
	Elective Course - I	Microprocessor and Microcontroller	22PPH1EC1A	5	4	3	25	75	100
		Non- Destructive Evaluation Techniques	22PPH1EC1B						
		Astrophysics	22PPH1EC1C						
	Core Practical - I	Physics Practical - I (General and Electronics)	22PPH1CC1P	8	4	3	40	60	100
<b>TOTAL</b>				<b>30</b>	<b>20</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>500</b>

Semester -I	Internal Marks: 25		External Marks: 75	
Course Code	Course Title	Category	Hrs / Week	Credit
22PPH1CC1	Mathematical Physics	CC - I	6	4

### Course Objective

- To provide a strong mathematical foundation in vector calculus, matrices and differential equations
- To learn complex variables and residue theorem technique to solve real integrals appearing in physics problems
- To understand basics of Fourier Transform and Laplace Transform.
- To demonstrate competence with the basic ideas of linear algebra including concepts of linear systems, theory of matrices, eigenvalues, eigenvectors and diagonalization.
- To enhance problem solving skills and to give the ability to formulate, interpret and draw inferences from the mathematical solutions.

### Pre-requisites

- Strong Foundation of vector Analysis.
- Understand and appreciate the properties of complex variable.
- Commendable knowledge of special functions to apply physics problems.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Solve the problems from the matrices and understand the basic group theory concepts used in spectroscopy and nuclear physics	K2
CO2	Apply Fourier and Laplace transform techniques to solve physics problems	K2
CO3	Acquire a sound knowledge in linear vector space which will be necessary to pursue other areas in physics.	K3
CO4	Apply the complex analysis techniques to solve problem in physics, engineering and other mathematical contexts.	K6
CO5	Understand the nature and applications of special functions by their integral representations and symmetries.	K5

#### Mapping of CO with PO and PSO

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	1	2	1	1	3	3	2	2	2
CO2	3	1	1	1	1	3	1	2	2	2
CO3	3	1	1	1	1	3	3	1	2	2
CO4	3	1	3	1	1	1	3	2	2	2
CO5	3	1	2	1	1	3	3	2	3	1

“1” – Slight (Low) Correlation; “2” – Moderate (Medium) Correlation;  
“3” – Substantial (High) Correlation; “4” – Indicates there is no correlation.

**Core course -I**  
**Mathematical Physics**

**UNIT -I: Vector Analysis** **(18 hours)**

Vector integration – Line integral– Surface integral – Flux – Volume integral – Green’s theorem – Stokes’ theorem – Divergence theorem – Orthogonal curvilinear coordinates – Unit vectors in curvilinear coordinate system – The gradient, divergence, curl and Laplacian in cylindrical and spherical polar coordinates.

**UNIT-II: Matrix and Group theory** **(18 hours)**

Characteristic equation of a matrix – Matrix algebra – Rank of a Matrix – System of linear equations – Types of matrix – Inverse of a matrix – Eigenvalues and eigenvectors – Cayley–Hamilton theorem – Reduction of a matrix to diagonal form – Jacobi method.

Introduction to Group Theory – Group Multiplication Table – Cyclic Group – Subgroup – Cosets – Classes – Invariant Subgroup – Homomorphism and Isomorphism – Reducible and Irreducible Representation – Formation of character table of  $C_{2v}$ –  $SU(2)$  and  $SO(3)$

**UNIT-III: Complex Variables** **(18 hours)**

Complex functions and variables – Condition for a function to be analytic– Complex integration – Cauchy’s theorem – Taylor expansion – Laurent series – Cauchy’s residue theorem – Computations of residue – Evaluation of integrals using residues.

**UNIT-IV: Fourier and Laplace’s Integral Transforms** **(18 hours)**

Fourier’s Transform– Infinite Fourier Sine and Cosine Transforms– Properties of Fourier’s Theorem– Finite Fourier sine and cosine transforms.

Laplace transforms– Properties of Laplace Transforms– Convolution Theorem– Evaluation of Inverse Laplace Transforms by Convolution Theorem– Evaluation of Laplace Transform using Differential Equations.

**UNIT-V: Special Functions** **(18 hours)**

Solution of Differential Equations – Legendre, Hermite and Bessel Differential Equations using Power Series method – Generating Function, Rodrigues Formula, Recurrence relation, Orthogonality relations.

**UNIT-VI: Self-Study for Enrichment**

Exact differential – Sylvester’s theorem– Formation of character table of  $C_{3v}$ – Elementary ideas in Lie Groups and Lie Algebras – Cauchy’s integral formula– Simple applications of Fourier Transforms– Laguerre differential equation .

### Text Books

1. Gupta.B.D., (2015). *Mathematical Physics*. Vikas Publishing House, Mumbai.
2. Satya Prakash., (2014). *Mathematical Physics*. Sultan chand & sons, Newdelhi.
3. Sexena.A.K., (2015). *Mathematical Physics*. Narosa Pub, Newdelhi.
4. Joshi.A.W., (2006). *Matrices and Tensors in Physics*. New Age, Newdelhi.
5. MurraySpiegel., (2009). *Schaum Series of Complex Analysis* .McGraw-Hill, Newyork.
6. Balakrishnan.V., (2018). *Mathematical Physics with Applications*. Indian Academy of Science, Bangalore.

### Reference Books

1. Dass, H.K., &RamaVerma., (2018).*Mathematical Physics*. S.Chand & Co, New Delhi.
2. Pipes, L.A.,&Harvill,L.R., (1970).*Mathematical Physics for Engineering*. McGraw-Hill, Newyork.

### Web References

1. <https://nptel.ac.in/courses/115/106/115106086/>
2. <https://nptel.ac.in/courses/115/103/115103036/>
3. <https://www.classcentral.com/course/swayam-mathematical-methods-in-physics-1-23045>

### Pedagogy

Chalk and Talk, Seminar, Assignment, Power point Presentation, Group discussion and Quiz

### Course Designer

Dr.R.Gayathri

Semester - I	Internal Marks : 25	External Marks : 75		
Course Code	Course Title	Category	Hrs/Week	Credits
22PPH1CC2	CLASSICAL DYNAMICS AND RELATIVITY	CC - II	5	4

### Course Objectives

- To acquire Basic Knowledge about Lagrangian formulation
- To expose the students to the fundamentals of Hamiltonian equation.
- To demonstrate knowledge and understanding of the fundamental concepts of Rigid body dynamics
- To acquire knowledge of real time problems in macroscopic view and applying it to the microscopic level

### Pre-requisites

- Knowledge about Lagrange's equation
- Knowledge about Motion under a central force
- Fundamental knowledge of physical concepts , mathematical methods of classical mechanics

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping:

CO Number	CO statement	Knowledge level
	On the successful completion of the course, students will be able to	
CO 1	Explain the basic classical mechanics concepts related to discrete and continuous mechanical systems	K2
CO 2	Solve the mathematical Kepler problem	K3
CO 3	Explain the applications of Hamiltonian's equation	K4
CO 4	Understand the motion of a mechanical system using Lagrange-Hamilton formalism	K5
CO 5	Conceive the Lagrange and Poisson brackets	K6

### Mapping of CO with PO and PSO

COs	PSO1	PSO2	POS3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	3	2	3	2	2	3
CO2	3	2	2	2	3	3	1	2	3	3
CO3	3	3	3	2	3	2	3	2	1	3
CO4	2	3	2	2	2	1	2	3	2	2
CO5	3	2	2	2	2	2	2	3	3	2

“1” – Slight (Low) Correlation; “2” – Moderate (Medium) Correlation;  
“3” – Substantial (High) Correlation; “4” – Indicates there is no correlation.



**Core course - II**

**Classical Dynamics and Relativity**

**UNIT-I: LAGRANGIAN FORMALISM**

**(15 Hours)**

D' Alembert's principle and Lagrange's equation- Application of Lagrange's equations of motion: Linear harmonic oscillator- simple pendulum - Spherical pendulum- Isotropic pendulum – Time dependent constraint - bead sliding on a rotating wire

**UNIT-II: CENTRAL FORCE PROBLEMS**

**(15 Hours)**

Equations of motion and first integrals - The equivalent one - dimensional problem and classification of orbits - The Kepler problem: Inverse square law of force-the Laplace-Runge - Lenz Vector – Scattering in a central force field - Scattering in a central field

**UNIT-III: HAMILTON'S FORMULATION**

**(15 Hours)**

Hamilton's canonical equations from variational principle - simple, compound, isotropic and linear harmonic oscillator- Principle of least action - Application - canonical transformations- Infinitesimal constant transformations- Poisson brackets -Equation of motion in Poisson brackets and its relation - Jacobi method - Action angle variables

**UNIT-IV: RIGID BODY DYNAMICS AND OSCILLATORY MOTION**

**(15 Hours)**

Euler theorem and angles - Angular moment and velocity of a rigid body - Symmetrical top - Applications - Moments and Products of inertia - Euler's equations - Force free motion of symmetrical rigid body

**UNIT -V: RELATIVISTIC MECHANICS**

**(15 Hours)**

Algebra of tensors - quotient law - fundamental tensor - Cartesian tensors - four vectors in special theory of relativity - Lorentz transformations in real four dimensional spaces, Covariant four dimensional formulations - force and energy equations in relativistic mechanics

**UNIT - VI: SELF STUDY FOR ERICHMNT**

Conservation theorems and concept of symmetry, homogeneity and isotropy properties - Scattering problem to laboratory coordinates and centre of mass frames - Kepler problem in action angle variables - The motion of a symmetric top under the action of gravity - Lagrangian and Hamiltonian formulation of relativistic mechanics.

### Text books

1. Herbert Goldstein, (2001) *Classical Mechanics*, Narosa Publishing House , 2nd Edition, New Delhi.
2. Gupta, Kumar & Sharma (2012) *Classical Mechanics*, Pragati Prakashan, India.
3. Takwale R G & Puranik P S (2010) *Classical Mechanics*, Tata Mc Graw Hill Education Pvt. Ltd, Noida.

### Reference books

1. Rana N.C. and Joag P. S (1998) *Classical Mechanics*, Tata McGraw Hill, New Delhi.
2. Joshi A.W. (1995) *Matrices & Tensors in physics*, Wiley Eastern, New York.
3. Douglas Gregory (2008) *Classical Mechanics*, University press , Cambridge.

### Web resources

1. [https://sites.astro.caltech.edu/~golwala/ph106ab/ph106ab\\_notes.pdf](https://sites.astro.caltech.edu/~golwala/ph106ab/ph106ab_notes.pdf)
2. [http://users.uoa.gr/~pjioannou/mechgrad/chapter3\\_Goldstein.pdf](http://users.uoa.gr/~pjioannou/mechgrad/chapter3_Goldstein.pdf)
3. <http://www.cds.caltech.edu/~marsden/wiki/uploads/projects/geomech/Alemicds205final.pdf>
4. <https://www.physics.rutgers.edu/~shapiro/507/book7.pdf>
5. [https://phys.libretexts.org/Bookshelves/Classical\\_Mechanics/Classical\\_Mechanics\\_\(Tatum\)/04%3ARigid\\_Body\\_Rotation/4.08%3A\\_Force-free\\_Motion\\_of\\_a\\_Rigid\\_Symmetric\\_Top](https://phys.libretexts.org/Bookshelves/Classical_Mechanics/Classical_Mechanics_(Tatum)/04%3ARigid_Body_Rotation/4.08%3A_Force-free_Motion_of_a_Rigid_Symmetric_Top)
6. <https://byjus.com/jee/what-is-cartesian-coordinate-system/>
7. [https://phys.libretexts.org/Bookshelves/Classical\\_Mechanics/Variational\\_Principles\\_in\\_Classical\\_Mechanics\\_\(Cline\)/17%3ARelativistic\\_Mechanics](https://phys.libretexts.org/Bookshelves/Classical_Mechanics/Variational_Principles_in_Classical_Mechanics_(Cline)/17%3ARelativistic_Mechanics)

### Pedagogy

Lecture, Seminar, Assignment, power point presentation

### Course Designer

Dr. M. Kavimani

Semester -I	Internal Marks : 25	External Marks : 75		
Course Code	Course Title	Category	Hrs/Week	Credits
22PPH1CC3	Quantum Mechanics - I	CC - III	6	4

### Course Objective

- To study the fundamentals of wave mechanics.
- To study the stationary state and eigen spectrum of systems using time dependent Schrodinger equation.
- To solve the exactly soluble eigen value problems.
- To know the matrix formulation of quantum theory and how it can be used to understand the equation of motion.
- To understand the theory of identical particles and Angular momentum.

### Pre-requisites

- A thorough understanding of mechanics.
- Knowledge of partial differential equation and variable separable method.
- Commendable knowledge of integral and differential calculus.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the completion of the course, students will be able to	Cognitive Level
CO1	Explain the Schrödinger equation	K2
CO2	Solve Commutation relations	K3
CO3	Examine the abstract formalism	K4
CO4	Compare the abstract and matrix representation	K5
CO5	Conceive the angular momentum	K6

### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	3	3	3	2	2	3
CO2	3	2	2	2	2	2	1	2	3	2
CO3	2	3	3	2	3	3	3	1	2	3
CO4	2	3	2	2	2	1	2	2	2	2
CO5	3	2	2	2	1	3	3	2	3	2

“1” – Slight (Low) Correlation; “2” – Moderate (Medium) Correlation;  
“3” – Substantial (High) Correlation; “4” – Indicates there is no correlation.

**Core course - III**  
**Quantum Mechanics - I**

**UNIT-I**

**SCHRÖDINGER EQUATION APPROACH**

**(20 hours)**

Recapitulation of the need for Quantum Mechanics - Thought experiments using Young's double slit - Motivation to introduce a wave function-probabilistic interpretation and Normalization - Time dependent Schrödinger equation (free particle in one dimension) - Generalization to three dimension - Non-normalizable wavefunction and Box normalization - Expectation values: Ehrenfest theorem - Conditions on the wave function-The time-independent Schrödinger equation.

**APPLICATIONS**

Particle in a square well potential - Solution of wave equation in bound states - Energy Eigenvalues - Energy Eigenfunctions - Square potential barrier: Quantum mechanical tunnelling - Reflection at potential barrier and walls -The free particle - Deuteron

**UNIT -II ABSTRACT FORMALISM- I**

**(17 hours)**

Linear vector space - linear operator - Eigenfunctions - Eigenvalues - Hermitian operator- - Commutation relations- Their connection with Poisson Brackets of Classical Mechanics - Properties of Unitary operator- Postulates of quantum mechanics - Observables and their connection with Hermitian operators

**UNIT- III ABSTRACT FORMALISM- II**

**(17 hours)**

Uncertainty relation – Dirac's notation - Equation of motion - Momentum representation - Heisenberg method: Matrix representation of quantum states and operator-Properties of matrix element – Evolution of Schrodinger equation in matrix form - Unitary transformation-Linear harmonic oscillator in matrix form.

**UNIT -IV SIMPLE HARMONIC OSCILLATOR**

**(17 hours)**

**Wave-function approach:**

Schrödinger equation and Energy eigenvalues - Energy eigenfunctions: Series Solution; Asymptotic behavior- Orthonormality - Properties of stationary states

**Abstract Operator Approach:**

Formulation of Harmonic oscillator problem in abstract notation - Creation, Annihilation and number operators- Solving the Eigen value problem in Abstract Notation - Eigen states and Energy eigenvalues

**UNIT-V - ANGULAR MOMENTUM**

**(19 hours)**

**Wave-function approach:**

Angular momentum operators – Commutations relations of Angular momentum - Eigenvalues and eigenfunctions of  $L^2$  and  $L_z$ - Separation of variables- Admissibility conditions on solutions - Spherical harmonics - Physical interpretation - Angular Momentum in Stationary States of Systems with Spherical Symmetry

**Abstract Operator Approach:**

Constructing the Operators for  $J^2$  and  $J_z$  - Raising and lowering operators - Eigenvalues of  $J^2$  and  $J_z$  - Angular momentum matrices -Spin angular momentum – Addition of angular momentum- Clebsch Gordon Coefficients – Selection rules –Recursion relations - Computation of Clebsch Gordon Coefficients

## UNIT-VI Self study for enrichment

De Broglie's Hypothesis-Interpretation of the Wave-Particle Dualism - Photons: The Quantization of Fields -Alpha emission-Coherent state- Parity.

### Text Books

- 1.Mathews P. M.,and Venkatesan K.,(1987),*A Text Book of Quantum Mechanics*,Tata McGraw Hill, New Delhi.
- 2.Aruldas G., (2009),*Quantum Mechanics*,Prentice Hall of India.
3. Ghatak .A., and Lokanathan S., (1987),*A Text Book of Quantum Mechanics*.Tata McGraw Hill, New Delhi.
4. Eugen Merzbacher., (1998),*Quantum Mechanics*, John Wiley & Son,Inc,Newyork

### Reference Books

1. Devanathan V.,(2006) *Quantum Mechanics*,Narosa Publishing House, New Delhi
2. Sciff . L.,(2004) *Quantum Mechanics*,Tata McGraw Hill, New Delhi
3. Shankar.R., (2007),*Principles of Quantum Mechanics*,Springer, New Delhi
4. Thankappan V.K., *Quantum Mechanics.*, Wiley Eastern Ltd, New Delhi

### Pedagogy

Chalk and talk ,Lecture, Seminar, Assignment, power point presentation

### Web References

1. <https://www.britannica.com/science/quantum-mechanics-physics>
2. <https://www.livescience.com/33816-quantum-mechanics-explanation.html>
3. <https://plato.stanford.edu/entries/qm/>

### Course Designer :

Dr.R.MEENAKSHI

Semester -I	Internal Marks: 25		External Marks: 75	
Course Code	Course Title	Category	Hrs / Week	Credit
22PPH1EC1A	MICROPROCESSOR AND MICROCONTROLLER	EC - I	5	4

### Course Objective

- To understand the architecture of 8085 & 8051
- To impart the knowledge about the instruction set
- To understand the interfacing circuits for various applications of 8051 microcontroller.
- To introduce the architecture of advanced microprocessors and microcontroller.
- To analyse the basic concepts and programming of 8051 microcontroller

### Pre-requisites

- Knowledge about Digital circuits
- Understanding of Programming languages

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Explain the architecture of 8085,8051 and impart the knowledge about the instruction set	K2
CO 2	Demonstrate programming proficiency using the various addressing modes and data transfer instructions of microprocessor/Microcontroller	K2
CO 3	Distinguish the instruction set of microprocessor and microcontroller	K4
CO 4	Create program with microprocessor interfaces	K5
CO 5	Develop skill in simple program writing for 8051 & 8085 applications	K6

### Mapping of COwithPO and PSO

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	1	1	3	1	3	3	3	2	2
CO2	2	2	1	3	1	3	3	2	2	3
CO3	1	1	2	3	1	3	3	1	2	2
CO4	1	1	2	3	1	3	3	3	2	1
CO5	2	2	1	3	1	3	3	3	2	1

“1” – Slight (Low) Correlation; “2” – Moderate (Medium) Correlation;  
“3” – Substantial (High) Correlation; “4” – Indicates there is no correlation.

## Syllabus

### Elective Course – I Microprocessor and Microcontroller

#### UNIT -I: ARCHITECTURE OF 8085 (15 hours)

Architecture of 8085 - Data and Address buses - Registers in 8085- Addressing modes in 8085- Pin configuration of 8085 - Instruction set of 8085-Instruction types (based on number of bytes, operation) data transfer - Arithmetic - Logical- Branching- Stack and I/O instructions - Instruction cycles - Fetch operation - Execute operation - Machine cycle and State - Instruction and data flow - Timing diagram - Memory read and memory write cycles.

#### UNIT-II: MICROPROCESSOR PROGRAMING (15 hours)

Assembly language - Stacks - Subroutines - MACRO - Delay Subroutine - Examples of Assembly language Programming - Addition-Subtraction - complement - shift - mask- find the largest and smallest number in a data array - sum of a series - Multiplication - Division -Multi-byte addition and subtraction.

#### UNIT - III: DATA TRANSFER SCHEMES AND APPLICATIONS (15 hours)

Programmed data transfer scheme-Synchronous and Asynchronous and serial data transfer schemes- Interfacing devices- Types of interfacing devices- Programmable Peripheral Interface (PPI- 8255)- Communication interfacing device (Universal Synchronous Asynchronous Receiver Transmitter (USART- 8251))- Programmable Direct Memory Access(DMA) controller (8257).

#### UNIT - IV: MICROCONTROLLER – 8051 (15 hours)

Features of 8051 - Architecture - Pin configuration - Memory organization - External data and program memory - Counters and timers - Serial data input/output - Interrupt structure -External interrupts - Addressing modes - Comparison between microprocessor and microcontroller.

#### UNIT - V: 8051 INSTRUCTION SET AND PROGRAMMING (15 hours)

Instruction set - Data transfer, arithmetic and logical instructions - Boolean variable manipulation instructions - Program and machine control instructions - Simple programs - Addition and subtraction of two 8-bit and 16-bit numbers - Division - Multiplication - Largest number in a set -Sum of a set of numbers.

#### UNIT-VI: SELF STUDY FOR ENRICHMENT

Number Systems and Conversion - Binary Addition and Subtraction- Binary Multiplication andDivision –Rules and laws of Boolean algebra - Demorgan’s Theorems.

#### Text Books

1. Ram B., (2013). *Fundamental of Microprocessor and Microcontroller*.Dhanpat Rai Publications(P) Ltd, New Delhi.
2. Godse A.P. and Godse D.A., (2017). *Microprocessorsand microcontrollers*.Technical Publications,Pune.

#### Reference Books

- 1.Muhammad Ali Mazidi, Jinice Gillispie Mazidi.,(2004) *The 8051 microcontroller and embedded systems*. Pearson Education, Delhi.
2. Nagoorkani A.,(2012) *Microprocessors & Microcontrollers*. RBA Publications, Chennai.

#### Web References

1. [http://nptel.ac.in/noc20\\_ee42](http://nptel.ac.in/noc20_ee42)
2. <http://classcentral.com/course/swayam-micropocessor-an-interfacing-17694>.

#### Pedagogy

Chalk and Talk, Seminar, Assignment, Power point Presentation, Group discussion and Quiz

#### Course Designer

Dr.T.Noorunnisha

Semester -I	Internal Marks: 25		External Marks: 75	
Course Code	Course Title	Category	Hrs / Week	Credit
22PPH1EC1B	NON - DESTRUCTIVE EVALUATION TECHNIQUES	EC - I	5	4

### Course Objective

- To impart the knowledge in various Non-destructive testing (NDT) techniques.
- To overview the concepts and methods employed for NDT of Structures and materials.
- To understand the concept of Ultrasonic testing.
- To understand the limitations of NDT techniques.
- To introduce the concept of Real time Radiography Techniques.

### Pre-requisites

- Knowledge about Acoustics
- Understanding of Ultrasonics
- Basic ideas about X- Rays

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course ,students will be able to	Cognitive Level
CO1	Understand the basic working principles of various NDT methods and importance of NDT.	K2
CO 2	Demonstrate the limitations of NDT techniques and codes.	K2
CO 3	Compare Non-destructive testing and Mechanical testing.	K4
CO 4	Outline Real time Radiography Techniques.	K4
CO 5	Test the instrumentation techniques with the aid of basic Principles.	K5

### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	1	1	1	1	3	3	3	2	2
CO2	2	1	1	1	2	3	3	2	2	1
CO3	1	1	1	1	1	3	3	3	2	2
CO4	1	1	1	1	1	3	3	1	2	1
CO5	1	2	1	1	2	3	1	3	1	2

“1” – Slight (Low) Correlation; “2” – Moderate (Medium) Correlation;  
“3” – Substantial (High) Correlation; “4” – Indicates there is no correlation.



## Syllabus

### Elective Course – I Non - Destructive Evaluation Techniques

#### UNIT - I: OVERVIEW OF NDT (15 hours)

Overview of NDT - NDT Versus Mechanical testing - Overview of the Non-Destructive Testing Methods for the detection of manufacturing defects- Merits and limitations - Visual inspection - Unaided and aided - Visual Examination- Optical aids used for visual inspection-Applications.

#### UNIT - II: SURFACE METHODS (15 hours)

Liquid Penetrant Testing- Basic principles – Procedure for penetrant testing - Penetrant testing materials - Testing methods - Applications and limitations - Magnetic Particle Testing Principle- Magnetizing techniques- Procedure-Equipment used for MPT- Limitations-Eddy Current Testing principles- Applications –Limitations.

#### UNIT -III: RADIOGRAPHY (15 hours)

Radiography Basic principle - X ray source - production of X rays – High energy X ray source - Properties of X rays and gamma rays- radiographic imaging -Inspection techniques - Applications - Limitations - Safety in radiography.

#### UNIT - IV:ULTRASONIC TESTING (15 hours)

Ultrasonic Testing - Ultrasonic transducers-Inspection methods- Techniques for normal beam inspection - Techniques for angle beam inspection - Flaw characterization techniques - detection equipment - Modes of display- Immersion testing- Applications - Advantages- Limitations.

#### UNIT - V: ACOUSTIC EMISSION (15 hours)

Acoustic Emission - Testing Principles of Acoustic Emission Testing -Techniques- Applications - Thermography: Contact and non contact inspection methods – Heat sensitive paints and other coatings – Heat sensitive papers – Advantages and limitations – Instrumentations and methods – Applications.

#### UNIT-VI: Self Study for Enrichment

Basic properties of sound beam - Introduction to Non-Destructive Testing Methods – Various NDT method – Fundamentals of x-Rays.

#### Text Books

1. Dr.BaldevRaj, T.Jayakumar and M.Thavasimuthu.,(2018).*Practical Non- Destructive Testing.*, Narosa Publications, New Delhi.
2. Ravi Prakash.(2010). *Non-Destructive Testing Techniques.*, New AgeInternational Publishers.

#### Reference Books

1. BarryHull&Vernun John.,(1988).*Non Destructive Testing.*, Springer
2. Hull B., (2012). *Non-destructive Testing.*, Springer Verlag., Springer Verlag
3. Charles,J. Hellier.,(2013). *Handbook of Nondestructive evaluation.*,McGrawHill, New York
4. Aquil Ahmad Leonard J. Bond.,(1989) *Non Destructive Examination and Quality Control, Metals Handbook.*,American Metals Society,Metals Park,OH.

#### Pedagogy

Chalk and Talk, Seminar, Assignment, Power point Presentation, Group discussion and Quiz

#### Course Designer

Dr.T.Noornisha

Semester -I	Internal Marks: 25		External Marks: 75	
Course Code	Course Title	Category	Hrs / Week	Credit
22PPH1EC1C	Astrophysics	EC - I	5	4

### Course Objective

1. To provide the basic concepts of Astrophysics
2. To acquire the knowledge of the physical universe and its evolution
3. To learn the positional astronomy with measuring of distance and angular positions of celestial objects
4. To understand the basics of cosmology
5. To understand the principles of physics in the study of astronomical objects

### Pre-requisites

1. A thorough knowledge in Mechanics and Relativity
2. Basic Knowledge in Calculus
3. A basic insight in Electromagnetism

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Explain the Positional Astronomy: Measurement of distances, and angular positions of celestial objects.	K2
CO2	Identify the Physical Principles involved in stellar processes. Structure and evolution of stars	K3
CO3	Examine the physics of the formation of White Dwarfs and Neutron stars	K4
CO4	Explain the types of Galaxies, dynamics of stars in a galaxy and its implication for dark matter.	K5
CO5	Discuss the Expansion of the Universe and evolution of temperature in the Universe	K6

#### Mapping of CO with PO and PSO

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	1	1	1	3	3	3	2	3
CO2	2	2	1	1	1	2	2	3	1	3
CO3	3	2	2	1	1	2	2	3	1	3
CO4	3	2	2	1	1	2	2	3	1	3
CO5	3	2	2	1	1	2	2	3	1	3

“1” – Slight (Low) Correlation; “2” – Moderate (Medium) Correlation;  
“3” – Substantial (High) Correlation; “4” – Indicates there is no correlation.

## Syllabus

### Elective Course – I Astrophysics

#### UNIT-I Distance measurements

(15 hours)

Historical measurement of the Radius of the Earth Distance to Moon and Sun –Parallax method to measure the distance to nearby stars – Distance to inner planets – Cepheid Variables and distance to nearby Galaxies. Angular coordinates to describe angular positions on the Celestial Sphere – RA and Declination

#### UNIT-II Stellar structure

(15 hours)

Virial Theorem –application of virial theorem to stellar systems – Formation of stars – Hertzsprung Russell Diagram – main sequence – Mass – Luminosity – Temperature relations of stars in Main Sequence – Post main sequence evolution of stars

#### UNIT-III Compact Objects

(15 hours)

Formation of White dwarf and neutron stars – Mass estimation of relativistic and non-relativistic white dwarf – Chandrasekhar Mass limit – Mass of Neutron stars – Binary stars in a co rotating frame – Lagrange points – Qualitative aspects of mass transfer and accretion disk formation.

#### UNIT-IV Galaxies

(15 hours)

Types of Galaxies – Hubble's tuning fork diagram – dynamics of stars in galaxies – rotation curve in spiral galaxies – velocity distribution of stars in Elliptical Galaxies– Problems on density profile calculation using different rotation curves.

#### UNIT-V Basic Cosmology

(15 hours)

Newtonian derivation for the expansion of the Universe – Hubble's law –Radiation and matter in Cosmology – evolution of radiation Temperature in the Universe – Basics of Cosmic Microwave Background Radiation

#### UNIT-V: Self-Study for Enrichment

Concept of Zenith – Nadir– Star clusters- types of binaries – the Discovery of Dark Matter– the importance of 21 cm radiation.

#### Text Books

1. Frank H. Shu., (1982). *The physical universe –An introduction to astronomy*. University Science books.
2. Bhatia V. B., (2001). *A Textbook of Astronomy and Astrophysics with Elements of Cosmology*. Narosa Publishing House.
3. Abhyankar K.D., (1999). *Astrophysics: Stars and Galaxies*. Universities Press.

#### Reference Books

1. Shapiro S.L., and Teukolsky S. A.,(1983). *Black holes, white dwarfs and neutron stars*. John Wiley.
2. Chandrasekhar S.,(2003). *An introduction to the study of stellar structure*. Dover publications.

#### Web References

1. <https://www.coursera.org/courses?query=astrophysics>
2. [https://onlinecourses.swavam2.ac.in/arp19\\_ap73/preview](https://onlinecourses.swavam2.ac.in/arp19_ap73/preview)

#### Pedagogy

Chalk and Talk, Seminar, Assignment, Power point Presentation, Lecture and Quiz

#### Course Designer

1. Ms. J. Aarthi, Dr. B. Anitha

Semester I	Internal Marks: 40	External Marks: 60		
COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
22PPH1CC1P	PHYSICS PRACTICAL – I (GENERAL AND ELECTRONICS)	CP-I	8	4

#### Course Objectives

1. To determine certain physical constants
2. To demonstrate the concepts of spectrometry and to find physical constants
3. To explore the concepts of electrical discharge in applied magnetic field
4. To explain the operation of IC555 timer as multivibrator
5. To understand properties and characteristics of electronic components and devices

#### Pre-requisites

1. Fundamental knowledge of Physical and optical constants
2. Basic concepts of specific charge of an electron
3. Experimental knowledge of IC555 timer

#### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
CO1	On the successful completion of the course, students will be able to Explain the basics of experimental physics.	K2
CO2	Understand the fundamental physics behind many scientific discoveries through hands on experience.	K2
CO3	Explore the concepts of spectrometry involved in the optic processes.	K3
CO4	Verify experimentally the basic laws of physics	K4
CO5	Develop the skill in handling instruments in the construction of circuits	K6

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	1	2	1	2	2	3	2	1	2	1
CO2	1	3	2	3	1	3	3	2	2	1
CO3	3	3	2	3	2	3	2	3	3	2
CO4	2	3	2	3	3	2	3	2	3	2
CO5	3	2	3	3	3	2	2	2	3	2

“1” – Slight (Low) Correlation; “2” – Moderate (Medium) Correlation;  
“3” – Substantial (High) Correlation; “4” – Indicates there is no correlation.

## Syllabus

# PHYSICS PRACTICAL – I (GENERAL AND ELECTRONICS)

## List of experiments (General And Electronics)

### Any TEN Experiments

1. Determination of  $q$ ,  $n$ ,  $\sigma$  by elliptical fringes method
2. Determination of Rydberg's constant using spectrometer
3. Determination of wavelength of monochromatic source by Michelson's interferometer.
4. Charge of an electron by spectrometer
5. Study of Hall Effect in a semiconductor
6. Determination of  $e/m$  of electron by magnetron method
7. Design and study of Astable and monostable multivibrators using IC555
8. Design and study of Wein bridge oscillator Using op- amp
9. Design and study of Phase Shift oscillator Using op- amp
10. Operation of shift register using SISO, SIPO, PIPO
11. Construction of dual Regulated Power supply
12. Frequency divider using IC555.
13. Characteristics of SCR/Characteristics of DIAC/Characteristics of TRIAC

## TEXT BOOKS

1. Ouseph, C.C., Rao, U.J., & Vijayendran, V., (2009). *Practical Physics and Electronics*. S. Viswanathan, Printers & Publishers Pvt Ltd, Chennai.
2. Dr. Somasundaram, S., (2012). *Practical Physics*. Apsara Publications, Chennai.

## REFERENCE BOOKS

1. Dunlap, R.A., (1988). *Experimental Physics: Modern Methods*. Oxford University Press, New Delhi.
2. Jones, B.K., (1986). *Electronics for Experimentation and Research*. Prentice-Hall.
3. Zbar, P.B., Malvino, A.P., & Miller, M.A., (1994). *Basic Electronics: A Text-Lab Manual*. Tata Mc-Graw Hill, New Delhi.

## Web References

1. <https://www.msuniv.ac.in/Download/Pdf/b2efcbdbc4be452>
2. <https://www.studocu.com/in/document/reva-institute-of-technology-and-management/bachelors/msc-electronics-lab-student-copy/17586392>
3. <https://www.vlab.co.in/broad-area-physical-sciences>

## Pedagogy

Demonstration, practical sessions and viva voce

## Course Designer

Dr.S.Gowri

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**  
**B.Sc., PHYSICS PROGRAMME STRUCTURE**  
**UNDER CHOICE BASED CREDIT SYSTEM**  
**(For the candidates admitted from the academic year 2020-2021 onwards)**

Sem	Part	Course	Title	Course code	Inst Hrs/week	Credit	Exam Hrs	Marks		Total	
								Int	Ext		
V	III	Core Course-V (CC)	Optics	19UPH5CC5	5	5	3	25	75	100	
		Core Course-VI (CC)	Atomic and Nuclear Physics	19UPH5CC6	5	5	3	25	75	100	
		Core Course-VII (CC)	Analog Electronics	19UPH5CC7	6	5	3	25	75	100	
		Core Practical- V (CP)	Physics Practical-V	19UPH5CC5P	3	3	3	40	60	100	
		Major Based Elective-I	Materials Science	19UPH5MBE1A	5	5	3	25	75	100	
	Laser Physics		19UPH5MBE1B								
	IV	Skill Based Elective-II	Physics concepts through Animation -Practical	20UPH5SBE2AP	2	2	3	40	60	100	
			Household Appliances Servicing - Practical	20UPH5SBE2BP							
		Skill Based Elective-III	Web Designing - Practical	20UPH5SBE3AP	2	2	3	40	60	100	
			Electrical Wiring - Practical	20UPH5SBE3BP							
	UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100		
	V	Extra Credit Course	Swayam Online Course	To be fixed later	As per UGC Recommendations						
	<b>Total</b>					<b>30</b>	<b>29</b>				<b>800</b>

<b>Semester-V</b>	<b>PHYSICS CONCEPTS THROUGH ANIMATION - PRACTICAL</b>	<b>Hours/Week-2</b>	
<b>Skill Based Elective - II</b>		<b>Credits-2</b>	
<b>Course Code-20UPH5SBE2AP</b>		<b>Internal 40</b>	<b>External 60</b>

### **Objective**

- To provide a basic skills in Simulation and Photoshop
- To Create a physics oriented animations using Flash package
- To expose the Photoshop tools to prepare physics oriented objects

### **Course Outcomes**

On the successful completion of the course, the students will be able to:

<b>CO Number</b>	<b>CO statement</b>	<b>Knowledge level</b>
CO1	Develop the skills to simulate physics concepts	K3
CO2	Construct the animation of physics oriented objects using flash	K3
CO3	Construct the basic circuit diagram of physics using photoshop	K3

### **Mapping with Programme Outcomes**

<b>COs</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	S	M	S	S	S
CO2	S	M	S	S	S
CO3	S	M	M	S	S

**S-Strong; M-Medium; L-Low**

**Skill Based Elective – II A**  
**PHYSICS CONCEPTS THROUGH ANIMATION**

**Syllabus**

**List of Practicals (Any 8)**

1. Create and animate Shape Tween
2. Create an animation for bouncing a ball
3. Create an animation of Simple Pendulum
4. Create an animation of Atomic Model
5. Create an animation of Dispersion of Light
6. Create an animation of Projectile Motion
7. Create an animation of Law of Gravitation
8. Create an animation of Newton's Law
9. Create an animation of Kepler's law of ellipses
10. Draw a simple Physics Circuit

**Text Books**

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Kogent Learning Solutions	Flash CS6 in simple Steps	Dreamtech Press	2013	Revised Edition
2.	DT Editorial Services	Photoshop CS6 in Simple Steps	Dreamtech Press	2018	New Edition

**Reference Book**

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Daven Brown and et.al.,	Web Development for the Designer	Macmillan	1997	First Edition

**Web References**

1. <https://www.udemy.com/course/animation-in-flash/>
2. <http://www.floobynooby.com/flashcourseA.html>

**Pedagogy**

Practical demonstration, Power Point Presentation

**Course Designer**

Ms. J. Aarthi



<b>Semester-V</b>	<b>HOUSEHOLD APPLIANCES SERVICING - PRACTICAL</b>	<b>Hours/Week-2</b>	
<b>Skill Based Elective - II</b>		<b>Credits-2</b>	
<b>Course Code- 20UPH5SBE2BP</b>		<b>Internal 40</b>	<b>External 60</b>

### **Objective**

- To create knowledge about the basic safety practices.
- To provide basic knowledge about household appliances and its maintenance.

### **Course Outcomes**

On the successful completion of the course, the students will be able to:

<b>CO Number</b>	<b>CO Statement</b>	<b>Knowledge Level</b>
CO1	Understand the working function of each household appliances	K2
CO2	Analyse the capacity power consumption for each appliance	K3
CO3	Identify the problems arises in household appliances	K3

### **Mapping with Programme Outcomes**

<b>COs</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	S	M	M	S	S
CO2	S	M	M	S	M
CO3	S	M	S	M	S

**S-Strong; M-Medium; L-Low**

## Skill Based Elective – II B

### HOUSEHOLD APPLIANCES SERVICING - PRACTICAL

#### Syllabus

#### List of Practicals (Any 8)

1. Troubleshooting of Electric Short Circuits.
2. Repairing and maintenance of Tube Light.
3. Identification of problems in Ceiling Fan.
4. Troubleshooting of Iron Box.
5. TV Repair for beginners.
6. Rectifying problems in Induction Plate.
7. Troubleshooting of Geyser.
8. Repairing and maintenance of Air Conditioner.
9. Troubleshooting of Automatic Electric Dryer.
10. Rectifying problems in Smart Watches.

#### Text Books

S. No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Eric Kleinert	Troubleshooting and Repairing Major Appliances	McGraw-Hill	2013	-
2.	Homer L. Davidson	Consumer Electronics Troubleshooting & Repair Handbook	McGraw-Hill	1999	-

#### Reference Book

S. No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	H. Brooke Stauffer and John E. Traister	Electrician's Troubleshooting and Testing Pocket Guide	McGraw-Hill	2007	Third Edition

**Web Reference**

<https://www.galvinpower.org/how-to-fix-short-circuits/>

**Pedagogy**

Demonstration and Practical Sessions

**Course Designer**

Ms. R. Mekala

<b>Semester-V</b>	<b>WEB DESIGNING - PRACTICAL</b>	<b>Hours/Week-2</b>	
<b>Skill Based Elective - III</b>		<b>Credits-2</b>	
<b>Course Code- 20UPH5SBE3AP</b>		<b>Internal 40</b>	<b>External 60</b>

### Objectives

- To understand the basic concepts in web designing.
- To create and develop a web page.

### Course Outcome

On the successful completion of the course, the students will be able to:

<b>CO Number</b>	<b>CO statement</b>	<b>Knowledge Level</b>
CO1	Discuss the basic ideas for create the web page	K2
CO2	Demonstrate the structure and working in a website programme	K2
CO3	Utilize the website	K3
CO4	Develop and design the web pages	K3
CO5	Illustrate formatting and linking website pages	K3

### Mapping with Program Outcomes

<b>Cos</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	M	S	M	M	S
CO2	M	S	M	S	S
CO3	M	M	S	M	S
CO4	M	S	M	S	S
CO5	S	M	M	M	S

**S**-Strong; **M**-Medium; **L**-Low

**SKILL BASED ELECTIVE-III A**  
**WEB DESIGNING -PRACTICAL**

**Syllabus**

**List of experiments (Any 8)**

1. Create a web page to demonstrate font variations.
2. Create a web page illustrating text formatting tags.
3. Prepare a sample code to illustrate three lists in HTML.
4. Create a HTML page with 7 separate lines in different colors. State color of each line in its text.
5. Write the HTML code to form a table.
6. Create a web page using form elements.
7. Create your personal website.
8. Construct a HTML code to design your own Curriculum Vitae.
9. Create a website to explain the physics experiments.
10. Design a webpage using HTML for a scientific supplier.

**Text Books**

<b>S.No</b>	<b>Authors</b>	<b>Title of the book</b>	<b>Publishers</b>	<b>Year of Publication</b>	<b>Edition</b>
1.	Weixel, Fulton, Barkslade, Morse	Multimedia Basics	Eswar Press	2004	-

## Reference Books

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	R. N. Srivastava	Web Technology	Global Academic Publishers & Distributors	2011	First edition
2.	Daniel Gray	Web Design Fundamentals Hand Book	Sun Rise Printers Shahdara, Delhi	2000	First edition

## Web References

<https://www.w3schools.com/html>

## Pedagogy

Power Point presentation, Practical demonstration

## Course Designer

Dr. B. Anitha

<b>Semester-V</b>	<b>ELECTRICAL WIRING- PRACTICAL</b>	<b>Hours/Week-2</b>	
<b>Skill Based Elective - III</b>		<b>Credits-2</b>	
<b>Course Code- 20UPH5SBE3BP</b>		<b>Internal 40</b>	<b>External 60</b>

### Objective

- To acquire an experience to handle basic electrical equipment.
- To impart knowledge on electrical wiring practically.

### Course Outcomes

On the successful completion of the course, students will be able to

<b>CO Number</b>	<b>CO Statement</b>	<b>Knowledge Level</b>
CO1	Understand the fundamental concepts involving electrical wiring	K1
CO2	Recognize basic electrical equipments.	K1
CO3	Explain domestic wiring procedures practically	K2
CO4	Construct different wiring system	K3
CO5	Build hands on experience to fabricate simple electrical appliance at home.	K3

### Mapping with Programme Outcomes

<b>COs</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	L	S	S	M	M
<b>CO2</b>	M	S	S	M	M
<b>CO3</b>	S	M	S	S	M
<b>CO4</b>	M	S	S	S	S
<b>CO5</b>	M	M	S	S	M

**S** – Strong; **M** – Medium; **L** - Low

**Skill Based Elective – III B**  
**ELECTRICAL WIRING- PRACTICAL**

**Syllabus**

**List of experiments (Any 8)**

1. Replacement of a Fuse wire at home, Fitting of lamp in a lamp holder, Three pin plug connection.
2. Wire up a circuit in conduit system one lamp controlled by one switch .
3. Wire up a circuit in conduit system two lamps (in series) with one switch.
4. Wire up a circuit in conduit system two lamps (in parallel) with one switch.
5. Stair case lighting system using two-way switch.
6. Fluorescent Lamp Wiring.
7. Corridor wiring
8. Decorative serial LED light connection at home
9. Fabrication of Extension Board (One Switch & One Socket)
10. Residential house wiring using Switches, Fuse, Indicator, Lamp and Energy meter.

**Text Books**

S.No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Bawa H.S	Workshop Practice	Tata McGraw – Hill Publishing Company Limited,	2007	-
2.	Jeyachandran K.Natarajan S. & Balasubramanian S	A Primer on Engineering Practices Laboratory	Anuradha Publications	2007	-
3.	Del Toro	Electrical Engineering Fundamentals	Pearson Education, NewDelhi, .	1989	Second edition

**Reference Book**

S.No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Jeyapoovan T., Saravanapandian M. & Pranitha S	Engineering Practices Lab Manual	Vikas PUBLISHING House Pvt.Ltd	2006	-
2.	Kannaiah P. & Narayana K.L	Manual on Workshop Practice	Scitech Publications	1999	-



## **Web References**

1. <https://www.instructables.com/Serial-LED-Light-Using-Multi-Color-LEDs/>
2. <https://www.instructables.com/Make-Your-Own-Extension-Board/>

## **Pedagogy**

Demonstration and Practical sessions

## **Course Designer**

sDr. T.Noorunnisha



**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS) TRICHY-18**

**PG DEPARTMENT OF CHEMISTRY**

**MINUTES OF BOARD OF STUDIES**

**The VI Virtual Board of Studies Meeting for the Department of Chemistry held on Monday, 25.04.2022 at 11.00 A.M via Google Meet.**

The board of study members considers and approves the curriculum and syllabus of UG and PG Programme first year ODD semester Chemistry course in the academic year of 2022-2023.

The following members attended the meeting:

- |                                    |   |
|------------------------------------|---|
| 1. Mrs. P. Pungayee Alias Amirtham | Chairperson & Head                          |
| 2. Dr. R. Thiruneelakandan         | University Nominee, Anna University         |
| 3. Dr. P. Prabhu                   | Subject Experts, Madras University          |
| 4. Dr. V. Padmini                  | Subject Experts, Madurai Kamaraj University |
| 5. Ms. U. D. Lingeswari            | Member Alumna                               |
| 6. Dr. G. Sivasankari              | Member                                      |
| 7. Mrs. A. Sharmila                | Member                                      |
| 8. Mrs. P. Thamizhini              | Member                                      |
| 9. Dr. V. Sangu                    | Member                                      |
| 10. Dr. K. Shenbagam               | Member                                      |
| 11. Dr. C. Rajarajeswari           | Member                                      |
| 12. Dr. R. Subha                   | Member                                      |
| 13. Ms. S. Jeevitha                | Member                                      |
| 14. Dr. K. Uma Sivakami            | Member                                      |
| 15. Dr. S. Saranya                 | Member                                      |
| 16. Dr. S. Devi                    | Member                                      |

The following had expressed their inability to attend the meeting due to their preoccupation:

1. Ms. T. Indhumathi

## **Minutes of the Sixth Meeting of the BoS**

### **The Minutes of the meeting as follows:**

#### **RESOLUTION NO. BOS/06/01**

Consider and approve the PSO, the programme structure and I semester syllabus of B.Sc., Chemistry for 2022-2023 batch and onwards and forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following changes

Revision of the syllabus of Core course 19UCH1CC1- General Chemistry

Unit IV has been changed to Structure of Solids.

Portion for Self study is given in each unit.

Unit I: Electronic configuration of polyelectronic atoms, Calculation of screening constant and effective nuclear charge

Unit II: Lewis electron dot structure, Oxidation State and valency of element

Unit III: Comparison of reactive intermediates based on their stability

Unit IV: Coordination numbers of cations and anions in ionic crystals from radius ratio, Difference between ionic and covalent crystals

Unit V: Do and Don't in the Science Lab.

**Resolved to approve the PSO, the Programme Structure and I semester syllabus of B.Sc., Chemistry for 2022 -2023 batch and onwards and forwarded to the Academic Council, Cauvery college for Women (Autonomous), Trichy-18.**

#### **RESOLUTION NO.BOS/06/02**

Consider and approve the syllabus of **First Allied Course -I ( Biochemistry -I )and First Allied course -II ( Biochemistry -II )** for B.Sc., Chemistry 2022 -2023 batch and onwards and forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18

#### **Suggestions made by the Panel members during the discussion:**

- In Biochemistry – I, Unit – IV addition of the topic glucose oxidase.
- In Bio Chemistry practical, need a demonstration for blood group analysis from clinical experts.

**Resolved to approve the syllabus of First Allied Course -I ( Biochemistry -I )and First Allied course -II ( Biochemistry -II ) for B.Sc., Chemistry for 2022 -2023 batch and onwards and forwarded to the Academic Council, Cauvery college for Women (Autonomous), Trichy-18.**

**RESOLUTION NO. BOS/06/03**

Consider and approve the PSO, the programme structure and I semester syllabus of M.Sc., Chemistry for 2022-2023 batch and onwards and forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following changes

Revision of syllabus of **Core course19PCH1CC1- Organic Chemistry -I**

Portion for Self study is given in each Unit

Unit I: Rules of resonance – tautomerism - steric effects

Unit II: Enantiomers and diastereomers

Unit III:  $SE_1$  and  $SE_2$  and  $SE_i$  mechanisms

Unit IV: Selection rules for cycloaddition reactions , Thermal and photochemical reaction of pericyclic reaction.

Unit V: MCPBA reagent and Wilkinson's catalyst.

Unit III changed from Aliphatic Nucleophilic & Electrophilic Substitution to Aliphatic Substitution Reactions

As suggestion given by the Bos members few of the topics have been deducted from the UNIT I, II, III, IV and V.

Revision of syllabus of **Core course19UCH1CC2- Inorganic Chemistry -I**

Portion for Self-study is given in each Unit

Unit I: High-valent metal Clusters and halide Clusters.

Unit II: Importance and applications of coordination compounds.

Unit III: Template effect and its applications for the synthesis of macrocyclic ligands.

Unit IV: Fullerene Ligands and Metal complexes

Unit V: Reinecke's salt chemical actinometer.

Unit IV changed from Supramolecular to Organometallic Compounds.

Small reduction of the topics in Unit I,III and V.

## Revision of syllabus of **Core course 19UCH1CC3- Physical Chemistry -I**

Portion for Self-study is given in each Unit

Unit I: Eigen values and Eigen functions- physical interpretation of wave function- orthogonality and normalization theorems.

Unit II: Space group and Schoenflies symbol for point group.

Unit III: Kinetics of fast reactions-flow method and relaxation methods.

Unit IV: Comparison of physisorption and chemisorption and types of adsorption isotherms.

Unit V: Difference between thermodynamic and statistical probability.

As per the suggestions given by the BOS members few of the topics have been removed from the syllabus and introduced new topics. Unit III has been changed to Kinetics of complex and fast reaction and Unit IV as Surface Chemistry and catalysis.

### **RESOLUTION NO. BoS/06/04**

Ratification to change Part III Major Based Elective-I course titled **Analytical Chemistry/ Chemistry of Biomolecules** bearing the Course Code **19UCH5MBE1A/ 19UCH5MBE1B** as **Nuclear and Industrial Chemistry/ Basics of Nano Science and Nanotechnology** with Course Code **22UCH5MBE1A/ 22UCH5MBE1B** in Semester V of B.Sc., Chemistry Programmes from 2020-2021 batch and onwards.

BOS members suggested to include recent reference books Basics of Nanoscience and Nanotechnology.

**Resolved that Ratification to change Part III Major Based Elective-I course titled Analytical Chemistry/ Chemistry of Biomolecules bearing the Course Code 19UCH5MBE1A/19UCH5MBE1B as Nuclear and Industrial Chemistry/ Basics of Nano Science and Nanotechnology with Course Code 22UCH5MBE1A/ 22UCH5MBE1B in Semester V of B.Sc., Chemistry Programmes from 2020-2021 batch and onwards be approved & recommended to Academic Council, Cauvery College for Women (Autonomous), Trichy -18.**

#### **RESOLUTION NO. BoS/06/05**

Ratification to rename Part IV Skill Based Elective-III course titled **Water Treatment Technology (P)** bearing the Course Code **19UCH5SBE3AP** as **Water Analysis Practicals** with Course Code **22UCH5SBE3AP** in Semester V of B.Sc., Chemistry from 2020-2021 batch and onwards as suggestion made by the Panel of Examiner.

**Resolved that Ratification to rename Part IV Skill Based Elective-III course titled Water Treatment Technology (P) bearing the Course Code 19UCH5SBE3AP as Water Analysis Practicals with Course Code 22UCH5SBE3AP in Semester V of B.Sc., Chemistry from 2020-2021 batch and onwards be approved & recommended to Academic Council, Cauvery College for Women (Autonomous), Trichy -18.**

#### **RESOLUTION NO. BoS/06/06**

Ratification to change Part III Core Practical course titled **Gravimetric Analysis and Analytical Techniques (P)** bearing the Course Code **19UCH6CC6P** as **Gravimetric Analysis and Physical Constant Practicals** with Course Code **22UCH6CC6P** in Semester VI of B.Sc., Chemistry Programmes from 2020-2021 batch and onwards.

**“Resolved that Ratification to change Part III Core Practical course titled Gravimetric Analysis and Analytical Techniques (P) bearing the Course Code 19UCH6CC6P as Gravimetric Analysis (P) with Course Code 22UCH6CC6P in Semester VI of B.Sc., Chemistry Programmes from 2022-2023 batch and onwards be approved & recommended to Academic Council, Cauvery College for Women (Autonomous), Trichy -18.**

#### **RESOLUTION NO. BoS/06/07**

Ratification to change Part III Major Based Elective-II Theory course titled **Nuclear and Industrial Chemistry/ Basics of Nanoscience and Technology** bearing the Course Code **19UCH6MBE2A/ 19UCH6MBE2B** as Practical course of **Analytical Techniques Practicals /Chemistry of nanoscience Practicals** with Course Code **22UCH6MBE2AP/ 22UCH6MBE2BP** in Semester VI of all Under Graduate Programmes from 2020-2021 batch and onwards.

**“Resolved that to change Part III Major Based Elective-II Theory course titled Nuclear and Industrial Chemistry / Basics of Nanoscience and Technology bearing the Course**

**Code 19UCH6MBE2A/ 19UCH6MBE2B as Major Based Elective Practical course of Analytical Techniques Practicals / Chemistry of Biomolecules (P) with Course Code 22UCH6MBE2AP/ 22UCH6MBE2BP in Semester VI of B.Sc., Chemistry Programmes from 2020-2021 batch and onwards be approved & recommended to Academic Council, Cauvery College for Women (Autonomous), Trichy -18.**

**RESOLUTION NO BoS/06/08**

To implement Part III Project Work course titled **Dissertation** bearing the Course Code **22UCHPW** in Semester VI of B.Sc., Chemistry Programmes from 2020-2021 batch and onwards.

**“Resolved that the Project Work course be approved & recommended Part III Project Work course titled Dissertation bearing the Course Code 22UCHPW in Semester VI of B.Sc., Chemistry Programmes from 2020-2021 batch and onwards. The course content would be followed as per BoS members recommendations to Academic Council, Cauvery College for Women for further action”.**

**RESOLUTION NO. BoS/06/09**

To suggest Panel of names to the Academic Council, Cauvery college for Women (Autonomous), Trichy-18 for appointment of examiners.

**The Panel of examiners were suggested and approved by the members of BoS to be forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.**

**RESOLUTION NO. BoS/06/10**

To Thank the Members of Board of Studies of Department of Chemistry, Cauvery College for Women (Autonomous), Trichy-18.

**The Chairperson expressed her deep sense of gratitude and thanks to all members of Board of Studies of Chemistry.**

**(Chairman)**

**Board of Studies**



**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**

**NATIONALLY ACREDITED (IICCYCLE) WITH "A" GRADE BY NAAC**

**ISO 9001:2015 Certified**

**TIRUCHIRAPPALLI**

**PG DEPARTMENT OF CHEMISTRY**



**B.Sc., Chemistry**

**Syllabus**

**2022-2023 and Onwards**

# **Cauvery College for Women (Autonomous)**

## **PG Department of Chemistry**

### **Vision**

- To progress into a centre of superiority in Chemistry that will blend state-of-the-art practices in professional teaching in a communally enriching way, with the holistic progress of the students as its prime emphasis.

### **Mission:**

- To produce graduates committed to integrity, professionalism and lifelong learning by widening their knowledge horizons in range and depth.
- To awaken the young minds and discover talents to achieve personal academic potential by creating an environment that promotes frequent interactions, independent thought, innovations, modern technologies and increased opportunities.
- To enhance the quality through basic and applied research frameworks, and encourage the students to take part in entrance and competitive examinations for higher studies and career.
- To enhance services to the community and build partnerships with the industry.

## **PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)**

<b>PEOs</b>	<b>Statements</b>
<b>PEO1</b>	<b>LEARNING ENVIRONMENT</b> To facilitate value-based holistic and comprehensive learning by integrating innovative learning practices to match the highest quality standards and train the students to be effective leaders in their chosen fields.
<b>PEO2</b>	<b>ACDEMIC EXCELLENCE</b> To provide a conducive environment to unleash their hidden talents to nurture the spirit of critical thinking and encourage them to achieve their goal.
<b>PEO3</b>	<b>EMPLOYABILITY</b> To equip students with the required skills in order to adapt the changing global scenario and gain access to versatile career opportunities in multidisciplinary domains.
<b>PEO4</b>	<b>PROFESSIONAL ETHICS AND SOCIAL RESPONSIBILITY</b> To develop a sense of social responsibility by formulating ethics and equity to transform students into committed professionals with a strong attitude towards the having a strong attitude towards the development of the nation.
<b>PEO5</b>	<b>ENVIRONMENT AND SUSTAINABILITY</b> To understand the impact of the professional solutions in societal and environmental contexts and demonstrate the knowledge for an overall sustainable development.

## **PROGRAMME OUTCOMES FOR B.Sc., BASIC SCIENCE PROGRAMMES**

PO No.	<b>Programme Outcome</b> <b>On completion of BA/ B.Sc Programme, the students will be able to</b>
PO1	<b>Domain knowledge:</b> Analyse, design and develop solutions by applying firm fundamental concepts of basic sciences and expertise in discipline.
PO2	<b>Problem solving:</b> Ability to think rationally, analyse and solve problems adequately with practical knowledge to assess the environmental issues
PO3	<b>Creative thinking and Team Work:</b> Develop prudent decision-making skills and mobility to work in teams to solve multifaceted problems.
PO4	<b>Employability:</b> Self-study acclimatize them to observe effective interactive practices for practical learning enabling them to be a successful science graduate.
PO5	<b>Life Long Learning:</b> Assure consistent improvement in the performance and arouse interest to pursue higher studies in premium institutions.

**PROGRAMME SPECIFIC OUTCOMES FOR B.Sc CHEMISTRY PROGRAMME`**  
**B.Sc., CHEMISTRY CURRICULUM [2022 – 2023 Onwards]**

<b>PSO NO</b>	<b>Programme Specific Outcomes` Students of B.SC Chemistry will be able to</b>	<b>POs Addressed</b>
PSO1	Afford a firm foundation in Chemistry that stresses scientific reasoning, analytical problem solving with a molecular perspective	PO1, PO2
PSO2	Acquire knowledge in theoretical and practical tools to exemplify entirely in the working environment.	PO4, PO5
PSO3	Inculcate scientific temperament and create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.	PO3, PO4
PSO4	Scale up of chemical process after designing, optimization and analysis for developing products required for society.	PO4
PSO5	Expand the knowledge available opportunities related to chemistry in the government services through public service commission particularly in the field of food safety, health inspector, pharmacist etc.	PO4, PO5

**Cauvery College for Women (Autonomous), Trichy-18**  
**UG Programme Structure (Science)**  
**(For the Candidates admitted from the Academic year 2022-2023 onwards)**

Sem	Part	Course	Title	Subject Code	Inst. Hrs. /	Credits	Exam			Total
							Hrs.	Marks		
								Int.	Ext.	
I	I	Language Course – I (LC) / Other Languages	Ikkala Illakiyam	22ULT1	6	3	3	25	75	100
			Hindi Literature & Grammar - I	22ULH1						
			History of Popular Tales Literature and Sanskrit Story	22ULS1						
			Basic French-I	22ULF1						
	II	English Language Course- I (ELC)	Functional English for Effective Communication -I	22UE1	6	3	3	25	75	100
	III	Core Course – I(CC)	General Chemistry	22UCH1CC1	5	5	3	25	75	100
				22UCH1CC1P	3	3	3	40	60	100
		First Allied I	Mathematics-I /	22UCH1AC1A /	4	3	3	25	75	100
				22UCH1AC1B						
		First Allied II	Mathematics-II /	22UCH1AC2A /	4	3	3	25	75	100
22UCH1AC2BP										
IV	UGC Jeevan Kaushal	Universal Human Values	22UGVE	2	2	3	25	75	100	
					<b>30</b>	<b>22</b>				<b>700</b>
II	I	Language Course- II (LC) /Other Languages	Idaikala Illakiyamum Puthinamum	22ULT2	5	3	3	25	75	100
			Hindi Literature & Grammar-II	22ULH2						
			Poetry, Textual Grammar and Alanakara	22ULS2						

		Basic French-II	22ULF2							
II	English Language Course- II(ELC)	Functional English for Effective Communication-II	22UE2	6	3	3	25	75	100	
III	Core Course – II (CC)	Organic and Physical Chemistry	22UCH2CC2	5	5	3	25	75	100	
	Core Practical-II (CP)	Organic Compounds-Preparation and Qualitative Analysis Practical	22UCH2CC2P	3	3	3	40	60	100	
	Core Course -III(CC)	Material Science	22UCH2CC3	3	3	3	25	75	100	
	First Allied III	Mathematics-III / Biochemistry-II	22UCH2AC3A/ 22UCH2AC3B	4	3	3	25	75	100	
IV	Ability Enhancement Compulsory Course (AECC)-I	Environmental Studies	22UCH2AECC1	2	2	3	25	75	100	
	Ability Enhancement Compulsory Course (AECC)-II	Innovation and Entrepreneurship	22UCH2AECC2	2	1	3	25	75	100	
Extra Credit Course		SWAYAM		As per UGC Recommendation						
				<b>30</b>	<b>23</b>				<b>800</b>	
III	I	Language Course-III (LC) / Other Languages	Kappiyamum Nadagamum	22ULT3	5	3	3	25	75	100
			Hindi Literature & Grammar-III	22ULH3						
			Prose, Textual Grammar and Vakyarchana	22ULS3						
			Intermediate French-I	22ULF3						
	II	English Language Course- II(ELC)	Learning Grammar through Literature-I	22UE3	6	3	3	25	75	100
	III	Core Course– IV (CC)	Inorganic and Physical Chemistry	22UCH3CC4	6	5	3	25	75	100
		Core Practical – III (CP)	Semi-micro Analysis Practical	22UCH3CC3P	3	3	3	40	60	100
		Second Allied I	Physics-I	22UCH3AC4	4	3	3	25	75	100
		Second Allied II	Physics Practical	22UCH3AC4P	4	3	3	40	60	100
	IV	Generic Elective Course -I	Chemistry in Everyday life/	22UCH3GE1/	2	2	3	25	75	100
For those who studied Tamil Under Part-I		Basic Tamil	22ULC3BT1/							

	a) Basic Tamil for other language students								
	b) Special Tamil for those who studied Tamil up to +2 but opt for other languages in degree program	Special Tamil	22ULC3ST1						
	Extra Credit Course	SWAYAM		As per UGC Recommendation					
				<b>30</b>	<b>22</b>				<b>700</b>

**15 Days INTERNSHIP during Semester Holidays**

IV	I	Language Course - IV (LC) / Other Languages	Pandaiya Illakkiyam	22ULT4	6	3	3	25	75	100		
			Hindi Literature & Functional Hindi	22ULH4								
			Drama, History of Drama Literature	22ULS4								
			Intermediate French-II	22ULF4								
	II	English Language Course - IV(ELC)	Learning Grammar Through Literature -II	22UE4	6	3	3	25	75	100		
	III	Core Course – V(CC)	Inorganic, Organic and Physical Chemistry	22UCH4CC5	6	5	3	25	75	100		
				Core Practical - IV(CP)	Computational Chemistry Practical	22UCH4CC4P	4	3	3	40	60	100
				Second Allied III	Physics-II	22UCH4AC5	4	3	3	25	75	100
				Internship				2	-	-	-	100
	IV	Generic Elective Course- II For those who studied Tamil Under Part-I	Food Adulterants and Health Care/	22UCH4GE2/	2	2	3	25	75	100		
				a) Basic Tamil for other language students							Basic Tamil/	22ULC4BT2/
				b) Special Tamil for those who studied Tamil up to +2 but opt for other languages in degree program							Special Tamil	22ULC4ST2
			Skill Enhancement	Forensic Chemistry/	22UCH4SEC1A/	2	2	3	25	75	100	



	Course – I	Food Chemistry	22UCH4SEC1B						
		Pesticide Chemistry	22UCH4SEC1C						
	Extra Credit Course	SWAYAM		As per UGC Recommendation					
				<b>30</b>	<b>23</b>				<b>800</b>

V	III	Core Course – VI (CC)	Inorganic Chemistry-I	22UCH5CC6	5	4	3	25	75	100
		Core Course – VII (CC)	Organic Chemistry-I	22UCH5CC7	5	4	3	25	75	100
		Core Course – VIII (CC)	Physical Chemistry-I	22UCH5CC8	6	5	3	25	75	100
		Core Practical – V(CP)	Physical Chemistry Practical	22UCH5CC5P	3	3	3	40	60	100
		Discipline Specific Elective – I	Nuclear and Industrial Chemistry/	22UCH5DSE1A/	5	4	3	25	75	100
	Basics of Nanoscience and Nanotechnology/		22UCH5DSE1B/							
	Dairy Chemistry		22UCH5DSE1C							
	I V	UGC Jeevan Kaushal	Professional Skills	22UGPS	2	1	3	25	75	100
		Skill Enhancement Course – II	Chemistry of Consumer Products Practical	22UCH5SEC2AP/	2	2	3	40	60	100
			Dye Chemistry Practical/	22UCH5SEC2BP/						
			Food Chemistry Practical	22UCH5SEC2CP						
		Skill Enhancement Course – III	Water Analysis Practical/	22UCH5SEC3AP/	2	2	3	40	60	100
			Biofuels Practical/	22UCH5SEC3BP/						
			Chemistry of Biomolecules Practical	22UCH5SEC3CP						
		Extra Credit Course	SWAYAM		As per UGC Recommendation					
				<b>30</b>	<b>25</b>				<b>800</b>	

VI	III	Core Course – IX (CC)	Organic Chemistry-II	22UCH6CC9	6	5	3	25	75	100
		Core Course – X (CC)	Physical Chemistry-II	22UCH6CC10	6	5	3	25	75	100
		Core Practical – VI(CP)	Gravimetric Analysis and Physical Constant Practical	22UCH6CC6P	4	3	3	40	60	100
		Discipline Specific Elective –II	Analytical Techniques Practical/	22UCH6DSE2AP/	3	3	3	40	60	100
			Chemistry of Biomolecules Practical/	22UCH6DSE2BP/						
			Fundamentals of Energy Conservation and Storage Practical	22UCH6DSE2CP						
		Discipline Specific Elective – III	Polymer Chemistry/	22UCH6DSE3A/	5	4	3	25	75	100
	Pharmaceutical Chemistry/		22UCH6DSE3B/							
	Green Chemistry		22UCH6DSE3C							
	Project Work	Project Work	22UCH6PW	5	3	-	-	-	100	
	V	Gender Studies	Gender Studies	22UGGS	1	1	3	25	75	100
		Extension activity	Extension Activities (EA)	22UGEA	0	1	0	-	-	-
					<b>30</b>	<b>25</b>				<b>700</b>
				<b>180</b>	<b>140</b>				<b>4500</b>	

<b>1</b>	<b>Course</b>	<b>No of Courses</b>	<b>Credits</b>	<b>Total Credits</b>
<b>I</b>	<b>Tamil/ Other Language</b>	<b>4</b>	<b>12</b>	<b>12</b>
<b>II</b>	<b>English</b>	<b>4</b>	<b>12</b>	<b>12</b>
<b>III</b>	<b>Core (Theory&amp; Practical)</b>	<b>16</b>		<b>98</b>
	<b>Project Work</b>	<b>1</b>		
	<b>Internship</b>	<b>1</b>	<b>2</b>	
	<b>First Allied</b>	<b>3</b>	<b>9</b>	
	<b>Second Allied</b>	<b>3</b>	<b>9</b>	
	<b>MBE</b>	<b>3</b>		
<b>IV</b>	<b>GEC</b>	<b>2</b>	<b>4</b>	<b>16</b>
	<b>SEC</b>	<b>3</b>	<b>6</b>	
	<b>Universal Human Values</b>	<b>1</b>	<b>2</b>	
	<b>AECC-I-Environmental Studies</b>	<b>1</b>	<b>2</b>	
	<b>Professional Skills</b>	<b>1</b>	<b>1</b>	
	<b>AECC-II-Entrepreneurial Development</b>	<b>1</b>	<b>1</b>	
<b>V</b>	<b>Gender Studies</b>	<b>1</b>	<b>1</b>	<b>02</b>
	<b>Extension Activities</b>	<b>-</b>	<b>1</b>	
		<b>4500</b>		<b>140</b>

**Programme Structure for Science Departments**

The Internal and external marks for theory and practical papers are as follows:

<b>Subject</b>	<b>Internal Marks</b>	<b>External Marks</b>
Theory	25	75
Practical	40	60

### **For Theory:**

- a) The passing minimum for CIA shall be 40% out of 25 marks (i.e. 10 marks)
- b) The passing minimum for End Semester Examinations shall be 40% out of 75 marks (i.e. 30 marks)

### **For Practical:**

- a) The passing minimum for CIA shall be 40% out of 40 marks (i.e. 16 marks)
- b) The passing minimum for End Semester Examinations shall be 40% out of 60 marks (i.e. 24 marks)

#### **Internal Component (Theory)**

Component	Marks
Quiz	05
Assignment & Seminar	10
CIA -I	05
CIA-II	05
<b>Total</b>	<b>25</b>

#### **Internal Component (Practical)**

Component	Marks
Continual performance	05
Observation	05
Model -I	15
Model -II	15
<b>Total</b>	<b>40</b>

## **Question Paper Pattern**

**Answer all the questions**

**PART A (20X1=20)**

**Answer all the questions**

**PART B (5X5=25)**

**Answer any three questions**

**PART C (3X10=30)**

Semester I	Internal Marks: 25		External Marks: 75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22UCH1CC1	GENERAL CHEMISTRY	CORE	5	5

### Course Objectives

- The course reviews the structure of the atom, which is a necessary pre-requisite in understanding the nature of chemical bonding in compounds.
- It discusses the periodicity in properties with reference to the s and p block, which is necessary in understanding their group chemistry.
- It provides basic knowledge about ionic, covalent, metallic bonding and reactive intermediates.
- To understand the crystal structures of ionic compounds and the theoretical aspects of volumetric and Qualitative Inorganic Analysis

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Outline the laboratory safety and management of chemical waste. Explain the bond parameters of the molecules on the basis of hybridization.	K2
CO2	Differentiate common and interfering acid radicals.	K2
CO3	Solve the conceptual questions using the knowledge of the quantum numbers and periodicity in atomic radii, ionic radii, ionization energy and electron affinity of elements.	K3
CO4	Interpret the crystal structure and their related properties of cubic system	K4
CO 5	Formulate the mechanism of organic reactions by recalling and correlating the fundamental properties of the reactants involved.	K5

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	2	2	2	3	2	1	3	2
CO2	3	2	1	2	2	3	3	1	1	2
CO3	3	2	2	3	3	3	3	2	2	3
CO4	3	1	2	3	2	3	3	2	1	2
CO5	3	2	3	3	3	3	3	2	2	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## **Syllabus**

### **UNIT – I ATOMIC STRUCTURE AND PERIODIC PROPERTIES (18 HOURS)**

Atomic Orbitals, quantum, numbers - Principal, azimuthal, magnetic and spin quantum numbers and their significance. Principles governing the occupancy of electrons in various quantum levels-Pauli's exclusion-principle, Hund's rule, Aufbau Principle, (n+1) rule, stability of half-filled and fully filled orbitals. - Classification as s, p, d & f block elements - variation of periodic properties along period and group – Electronegativity scale- Pauling's scale, Allred and Rochow's scale - Mulliken's scale -variation of metallic characters – Factors influencing the periodic properties.

### **UNIT – II CHEMICAL BONDING – I (18 HOURS)**

Chemical Bond - definition - types of chemical bond – Illustration. Intermolecular forces- dipole dipole interaction, induced dipole-induced dipole interaction. Hybridisation - Bond length, Bond energy, Bond angle- factors influencing BL, BE and BA. VB Theory- sp, sp<sup>2</sup>, sp<sup>3</sup> hybridisation- geometry of NH<sub>3</sub>, H<sub>2</sub>O, ClF<sub>3</sub>, IF<sub>3</sub>. VSEPR theory, Molecular Orbital Theory - Homonuclear (H<sub>2</sub>, He<sub>2</sub>, O<sub>2</sub>, O<sub>2</sub><sup>+</sup>, O<sub>2</sub><sup>-</sup>, N<sub>2</sub>, F<sub>2</sub>) and Heteronuclear molecules (CO, NO, HF).

### **UNIT – III BASICS OF ORGANIC COMPOUNDS (18 HOURS)**

IUPAC nomenclature of compounds, Classification, Isomerism, types of isomerism, structural and stereo isomerism, Cleavage of bonds: homolytic and heterolytic cleavages. Inductive, electromeric, mesomeric, resonance, hyperconjugation and steric effects. Reaction intermediates, carbocation, carbanion, free radicals, carbenes and nitrenes - generation, properties, structure and stability.

### **UNIT IV STRUCTURE OF SOLIDS (18 HOURS)**

Crystal Structure: open and closed packed structures- ccp, hcp, covalent network, ionic and molecular structure, packing of ions in ccp and hcp, radius ratio, coordination number in ionic crystals, crystal structures-sodium chloride, zinc blende, wurtzite, rutile, cesium chloride, fluorite (unit cell diagrams). Crystal defects: Schottky and Frenkel defects.

## UNIT- V ANALYTICAL METHODS - I

(18 HOURS)

Storage and handling of chemicals, handling of acids, ethers, toxic and poisonous chemicals and first aid procedure - Volumetric analysis - methods of expressing concentration- Primary and Secondary standards - Different types of titrations - Acid- Base Titrations, Titrimetric method, Iodimetry method - Iodometry Method, Complexometric Titration and Precipitation Titration. Qualitative Inorganic Analysis - Dry Test, Flame Test, Interfering acid radicals - Eliminating of Interfering acid radicals.

## UNIT- VI SELF STUDY FOR ENRICHMENT

**(Not to be included for External examination)**

Electronic configuration of polyelectronic atoms, Calculation of screening constant and effective nuclear charge - Lewis electron dot structure, Oxidation State and valency of element - Comparison of reactive intermediates based on their stability - Coordination numbers of cations and anions in ionic crystals from radius ratio, Difference between ionic and covalent crystals - Do and Don't in the Science Lab.

### **Text Book**

1. Puri, B.R., Sharma, L. R & Kalia, K. K. (2018). Principles of Inorganic Chemistry. Shoban Lal Nagin Chand & Co., New Delhi, 33<sup>rd</sup> edition.
2. Madan, R.D. (2019). Modern Inorganic Chemistry. S. Chand & Company Ltd, 3<sup>rd</sup> edition.
3. Bahl, B.S & Arun Bahl. (2021). Text book of Organic Chemistry. S. Chand & Company Ltd., 22<sup>nd</sup> revised edition.
4. Puri, B.R, Sharma, L.R. & Pathania, M.S. (2022). Principles of Physical Chemistry. Shoban Lal Nagin Chand & Co, New Delhi, 48<sup>th</sup> edition.
5. Gopalan, R., Subramanian, P. S & Rengarajan, K. (2003). Elements of Analytical Chemistry. Sultan Chand & Sons, 2<sup>nd</sup> edition.

### **Reference Books**

1. Soni, P. L. & Mohan Katyal. (2017). Text book of Inorganic Chemistry. Sultan Chand & Sons, 25<sup>th</sup> revised edition.
2. Vogel, A. I. (2000). Text Book of Quantitative Inorganic analysis including Elementary Instrumental Analysis. The English Language Book Society.

### **Web References**

1. <https://www.thoughtco.com/definition-of-quantum-number-604629>
2. [https://www.chemie-biologie.uni-siegen.de/ac/lehre/part1\\_solid\\_state.pdf](https://www.chemie-biologie.uni-siegen.de/ac/lehre/part1_solid_state.pdf)
3. <https://testbook.com/learn/chemistry-vsepr-theory/>

### **Pedagogy**

Chalk and talk, PPT, Discussion, Assignment, Demo, Quiz, Seminar

### **Course Designers**

1. Dr. P. Amirtham
2. Ms. A. Sharmila



Semester I	Internal Marks: 40		External Marks: 60	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs/Week	CREDITS
22UCH1CC1P	GENERAL CHEMISTRY PRACTICAL	CORE	3	3

### Course Objectives

- To learn the techniques of titrimetric analyses.
- To know the estimation of several cations and anions and to know the estimation of total hardness of water.

### Course outcomes

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statements	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Recall the basic principles of volumetric analysis	K1
CO2	Demonstrate the experimental methods of volumetric analysis	K2
CO3	Compare the hardness present drinking water	K2

### Mapping of CO with PO and PSO

CO	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	3	3	3	-	2	3	3	2
CO2	2	2	2	3	2	3	3	3	3	2
CO3	2	3	3	1	2	2	3	3	2	1

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## GENERAL CHEMISTRY PRACTICAL

### Titrimetric Quantitative Analysis

1. Estimation of HCl Vs NaOH using a standard oxalic acid solution
2. Estimation of Na<sub>2</sub>CO<sub>3</sub> Vs HCl using a standard Na<sub>2</sub>CO<sub>3</sub> solution
3. Estimation of oxalic acid Vs KMnO<sub>4</sub> using a standard oxalic acid solution
4. Estimation of Iron (II) sulphate by KMnO<sub>4</sub> using a standard Mohr's salt solution
5. Estimation of Ca (II) Vs KMnO<sub>4</sub> using a standard oxalic acid solution.
6. Estimation of KMnO<sub>4</sub> Vs thio using a standard K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> solution.
7. Estimation of Fe (III) by using K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> using a standard Mohr's salt solution using internal and external indicators.
8. Estimation of copper (II) sulphate by K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> solution
9. Estimation of Mg (II) by EDTA solution
10. Estimation of Ca (II) by EDTA solution
11. Estimation of As<sub>2</sub>O<sub>3</sub> using I<sub>2</sub> solution and standard Arsenous oxide solution.
12. Estimation of chloride (in neutral and acid media)

### II. Applied Experiments

1. Estimation of Total Hardness of water
2. Estimation of Bleaching Powder
3. Estimation of saponification value of an oil
4. Estimation of copper in brass

### Text Books

1. Venkateswaran, V. & Veeraswamy R. and Kuandaivelu. (1997). Basic Principles of Practical Chemistry. 2<sup>nd</sup> edition. New Delhi, Sultan Chand & Sons.
2. Bassett, J. (1985). Text Book of Quantitative Inorganic Analysis. 4<sup>th</sup> edition. ELBS Longman.

### Web Reference

1. <https://www.youtube.com/watch?v=wh6-cYjNNiA>
2. <https://chemlab.truman.edu/files/2015/07/edta.pdf>

3. <https://www.slideshare.net/mithilfaldesai/estimation-of-feii-ions-by-titrating-against-k2-cr2o7-using-internal-indicator>
4. <https://byjus.com/chemistry/titration-of-oxalic-acid-with-kmno4/>
5. <http://www.titrations.info/EDTA-titration-calcium>
6. <https://www.youtube.com/watch?v=qmVQs6Q7tso>

### **Course Designer**

- Dr. C. Rajarajeswari

**FIRST ALLIED COURSE-I (AC)**  
**CALCULUS AND FOURIER SERIES**  
**(2022-2023 Onwards)**

Semester I	Internal Marks: 25		External Marks:75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22UPH1AC1/ 22UCH1AC1	CALCULUS AND FOURIER SERIES	ALLIED	4	3

**Course Objective**

- Explore the students with mathematical methods formatted for their major concepts and train them in basic Integrations.
- Analyze mathematical statements and expressions.
- Evaluate the fundamental concepts of Differentiation and Integration.

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Apply the concepts of successive differentiation and Leibnitz theorem	K3
CO2	Compute and solve integrals of various types using trigonometric substitution and integration by parts	K3
CO3	Explain the properties of definite integrals and evaluate them.	K2
CO4	Classify reduction formula and evaluate double and triple integrals.	K3
CO5	Examine the Fourier series for full range, half range and odd & even functions.	K4

**Mapping of CO with PO and PSO**

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	2	2	2	3	2	2	2	2
CO2	3	2	2	2	2	3	2	2	2	2
CO3	3	2	2	2	2	3	2	2	2	2
CO4	3	2	2	2	2	3	2	2	2	2
CO5	3	2	2	2	2	3	2	2	2	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## Syllabus

### UNIT I

(15 HOURS)

#### Successive Differentiation:

The  $n^{\text{th}}$  derivative – Standard results – Method of splitting the fractional expressions into partial fractions - Trigonometrical transformation – Formation of equations involving derivatives – Leibnitz formula for the  $n^{\text{th}}$  derivative of a product (proof not needed) – A complete formal proof by induction (proof not needed) - Curvature- Circle, radius and center of curvature - Cartesian formula for the radius of curvature–Simple problems in all these.

### UNIT II

(15 HOURS)

#### Evaluation of integrals:

Integration of Rational algebraic functions– Rule (a) – Rule (b) Integration of the form  $\int \frac{lx+m}{ax^2+bx+c} dx$  – Rule (c)- Integration of Irrational functions : Integration of the form  $\int \frac{px+q}{\sqrt{ax^2+bx+c}} dx$  – Integration of the form  $\int \frac{dx}{(x+p)\sqrt{ax^2+bx+c}}$  - Integration of the form  $\int \frac{dx}{a+b \cos x}$  - Integration by Parts.

### UNIT III

(13 HOURS)

#### Reduction Formula:

Properties of definite integrals –Reduction formula (when n is a positive integer) for

1]  $\int e^{ax} x^n dx$  2]  $\int x^n \cos ax dx$  3]  $\int \sin^n x dx$  4]  $\int_0^{\frac{\pi}{2}} \sin^n x \cos^m x dx$  (without proof) and illustrations.

### UNIT IV

(10 HOURS)

#### Double and Triple Integrals:

Definition of the double integral-Evaluation of Double integral(Problems Only)- Change of order and evaluation of the double integral (Problems only).

### UNIT V

(07 HOURS)

#### Fourier Series:

Definition of Fourier Series – Finding the Fourier Coefficients for a given periodic function with period  $2\pi$  - Even and Odd functions.

## UNIT VI

### Self-Study for Enrichment : (Not to be included for External examination)

Radius of curvature when the curve is in Polar co-ordinates - (i)  $\int \frac{dx}{ax^2 + bx + c}$  (ii)  $\int \frac{dx}{\sqrt{ax^2 + bx + c}}$  -

(1)  $\int \cos^n x dx$  (2)  $\int_0^{\frac{\pi}{2}} \cos^n x dx$  -Triple Integrals in simple cases(Problems Only)- Half range Fourier

series: Development in cosine series - Development in sine series.

### Text Books

1. Narayanan, S & Manichavasagam Pillai, T.K. (2015). *Calculus Volume I*. S. Viswanathan Pvt Limited.
2. Narayanan, S & Manichavasagam Pillai, T.K. (2015). *Calculus Volume II*. S. Viswanathan Pvt Limited.
3. Narayanan, S & Manichavasagam Pillai, T.K. (2015). *Calculus Volume III*. S. Viswanathan Pvt Limited.

UNIT-I	Chapter 3:Sections 1.1 to 1.6,2.1,2.2[1] Chapter 10:Sections 2.1 to 2.3 [1]
UNIT-II	Chapter 1:Sections 7.1,7.3,7.4,8(CASE II, CASE V), 9, 12 [2]
UNIT-III	Chapter 1:Sections 11,13.1 to 13.5 [2]
UNIT-IV	Chapter 5:Sections 2.1,2.2,4 [2]
UNIT-V	Chapter 6:Sections 1to 3[3]

### Reference Books

1. Arumugam Issac, S. & Somasundaram. (1999). *Trigonometry & Fourier series*. New Gamma Publishers.
2. Vittal, P. R. (2014). *Allied Mathematics*. Margham Publications.
3. Singaravelu, A. (2003). *Differential Calculus and Trigonometry*. R Publication.

### **Web Links**

1. <https://www.youtube.com/watch?v=tBtF3Lr-VLk&t=64s>
2. <https://www.youtube.com/watch?v=Z4oSGuAZrZM>
3. [https://www.youtube.com/watch?v=w6llnAQX\\_f8](https://www.youtube.com/watch?v=w6llnAQX_f8)
4. <https://www.youtube.com/watch?v=LMcj8o0ERNE>
5. [https://www.youtube.com/watch?v=\\_GAwQGCyWy0](https://www.youtube.com/watch?v=_GAwQGCyWy0)
6. <https://www.youtube.com/watch?v=9X3ggehCFII>

### **Pedagogy**

Power point presentations, Group Discussions, Seminar, Quiz, Assignment.

### **Course Designers**

1. Dr. P. Saranya
2. Ms. L. Mahalakshmi
3. Ms. P. Geethanjali

**FIRST ALLIED COURSE-II (AC)**  
**ALGEBRA, ANALYTICAL GEOMETRY OF 3D & TRIGONOMETRY**  
**(2022-2023 Onwards)**

Semester I	Internal Marks: 25	External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22UPH1AC2/ 22UCH1AC2	ALGEBRA, ANALYTICAL GEOMETRY OF 3D & TRIGONOMETRY	ALLIED	4	3

**Course Objective**

- Analyze the mathematical methods formatted for their major concepts.
- Evaluate the problems in Algebra and Trigonometry.
- Explain the basics of Three-Dimensional geometry.

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Explain various types of matrices and procedures for solving them.	K3
CO2	Explore Binomial, Logarithmic and Exponential series.	K3
CO3	Describe sphere and several concepts of sphere.	K2
CO4	Examine the series expansion of sine, cosines, and tangents in all manners.	K4
CO5	Compute trigonometric operations using hyperbolic and inverse hyperbolic functions.	K3

**Mapping of CO with PO and PSO**

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	2	2	3	2	3	2	2	2	2
CO2	2	2	2	3	2	3	2	2	2	2
CO3	2	2	2	3	2	3	2	2	2	2
CO4	2	2	2	3	2	3	2	2	2	2
CO5	2	2	2	3	2	3	2	2	2	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.



## **Syllabus**

### **UNIT I** **(12 HOURS)**

#### **Series Expansion:**

Application of Binomial Theorem to summation of series – Approximate values – Summation of series by Exponential series - Summation of series by Logarithmic series (Formulae only).

### **UNIT II** **(12 HOURS)**

#### **Matrices:**

Matrix-Special types of Matrices –Scalar multiplication of a matrix-Equality of matrices-Addition of matrices-Subtraction of matrices- Symmetric matrix-Skew symmetric matrix-Hermitian and Skew Hermitian matrix –Multiplication of matrix – Inverse matrix-Inner product-Solution of simultaneous equations-Rank of a matrix-Elementary transformation of a matrix-A system of  $m$  homogeneous linear equations in  $n$  unknowns-Linear dependence and independence of vectors-System of non-homogeneous linear equations - Eigen values and Eigenvectors.

### **UNIT III** **(12 HOURS)**

#### **Three Dimensional Geometry:**

The Sphere – Definition- The equation of a sphere when the center and radius are given-The equation of a sphere to find its center and radius-The length of the Tangent Plane from a point to the sphere – The Plane Section of a sphere – Equation of a circle on a sphere – Intersection of two spheres in a circle.

### **UNIT IV** **(12 HOURS)**

#### **Expansion of Trigonometric functions:**

Expansions of  $\cos n\theta$  and  $\sin n\theta$  -Expansion of  $\tan n\theta$  in powers of  $\tan \theta$  -Expansion of  $\tan(A + B + C + \dots)$  (omitting examples on formation of equations) –Powers of sines and cosines of  $\theta$  in terms of functions of multiples of  $\theta$  – Expansions of  $\cos^n \theta$  when  $n$  is a positive integer – Expansions of  $\sin^n \theta$  when  $n$  is a positive integer – Expansions of  $\sin \theta$  and  $\cos \theta$  in a series of ascending powers of  $\theta$  - The expansions of  $\sin \theta$  and  $\cos \theta$  to find the limits of certain expressions.

### **UNIT V**

#### **Hyperbolic functions:** **(12 HOURS)**

Hyperbolic functions – Relation between hyperbolic functions – Relations between hyperbolic functions and circular functions - Inverse hyperbolic functions.

## **Syllabus**

### **UNIT I**

**(12 HOURS)**

#### **Series Expansion:**

Application of Binomial Theorem to summation of series – Approximate values – Summation of series by Exponential series - Summation of series by Logarithmic series (Formulae only).

### **UNIT II**

**(12 HOURS)**

#### **Matrices:**

Matrix-Special types of Matrices –Scalar multiplication of a matrix-Equality of matrices-Addition of matrices-Subtraction of matrices- Symmetric matrix-Skew symmetric matrix-Hermitian and Skew Hermitian matrix –Multiplication of matrix – Inverse matrix-Inner product-Solution of simultaneous equations-Rank of a matrix-Elementary transformation of a matrix-A system of  $m$  homogeneous linear equations in  $n$  unknowns-Linear dependence and independence of vectors-System of non-homogeneous linear equations - Eigen values and Eigenvectors.

### **UNIT III**

**(12 HOURS)**

#### **Three Dimensional Geometry:**

The Sphere – Definition- The equation of a sphere when the center and radius are given-The equation of a sphere to find its center and radius-The length of the Tangent Plane from a point to the sphere – The Plane Section of a sphere – Equation of a circle on a sphere – Intersection of two spheres in a circle.

### **UNIT IV**

**(12 HOURS)**

#### **Expansion of Trigonometric functions:**

Expansions of  $\cos n\theta$  and  $\sin n\theta$  -Expansion of  $\tan n\theta$  in powers of  $\tan \theta$  -Expansion of  $\tan(A + B + C + \dots)$  (omitting examples on formation of equations) –Powers of sines and cosines of  $\theta$  in terms of functions of multiples of  $\theta$  – Expansions of  $\cos^n \theta$  when  $n$  is a positive integer – Expansions of  $\sin^n \theta$  when  $n$  is a positive integer – Expansions of  $\sin \theta$  and  $\cos \theta$  in a series of ascending powers of  $\theta$  - The expansions of  $\sin \theta$  and  $\cos \theta$  to find the limits of certain expressions.

### **UNIT V**

#### **Hyperbolic functions:**

**(12 HOURS)**

Hyperbolic functions – Relation between hyperbolic functions – Relations between hyperbolic functions and circular functions - Inverse hyperbolic functions.

### **Web Links**

1. <https://www.youtube.com/watch?v=JayFh5EJHcU>
2. <https://www.youtube.com/watch?v=h5urBuE4Xhg>
3. <https://www.youtube.com/watch?v=59z6eBynJuw>
4. <https://www.youtube.com/watch?v=9DvPvJb2N9g>
5. <https://www.youtube.com/watch?v=HOk2XLeFPDk>
6. <https://www.youtube.com/watch?v=G1C1Z5aTZSQ>

### **Pedagogy**

Power point presentations, Group Discussions, Seminar, Quiz, Assignment.

### **Course Designers**

1. Dr. P. Saranya
2. Ms. L. Mahalakshmi
3. Ms. P. Geethanjali

## First Allied Course -I Biochemistry

<b>Semester I</b>	<b>Internal Marks: 25</b>		<b>External Marks: 75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hrs/Week</b>	<b>CREDITS</b>
	<b>BIOCHEMISTRY</b>	<b>ALLIED - I</b>	<b>4</b>	<b>3</b>

### Course Objective

- To describe the chemistry of carbohydrates, proteins and lipids.
- To understand the importance of biomolecules in living organisms.
- To gain knowledge about the diseases occurring due to alterations in the levels of biomolecules.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Understand the mechanism behind digestion and absorption of glucose	K1
CO2	Identify the general pathway of protein metabolism	K2
CO3	Analyze the results of lipid profile	K3
CO4	Realize the role of enzymes and their action in digestion	K2
CO5	Interpret laboratory findings using theoretical concepts of blood and bile	K4

#### Mapping of CO with PO and PSO

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	2	3	2	3	3	2
CO2	3	2	3	3	2	3	1	2	2	3
CO3	3	3	1	2	3	3	3	3	3	3
CO4	3	2	3	2	3	2	1	2	2	2
CO5	3	3	2	2	3	3	3	3	3	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
 “3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## **Syllabus**

### **UNIT I Carbohydrates (13 HOURS)**

Definition of carbohydrate. Digestion and absorption of Glucose, Fate of glucose after absorption (preliminary idea). Intermediary metabolism of carbohydrates -glycogenesis, glycogenolysis, glycolysis, gluconeogenesis. Regulation of blood sugar - normal range - Hypoglycaemia and Hyperglycaemia - glucose tolerance tests - Diabetic Mellitus - Types and symptoms, glycosuria.

### **UNIT II Proteins (13 HOURS)**

Proteins - Definition - Peptide bond formation. Classification of proteins based on its physical properties - Structure of proteins: Primary structure - Secondary structure - Tertiary structure - Denaturation. Absorption, metabolic pool, general pathway of protein metabolism. In born errors of amino acid metabolism - Phenylketonuria, Alkaptonuria (Black urine syndrome) and albinism.

### **UNIT III Lipids (12 HOURS)**

Definition - lipids. Oxidation of fatty acids -  $\beta$ -oxidation cycle of saturated fatty acids. Ketogenesis, Ketosis, Ketolysis, role of liver in fat metabolism. Cholesterol - absorption, factors influencing absorption. Lipid profile - cholesterol, Triglycerides, lipoproteins - HDL and LDL. Fatty liver - Inborn errors of lipid metabolism.

### **UNIT IV Enzymes (12 HOURS)**

Definition, classification, examples - Glucose oxidase - mechanism of enzyme action, Factors influencing enzyme action. Digestive enzymes and their action - salivary digestion, gastric digestion, pancreatic and intestinal digestion. Thyroxine - Agents interfering with the synthesis of thyroid hormone, Diseases associated with abnormal metabolism of thyroxin.

### **UNIT V Blood and Bile Pigments (10 HOURS)**

Blood - functions of plasma proteins - blood groups and Rh factor, coagulation of blood mechanism. Haemoglobin - structure and properties of Hb, metabolism. Bile pigments - examples - Types of Jaundice (preliminary idea).

## UNIT- VI SELF STUDY FOR ENRICHMENT

**(Not to be included for External examination)**

Structure and classification of carbohydrates - Categories of amino acids - Types and functions of lipids - Properties and uses of enzymes - Properties and examples of bile pigments.

### Text Books

1. Ambika, S. (2012). Fundamentals of Biochemistry for Medical Students. (7<sup>th</sup> ed.). Ippincott Williams & Wilkins.
2. Fatima, D., Nallasingam, K., Narayanan, L. M., Arumugam, N., Meyyan, R. P., & Prasanna Kumar, S. (2019). Biochemistry. (7<sup>th</sup> ed.). Saras Publication.
3. Jain, J. L., Jain, S., & Jain, N. (2016). Fundamentals of Biochemistry. (Revised ed.). S Chand & Co Ltd.

### Reference Books

1. Annie Ragland, & Arumugam, N. (2015). Biochemistry and Biophysics. (3<sup>rd</sup> ed.). Saras Publication.
2. Nelson, D. L., & Cox. M. M. (2017). Lehninger Principles of Biochemistry. (7<sup>th</sup> ed.). WH Freeman.
3. Voet, D., Pratt, C. W., & Voet, J. G. (2012). Principles of Biochemistry. (4<sup>th</sup> ed.). John Wiley & Sons.
4. Berg, J. M., Stryer, L., Tymoczko, J., & Gatto, G. (2019). Biochemistry. (9<sup>th</sup> ed.). WH Freeman.
5. Mathews, C. K., Van Holde, K. E., & Ahern, K. G. (2000). Biochemistry. (3<sup>rd</sup> ed.). Pearson.

### Web References

1. [https://www.biologie.ens.fr/~mthomas/L3/intro\\_biologie/2-sucre-lipides-acides-nucleiques.pdf](https://www.biologie.ens.fr/~mthomas/L3/intro_biologie/2-sucre-lipides-acides-nucleiques.pdf)
2. <https://bio.libretexts.org/@go/page/1861>
3. <https://bio.libretexts.org/@go/page/16827>
4. <https://bio.libretexts.org/@go/page/16101>
5. <https://bio.libretexts.org/@go/page/16828>

### Pedagogy

Chalk and talk, PPT, Discussion, Assignment, Demo, Quiz, Seminar

### Course Designer

Dr. S. Saranya

## First Allied Course -II Biochemistry Practical

<b>Semester I</b>	<b>Internal Marks: 40</b>	<b>External Marks: 60</b>		
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hrs / Week</b>	<b>CREDITS</b>
	<b>BIOCHEMISTRY PRACTICAL</b>	<b>ALLIED - II</b>	<b>3</b>	<b>3</b>

### Course Objective

- To expertise the student for analysis of any biological sample for identification of its chemical composition

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Identify the types of buffer and osazone derivatives	K1
CO2	Analyze carbohydrates, proteins and lipids qualitatively	K2
CO3	Apply various techniques for identification of biomolecules	K3
CO4	Evaluate the amount of glucose and proteins present using volumetric analysis	K2
CO5	Understand and interpret biochemical laboratory findings	K3

#### Mapping of CO with PO and PSO

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	2	3	2	2	1	3	2	1
CO2	3	3	2	3	3	3	2	3	3	3
CO3	3	3	3	2	3	3	3	3	3	3
CO4	3	2	2	3	2	3	2	3	3	1
CO5	3	3	3	3	3	3	3	3	3	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
 “3” – Substantial (High) Correlation – “-” indicates there is no Correlation.

## Syllabus

### QUALITATIVE ANALYSIS

#### (i) Preparation

1. Preparation of buffers (acidic, neutral and alkaline) and determination of pH.
2. Preparation of Osazones.

#### (ii) Qualitative Identification

3. Qualitative identification of carbohydrates
  - Monosaccharides : Pentose, Glucose, Fructose, Mannose
  - Disaccharides : Sucrose, Maltose, Lactose
  - Polysaccharides : Starch, Dextrin and Glycogen
4. Qualitative identification of amino acids
  - Aliphatic : Histidine, Arginine, & Proline
  - Aromatic : Tyrosine, Tryptophan, Phenylalanine
  - Sulphur containing amino acids: Cystein, Cystine & Methionine
5. Qualitative identification of lipids - solubility, saponification, acrolein test, Salkowski test, Lieberman-Burchard test.

#### (iii) Isolation

6. Isolation of casein from milk.
7. Isolation of egg albumin from egg white.
8. Isolation of starch from potato.

### QUANTITATIVE ANALYSIS

1. Estimation of glucose.
2. Estimation of protein.

### DEMONSTRATION

1. Blood group test

### Text Books

1. Rajan, S., & Selvi Christy, R. (2018). Experimental Procedures in Life Sciences. CBS Publishers & Distributors.
2. Gnanpragasam, N. S., & Ramamurthy, G. (2013). Organic Chemistry Lab Manual. Viswanathan, S., Printers & Publishers.

### Reference Books

1. Zubay, C. (1986). Biochemistry. Addison Wesley.
2. Wood, W. B. (1981). Biochemistry- A problem Approach. Addison Wesley.

### Web References

1. [http://nec.edu.np/Publications/Chemistry\\_LAB\\_Manual/Experiment%204.pdf](http://nec.edu.np/Publications/Chemistry_LAB_Manual/Experiment%204.pdf)
2. <https://microbenotes.com/osazone-test/>
3. [https://www.mlsu.ac.in/econtents/1616\\_Biochemical%20Tests%20of%20Carbohydrate,%20protein,%20lipids%20and%20salivary%20amylase.pdf](https://www.mlsu.ac.in/econtents/1616_Biochemical%20Tests%20of%20Carbohydrate,%20protein,%20lipids%20and%20salivary%20amylase.pdf)
4. <https://vlab.amrita.edu/?sub=2&brch=191&sim=692&cnt=2>
5. [https://webstor.srmist.edu.in/web\\_assets/srm\\_mainsite/files/files/2%20ESTIMATION%20OF%20PROTEIN%20BY%20LOWRY.pdf](https://webstor.srmist.edu.in/web_assets/srm_mainsite/files/files/2%20ESTIMATION%20OF%20PROTEIN%20BY%20LOWRY.pdf)



**Pedagogy**

Demonstration and practical sessions

**Course Designer**

Dr. S. Saranya

## UNIVERSAL HUMAN VALUES

Semester I	Internal Marks:25	External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	Hours/Week	CREDITS
22UGVE	UNIVERSAL HUMAN VALUES	Part IV	2	2

### COURSE OBJECTIVES

1. To enable the learners to learn the values of love and compassion.
2. To foster the values of righteousness and service among the learners.
3. To enhance the morale of the learners by inculcating the values renunciation and peace.
4. To inspire the learners to practice the basic human values so as to make them become responsible citizens of the Nation.

### COURSE OUTCOMES AND COGNITIVE LEVEL MAPPING

CO Number	CO Statement On the successful completion of this course, the students will able to	Cognitive Level
CO1	Define the values of Love and Compassion	K1
CO2	Understand the value of Truth and Non - Violence	K2
CO3	Explain the value of <b>Righteousness and Service</b>	K3
CO4	Practice the values of <b>Renunciation (sacrifice) &amp; Peace</b>	K4
CO5	Prioritize Human Values in their day today life	K5

### Syllabus

#### Unit I : (6 Hours)

##### Love and Compassion

- **Introduction:** what is love? Forms of love for self, parents family friend, spouse community, nation, humanity and other beings both for living and non-living.
- Love and Compassion and Inter-relatedness
- Love, compassion, empathy, sympathy and nonviolence
- Individuals who are remembered in history for practicing compassion and love.
- Narratives and anecdotes from history, literature including local folklore

## **Unit II : (7 Hours)**

### **Truth and Non - Violence**

- **Introduction:** what is truth? Universal truth, truth as value, truth as fact (veracity, sincerity, honesty among others)
- Individuals who are remembered in history for practicing this value
- Narratives and anecdotes from history, literature including local folklore
- **Introduction:** what is non violence? Its need. Love, compassion, empathy sympathy for others as pre-requisites for non violence
- Ahimsa as non -violence and non- killing.
- Individuals and organisations that are known for their commitment to non - violence
- Narratives and anecdotes about non - violence from history and literature including local folklore

## **Unit III : (6 Hours)**

### **Righteousness and Service**

- **Introduction:** What are Righteousness and service?
- Righteousness and dharma, Righteousness and Propriety
- Forms of service for self, parents, family, friend, spouse, community, nation, humanity and other beings- living and non-living persons in distress for disaster.
- Individuals who are remembered in history for practicing Righteousness and Service
- Narratives and anecdotes dealing with instances of Righteousness and Service from history, literature, including local folklore

## **Unit IV : (6 Hours)**

### **Renunciation (sacrifice) & Peace**

- Introduction: what is renunciation? Renunciation and sacrifice. Self restraint and ways of overcoming greed. Renunciation with action as true renunciation. What is peace? It's need, relation with harmony and balance.
- Individuals who are recommended in history for practicing Renunciation and sacrifice. Individuals and organisations that are known for their commitment to peace.
- Narratives and anecdotes from history and literature including local folklore about individuals who are remembered for their renunciation and sacrifice. Narratives and anecdotes about peace from history and literature including local folklore practicing peace

## **Unit V : (5 Hours) Practicing human values**

- What will learners learn/gain if they practice human values? What will learners lose if they Don't Practice human values?
- Sharing learner's individual and/ or group experience(s)
- Simulated situations
- Case studies

**Pedagogy:** Chalk & Talk, Seminar, PPT Presentation, Group Discussion, Blended Method, and Case Study.

**Course Designer :**

Dr. G. Mettilda Buvaneswari

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**

**NATIONALLY ACREDITED (IICYCLE) WITH "A" GRADE BY NAAC**

**ISO 9001:2015 Certified**

**TIRUCHIRAPPALLI**

**PG DEPARTMENT OF CHEMISTRY**



**M.Sc., Chemistry**

**Syllabus**

**2022-2023 and Onwards**

# **Cauvery College for Women (Autonomous)**

## **PG Department of Chemistry**

### **Vision**

- To progress into a centre of superiority in Chemistry that will blend state-of-the-art practices in professional teaching in a communally enriching way, with the holistic progress of the students as its prime emphasis.

### **Mission:**

- To produce graduates committed to integrity, professionalism and lifelong learning by widening their knowledge horizons in range and depth.
- To awaken the young minds and discover talents to achieve personal academic potential by creating an environment that promotes frequent interactions, independent thought, innovations, modern technologies and increased opportunities.
- To enhance the quality through basic and applied research frameworks, and encourage the students to take part in entrance and competitive examinations for higher studies and career.
- To enhance services to the community and build partnerships with the industry.

## **PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)**

<b>PEOs</b>	<b>Statements</b>
<b>PEO1</b>	<b>LEARNING ENVIRONMENT</b>  To facilitate value-based holistic and comprehensive learning by integrating innovative learning practices to match the highest quality standards and train the students to be effective leaders in their chosen fields.
<b>PEO2</b>	<b>ACDEMIC EXCELLENCE</b>  To provide a conducive environment to unleash their hidden talents to nurture the spirit of critical thinking and encourage them to achieve their goal.
<b>PEO3</b>	<b>EMPLOYABILITY</b>  To equip students with the required skills in order to adapt the changing global scenario and gain access to versatile career opportunities in multidisciplinary domains.
<b>PEO4</b>	<b>PROFESSIONAL ETHICS AND SOCIAL RESPONSIBILITY</b>  To develop a sense of social responsibility by formulating ethics and equity to transform students into committed professionals with a strong attitude towards the having a strong attitude towards the development of the nation.
<b>PEO5</b>	<b>ENVIRONMENT AND SUSTAINABILITY</b>  To understand the impact of the professional solutions in societal and environmental contexts and demonstrate the knowledge for an overall sustainable development.

**PROGRAMME OUTCOMES FOR M.Sc., BASIC SCIENCE PROGRAMMES**

PO No.	<b>Programme Outcome</b> <b>On completion of M.Sc., Programme, the students will be able to</b>
PO1	<b>Problem analysis:</b> Provide opportunities to develop innovative design skills, including the ability to formulate problems, to think creatively, to synthesize information, and to communicate effectively.
PO2	<b>Scientific skills:</b> Create and apply advanced techniques and tools to solve the societal environmental issues.
PO3	<b>Environment and Sustainability:</b> Ascertain eco-friendly approach for sustainable development and inculcate scientific temper in the society.
PO4	<b>Ethics:</b> Imbibe ethical and social values aiming towards holistic development of learners.
PO5	<b>Lifelong learning:</b> Instill critical thinking, communicative knowledge which potentially leads to higher rate of employment and also for higher educational studies.



**PROGRAMME SPECIFIC OUTCOMES FOR M.Sc., CHEMISTRY**  
**PROGRAMME**

**M.Sc., CHEMISTRY CURRICULUM [2022 – 2023 Onwards]**

<b>PSO NO</b>	<b>Programme Specific Outcomes` Students of M.Sc., Chemistry will be able to</b>	<b>POs Addressed</b>
PSO1	Acquire knowledge in basic concepts, fundamental principles, and applications of chemical and scientific theories and their relevancies in the day-to-day life.	PO1 & PO2
PSO2	Design experiments, analyze, synthesize and interpret data to provide solutions to different industrial problems by working in the pure, inter and multi-disciplinary areas of chemical sciences.	PO1, PO2 & PO3
PSO3	Attain maneuver in diverse contexts with Global Perspective	PO3 & PO4
PSO4	Gain a thorough Knowledge in the subject to be able to work in projects at different research as well as academic institutions.	PO1, PO2 & PO5
PSO5	Afford Global level research opportunities to pursue Ph.D programme targeted approach of CSIR – NET examination	PO1, PO2, PO3, PO4 & PO5

**Cauvery College for Women (Autonomous), Trichy-18**

**PG Programme Structure (Science)**

(For the Candidates admitted from the Academic year 2022-2023 onwards)

**UNDER CHOICE BASED CREDIT SYSTEM**

Sem	Course	Title	Subject code	Inst Hrs/Week	Credit	Exam	Marks		Total	
						Hrs	Int	Ext		
<b>I</b>	Core Course-I	Organic Chemistry-I	22PCH1CC1	6	6	3	25	75	100	
	Core Course-II	Inorganic Chemistry-I	22PCH1CC2	6	5	3	25	75	100	
	Core Course-III	Physical Chemistry-I	22PCH1CC3	6	5	3	25	75	100	
	Core Practical-I	Organic Chemistry Practical-I	22PCH1CC1P	6	3	6	40	60	100	
	Discipline Specific Elective -I		Instrumentation Techniques Practical /	22PCH1DSE1AP/	6	3	6	40	60	100
			Nano Science and Nanotechnology Practical/	22PCH1DSE1BP/						
			Biochemistry Practical	22PCH1DSE1CP						
<b>Total</b>				<b>30</b>	<b>22</b>				<b>500</b>	
<b>II</b>	Core Course-IV	Physical Methods in Chemistry-I	22PCH2CC4	6	6	3	25	75	100	
	Core Course-V	Organic Chemistry – II/	22PCH2CC5A/	6	5	3	25	75	100	
		Chemistry of Natural Products	22PCH2CC5B							
	Core Practical-II	Organic Chemistry Practical -II	22PCH2CC2P	6	3	6	40	60	100	
	Core Practical-III	Inorganic Chemistry Practical –I	22PCH2CC3P	6	3	6	40	60	100	
	Discipline Specific Elective -II		Green Chemistry/	22PCH2DSE2A/	6	4	3	25	75	100
			Forensic Chemistry/	22PCH2DSE2B/						
Radiation Chemistry			22PCH2DSE2C							

		Internship			02				100
	Extra Credit Course	Swayam Online Course	To be fixed later	As per UGC recommendations					
	<b>Total</b>			<b>30</b>	<b>23</b>				<b>600</b>
<b>III</b>	Core Course-VI	Physical Chemistry-II/	22PCH3CC6A/	6	6	3	25	75	100
		Photochemistry and Advanced Chemical Kinetics	22PCH3CC6B						
	Core Course-VII	Chemistry for Competitive Examinations	22PCH3CC7	6	5	3	-	100	100
	Core Practical – IV	Inorganic Chemistry Practical –II	22PCH3CC4P	6	3	6	40	60	100
	Core Practical V	Physical Chemistry Practical -I	22PCH3CC5P	6	3	6	40	60	100
	Discipline Specific Elective -III	Pharmaceutical Chemistry /	22PCH3DSE3A/	6	5	3	25	75	100
		Bioorganic Chemistry/	22PCH3DSE3B/						
		Pesticide Chemistry	22PCH3DSE3C						
	Extra Credit Course	Swayam Online Course	To be fixed later	As per UGC recommendations					
	<b>Total</b>			<b>30</b>	<b>22</b>				<b>500</b>
<b>IV</b>	Core Course-VIII	Physical Methods in Chemistry-II/	22PCH4CC8A/	6	6	3	25	75	100
		Organic Synthesis and Disconnection Approach	22PCH2CC8B						
	Core Practical-VI	Physical Chemistry Practical -II	22PCH4CC6P	6	3	6	40	60	100
	Discipline Specific Elective-	Industrial Chemistry /	22PCH4DSE4A/	6	5	3	25	75	100

	IV	Selected Topics in Chemistry/	22PCH4DSE4B/						
		Corrosion and Pollution Management	22PCH4DSE4C						
	Discipline Specific Elective-V	Chemistry of Nanoscience /	22PCH4DSE5A/	6	5	3	25	75	100
		Bio fuels/	22PCH4DSE5B/						
		Bioinorganic Chemistry	22PCH4DSE5C						
	Project Work	Dissertation = 80 Marks Viva = 20 Marks	22PCH4PW	6	4	-			100
	<b>Total</b>			<b>30</b>	<b>23</b>				<b>500</b>
	<b>Grand Total</b>			<b>120</b>	<b>90</b>				<b>2100</b>

#### Programme Structure for Science Departments

S.No.	Course	No. of Courses	Credit	Total Credit
1	Core Course (Theory & Practical)	14	62	62
2	Elective Course (Theory & Practical)	05	22	22
3	Internship	01	02	02
4	Project Work	01	04	04

The internal and external marks for theory and practical papers are as follows:

Subject	Internal Marks	External Marks
Theory	25	75
Practical	40	60

Separate passing minimum is prescribed for Internal and External

#### For Theory:

- The passing minimum for CIA shall be 40% out of 25 marks (i.e. 10 marks)
- The passing minimum for End Semester Examinations shall be 40% out of 75 marks

(i.e.30 marks)

c) The passing minimum not less than 50% in the aggregate.

**For Practical:**

a) The passing minimum for CIA shall be 40% out of 40 marks (i.e. 16 marks)

b) The passing minimum for End Semester Examinations shall be 40% out of 60 marks  
(i.e.24 marks)

c) The passing minimum not less than 50% in the aggregate.

**For Project:**

Marks for Dissertation: 80

Marks for Viva Voce : 20

Total marks : 100

**Internal Component (Theory)**

<b>Component</b>	<b>Marks</b>
Quiz	05
Assignment & Seminar	10
CIA -I	05
CIA-II	05
<b>Total</b>	<b>25</b>

**Internal Component (Practical)**

<b>Component</b>	<b>Marks</b>
Continual performance	05
Observation	05
Model -I	15
Model -II	15
<b>Total</b>	<b>40</b>

## Question Paper Pattern

**PART A (10X2=20)**

**Answer all the questions**

**PART B (5X5=25)**

**Answer all the questions**

**PART C (3X10=30)**

**Answer any three questions**

Semester I	Internal Marks: 25		External Marks: 75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22PCH1CC1	ORGANIC CHEMISTRY-I	CORE	6	6

### Course Objective

- To learn the basic concepts of aromaticity and stereochemistry of various organic molecules
- To give ideas of nucleophilic and electrophilic substitution reactions and makes to learn about the oxidizing and reducing reagents for organic synthesis

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Classify different types of concerted reactions in organic chemistry and orbital correlation approaches	K2
CO2	Identify the stereo centres in a molecule and assign the configuration as R or S	K3
CO3	Distinguish between aromatic, anti-aromatic and non-aromatic compounds by their structure.	K4
CO4	Discuss the relative stability of conformational isomers of cyclohexanes, decalins and norboranes	K6
CO5	Predict the reagents used for different type of organic reactions in synthesis	K6

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	1	3	2	3	1	1	1	3
CO2	3	2	1	3	2	2	3	1	1	2
CO3	3	3	1	1	2	3	2	2	2	3
CO4	3	3	2	2	3	3	2	1	2	3
CO5	3	3	2	3	3	3	3	2	1	2

“1” – Slight (Low) Correlation → “2” – Moderate (Medium) Correlation →

“3” – Substantial (High) Correlation → “-” indicates there is no correlation.

# **ORGANIC CHEMISTRY-I**

## **Syllabus**

### **UNIT - I ELECTRONIC EFFECTS AND AROMATICITY (18 Hrs)**

Electronic Effects - inductive, resonance and hyper conjugative effects and their influence. Aromatic character: Huckel's theory of aromaticity - three, four, five, six, seven, and eight membered rings - other systems with aromatic sextet - concept of homo aromaticity and anti-aromaticity - Craig's rule and its applications. Consequences of aromaticity - non alteration in bond length- Huckel's MO calculation. Electron occupancy in MO's and aromaticity - NMR concept of aromaticity and anti-aromaticity.

### **UNIT - II STEREOCHEMISTRY AND CONFORMATIONAL ANALYSIS (18 Hrs)**

Stereoisomerism - optical activity and chirality - types of molecules exhibiting optical activity - R, S and E, Z configuration, absolute configuration - chirality in molecules with non-carbon stereo centers (N, S and P) - molecules with more than one chiral center. Stereochemistry of molecules with axial chirality. Biphenyls, allenes, spiranes and analogues - Atropisomerism - Helicity and chirality - Resolution - methods of Resolution. Conformations of mono and disubstituted six membered ring systems- conformations of decalin. Quantitative correlation between conformation and reactivity.

### **UNIT-III ALIPHATIC SUBSTITUTION REACTIONS (18 Hrs)**

Aliphatic electrophilic substitution: selected reactions - migration of double bonds - halogenation of aldehydes and ketones - Stork-Enamine reaction- decarboxylation of aliphatic acids - Haloform reaction. Aliphatic nucleophilic substitution - mechanisms -  $SN_1$ ,  $SN_2$ ,  $SN_i$  - ion-pair mechanisms - neighboring group participation, nonclassical Carbocations - substitutions at allylic and vinylic carbons. Reactivity - effect of substituents, nucleophilic, leaving group and stereo chemical factors - correlation of structure with reactivity - solvent effects- Von-Braun Reaction. Claisen and Deickmann condensation.

### **UNIT - IV PERICYCLIC REACTIONS (18 Hrs)**

Concerted reactions - orbital symmetry and concerted symmetry - Woodward and Hoffmann rules - selection rules for electrocyclic reactions - frontier molecular orbital approach correlation diagram - examples - Chelotropic and ene reactions. Sigmatropic rearrangements - 1,3, 1,5 and 1,7-

hydrogen shifts – examples –Cope and Claisen rearrangements – 1,3-dipolar cycloaddition reactions.

## UNIT - V REAGENTS IN ORGANIC SYNTHESIS

(18 Hrs)

Oxidation: Jacobsen epoxidation, Shi epoxidation, Jones reagent, PCC, PDC, DMP, Selenium oxide, Swern oxidation, Sommelet reaction, Elbs reaction, Prevost reaction and Woodward modification. Reduction: palladium / platinum / rhodium / nickel based heterogeneous catalysts for hydrogenation, Noyori asymmetric hydrogenation. Red-Al, NaBH<sub>4</sub> and NaCNBH<sub>3</sub>, tri alkyl silanes and tri alkyl stannane.

## UNIT –VI SELF STUDY FOR ENRICHMENTS.

Rules of resonance – tautomerism - steric effects- Enantiomers and diastereomers- S<sub>E</sub>1 and S<sub>E</sub>2 and S<sub>E</sub>i mechanisms- selection rules for cycloaddition reactions Thermal and photochemical reaction of pericyclic reaction- MCPBA reagent and Wilkinson's catalyst.

**Portions for Self study (Not to be included for External examination)**

### Text Book

1. Mukherji, S. M Singh.S. P. (2015). Reaction Mechanism in Organic Chemistry (Revised Edition): Trinity; New Delhi.
2. Kalsi. P.S. (1993). Stereochemistry. Wiley eastern limited; New Delhi.
3. Jagdamba singh. (2016). Organic synthesis: Pragati Prakashan.
4. Bansal.R.K. (1975). Organic Reaction Mechanisms. Tata McGraw Hill.

### Reference Books

1. Marchand Smith. M.B March's Advance Organic Chemistry Reactions, Mechanisms and Structure, 7<sup>th</sup> Edition. (2013), Wiley, New York.
2. Finar. I. R, Organic Chemistry Vol. II 7<sup>th</sup> edition. (2009), Pearson, New Delhi.
3. Nasipuri. D, Stereochemistry of organic compounds Principles, 2<sup>nd</sup> Edition. (2002), New Age International and applications.
4. Lowry. T. H. E and Richardson. K. S, Mechanism and Theory in Organic chemistry, 3<sup>rd</sup> edition. (1997), Benjamin Cummings Publishing, USA.



5. Carey. F. A and Sundberg. R.J, Advanced Organic chemistry Part A and B, 5<sup>th</sup> edition.( 2007), Springer, Germany.

### **Web References**

1. [https://hithaldia.in/faculty/sas\\_faculty/Dr\\_Gora\\_Das/Class%20Notes%20\(CH-101%20&CH-201\)%20Module-4%20\(Structure%20&%20reactivity%20of%20Organic%20Molecules\).pdf](https://hithaldia.in/faculty/sas_faculty/Dr_Gora_Das/Class%20Notes%20(CH-101%20&CH-201)%20Module-4%20(Structure%20&%20reactivity%20of%20Organic%20Molecules).pdf)
2. [http://courses.washington.edu/medch562/pdf/MEDCH400\\_Stereochem.pdf](http://courses.washington.edu/medch562/pdf/MEDCH400_Stereochem.pdf)
3. <https://byjus.com/chemistry/substitution-reaction/>
4. <http://www.ancpatna.ac.in/departments/Chemistry/lectures/PG/Sem-II/Pericyclic%20Reactions%20By%20Dr%20Tripti%20Gangwar.pdf>
5. [https://www.tcichemicals.com/assets/brochure-pdfs/Reagent\\_Guide\\_8th\\_Synthetic\\_Organic\\_Chemistry\\_Materials\\_Chemistry\\_E.pdf](https://www.tcichemicals.com/assets/brochure-pdfs/Reagent_Guide_8th_Synthetic_Organic_Chemistry_Materials_Chemistry_E.pdf)

### **Pedagogy**

Chalk and talk, PPT, Discussion, Assignment, Demo, Quiz, Seminar

### **Course Designers**

1. Dr. P. Pungayee Alias Amirtham
2. Ms. S. Jeevitha

Semester I	Internal Marks: 25		External Marks: 75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22PCH1CC2	INORGANIC CHEMISTRY-I	CORE	6	5

### Course Objective

- To articulate the learning of coordination chemistry in Inorganic Chemistry
- This subject will also create a foundation to learn inorganic photochemistry.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

##### Course outcomes

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Acquire knowledge on basic concepts of inorganic complexes	K3
CO2	Understand the concepts of photoreactions in inorganic chemistry	K2
CO3	Create the nature of inorganic chemical reactions	K4
CO4	Apply the chemistry of inorganic complexes	K3
CO5	Critical thinking on organometallics	K4

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	1	3	2	2	3	1	1	3
CO2	3	2	2	3	3	3	3	2	2	3
CO3	3	3	2	3	2	3	2	2	1	2
CO4	3	3	3	3	3	3	3	2	2	3
CO5	2	3	2	3	3	3	3	2	1	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

# INORGANIC CHEMISTRY-I

## Syllabus

### UNIT I CLUSTERS AND POLYNUCLEAR COMPOUNDS (18 Hrs)

Introduction- clusters of the p-block elements, clusters of p-block Elements in a ligand shell: Boron hydrides, Clusters in a ligand shell of the heavier elements of Group 13 and 14, Bare clusters of p-block Elements. Clusters of d-block elements, Low-valent metal clusters, Metal carbonyl clusters, Low-valent metal clusters stabilized by other  $\pi$  ligands, Clusters of late transition metals stabilized by phosphines.

### UNIT II PRINCIPLES OF COORDINATION CHEMISTRY (16 Hrs)

Studies of coordination compounds in solution – detection of complex formation in solution – stability constants – step wise and overall formation constants – methods of determination (potentiometric, pH metric and photometric) – factors affecting stability – statistical and chelate effects – forced configurations.

### UNIT III REACTION MECHANISM IN COORDINATION COMPLEXES (20Hrs)

Kinetics and mechanism of reactions in solution – labile and inert complexes – ligand displacement in octahedral and square planar complexes – acid hydrolysis, base hydrolysis and anation reactions. Trans effect – theory and applications – electron transfer reactions – electron exchange reactions – complementary and non-complementary types – inner sphere and outer sphere processes – application of electron transfer reactions in inorganic complexes – isomerisation and racemisation reactions of complexes. Molecular rearrangements of four- and six-coordinate complexes – interconversion of stereoisomers – reactions of coordinated ligands.

### UNIT IV ORGANOMETALLIC COMPOUNDS (18Hrs)

Classification of organometallic compounds – structure of methyl lithium, Zeise's salt and Ferrocene- Metal carbonyls - EAN rule – Mono and poly nuclear carbonyls - preparation, reactions and structure (  $\text{Ni}(\text{CO})_4$ ,  $\text{Fe}(\text{CO})_5$ ,  $\text{Cr}(\text{CO})_6$ ,  $\text{Mn}_2(\text{CO})_{10}$ ,  $\text{Co}_2(\text{CO})_8$ , and  $\text{Fe}_2(\text{CO})_9$ ) - Bonding in metal Carbonyls - Metal-ethylenic complexes - methods of formation – bonding - chemical properties.

## UNIT V INORGANIC PHOTOCHEMISTRY

(18Hrs)

Fundamental concepts- Electronic transitions in metal complexes, metal-centered and charge-transfer transitions – various photo physical and photochemical processes of coordination compounds. Unimolecular charge transfer photochemistry of cobalt (III) complexes–mechanism of CTM, photo reduction –ligand field photo chemistry of chromium(III)complexes – Adamson's rules, photoactive excited states, V-C model – photo physics and photochemistry of ruthenium–polypyridine complexes, emission and redox properties.

## UNIT –VI SELF STUDY FOR ENRICHMENTS.

High-valent metal Clusters and halide Clusters- Importance and applications of coordination compounds- Template effect and its applications for the synthesis of macro cyclic ligands- Fullerene Ligands and Metal complexes- Reinecke's salt chemical actinometer.

@ Portions for Self-study (Not to be included for External examination)

### Text Books

1. Greenwood., Greenwood. (1996). Chemistry of the Elements. United Kingdom: Elsevier Science & Technology Books.
2. Kaesz, H., Adams, R., Shriver, D., Kaesz, H., Adams, R., Shriver, D. (1990). The Chemistry of Metal Cluster Complexes.
3. Sharma, L. R., Puri, B. R., Sharma, L. R., Puri, B. R. (1976). Principles of Inorganic Chemistry: For B. Sc. and B. Sc. (Hons.) Classes of Indian Universities. India: S. Nagin.
4. Day, M. C., Selbin, J., Day, M. C., Selbin, J. (1976). Theoretical Inorganic Chemistry.
5. Cotton, F. A., Wilkinson, G., Cotton, F. A., Wilkinson, Advanced Inorganic Chemistry, 6<sup>th</sup> Edition. (2007). India: Wiley India Pvt. Limited.
6. Keiter, E. A., Keiter, R. L., Medhi, O. K., Huheey, J. E., Keiter, E. A., Keiter, R. L., Medhi, O. K., Huheey, J. E. (2006). Inorganic Chemistry: Principles of Structure and Reactivity. India: Pearson Education.
7. Arthur W. Adamson, Paul D. (1975). Fleischauer, Concepts of Inorganic Photochemistry. United Kingdom: Wiley.

8. Kettle, S. F. A., Kettle, S. F. A. (2019). Physical Inorganic Chemistry: A Coordination Chemistry Approach. Germany: Springer Berlin Heidelberg.

### **Reference Books**

1. [J. D. Lee](#), Concise Inorganic Chemistry, 5th Edition. (2008). India: Wiley India Pvt. Limited.
2. [Gurdeep Raj](#), Advanced Inorganic Chemistry Vol-1(2020). Krishna Prakashan.
3. Ferraudi, G. J., Ferraudi, G. J. (1988). Elements of Inorganic Photochemistry. United Kingdom: Wiley.
4. Pearson, R. G., Basolo, F., Pearson, R. G., Basolo, F. (1967). Mechanisms of Inorganic Reactions: A Study of Metal Complexes in Solution. United kingdom: Wiley.
5. Sharma, R. K., Sharma, R. K. (2007). Inorganic Reaction mechanisms. India: Discovery Publishing House.

### **Web References**

1. [https://www2.chemistry.msu.edu/courses/cem151/chap24lect\\_2019.pdf](https://www2.chemistry.msu.edu/courses/cem151/chap24lect_2019.pdf)
2. <http://www.vpscience.org/materials/Unit%203%20B%20Coordination%20chemistry.pdf>
3. [https://www.usb.ac.ir/FileStaff/2896\\_2019-4-18-0-9-32.pdf](https://www.usb.ac.ir/FileStaff/2896_2019-4-18-0-9-32.pdf)
4. <https://www.uou.ac.in/sites/default/files/slm/BSCCH-101.pdf>
5. <https://www.chem.uci.edu/~lawm/11-16.pdf>
6. [https://www.usb.ac.ir/FileStaff/5269\\_2018-9-18-10-21-39.pdf](https://www.usb.ac.ir/FileStaff/5269_2018-9-18-10-21-39.pdf)

### **Pedagogy**

Chalk and talk, PPT, Discussion, Assignment, Demo, Quiz, Seminar

### **Course Designer**

Dr. K. Shenbagam

Semester I	Internal Marks: 25		External Marks: 75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22PCH1CC2	Physical Chemistry-I	CORE	6	5

### Course Objective

- To understand the principles of quantum chemistry and group theory
- To learn about theories of reaction rates, kinetics of reactions in solution phase and catalysis
- To study in detail the basic concepts of statistical thermodynamics

### Course Outcomes and Cognitive Level Mapping

On the successful completion of the course, students will be able to

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course students will be able to	
CO1	Understand and apply the concept of quantization of energy and its modes for particles in box, rigid rotor, harmonic oscillators	K2 & K3
CO2	classify the molecule into point groups and relate symmetry of the molecules to their properties	K2 & K3
CO3	Analyze and apply the principles of kinetics to a reaction in gas phase, solution phase, chain reactions and fast reactions in real world problems	K3 & K4
CO4	Combined surface chemistry to understand theory of enzyme catalysis and analyses the factors influencing the kinetics of catalysis	K2 & K4
CO5	Apply statistics to understand the thermodynamic properties of macroscopic systems	K2 & K3

### Mapping of CO with PO and PSO

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	2	3	3	3	3	1	1	3
CO2	2	2	1	2	2	3	3	1	2	2
CO3	3	3	2	3	3	3	3	2	1	3
CO4	3	2	2	2	2	2	2	2	2	2
CO5	3	3	2	3	3	3	3	2	2	3

“1” – Slight (Low) Correlation

“2” – Moderate (Medium) Correlation

“3” – Substantial (High) Correlation

“-” indicates there is no correlation.

## Physical Chemistry-I

### Syllabus

#### UNIT-I QUANTUM THEORY

(18Hrs)

Concept of operators-sums and products of operators-commutator-linear and non-linear operators-Hermitian and Hamiltonian Operators- postulates of quantum mechanics-. Applications Schrodinger wave equation to free particle-particle in a one-dimensional box, simple linear harmonic oscillator and its limitations, Rigid rotator- model for a rotating diatomic molecule-solutions. Solving of Schrodinger equation for the H-atom (or H-like species)-energy levels. Introduction to the methods of self – consistent field. Virial theorem - Huckel theory of conjugated systems, bond order and charge density calculations, Application to ethylene, 1, 3-butadiene, and benzene. .

#### UNIT-II GROUP THEORY

(18Hrs)

Definition of a mathematical group and its properties – multiplication table -cyclic groups-subgroups - classes – symmetry elements - symmetry operation – classes of symmetry operations-classification of molecular point groups. Matrix representations of symmetry operations-representation of groups-reducible and irreducible representations. Great Orthogonality theorem and its consequences-character tables – construction of character tables for  $C_{2v}$  and  $C_{3v}$  point groups - .

#### UNIT-III KINETICS OF COMPLEX AND FAST REACTIONS

(18Hrs)

Theories of reaction rates- absolute reaction rate theory-thermodynamic formulation of ARR theory-Lindeman's theory of uni molecular reactions. Chain reactions-characteristics, kinetics of decomposition of acetaldehyde (Rice-Herzfeld scheme), photochemical reaction of  $H_2-Br_2$ : Thermal reaction-non-stationary chain reaction,  $H_2-O_2$  reaction and explosion limits. Effect of temperature, relative permittivity, ionic strength, and solvent (Grunwald- Weinstein equation) on reaction rates. Reactions in solutions - effect of pressure, dielectric constant, and ionic strength on reactions in solutions -

#### **UNIT-IV SURFACE CHEMISTRY AND CATALYSIS**

**(18Hrs)**

Adsorption: physisorption and chemisorption, Gibb's adsorption isotherm - Langmuir theory, kinetic and statistical derivation, multi-layer adsorption BET theory, Use of Langmuir and BET isotherms for surface area determination. Application of Langmuir adsorption isotherm in surface catalyzed reactions. Catalysis by enzymes - Kinetics of enzyme-catalyzed reaction - Michaelis - Menten equation and its interpretation. Effect of substrate concentration, pH and temperature on enzyme-catalyzed reactions - inhibition of enzyme-catalyzed reactions - Competitive, Non-competitive and uncompetitive inhibition.

#### **UNIT-V STATISTICAL THERMODYNAMICS**

**(18Hrs)**

Calculation of thermodynamic probability of a system- micro and macro states-different methods of counting macro states - distinguishable and indistinguishable particles, classical statistics-derivation of Maxwell-Boltzmann distribution law. Physical significances of translational, rotational, vibrational, electronic partition functions - application to mono atomic and diatomic molecules. Quantum statistics-Bose- Einstein and Fermi-Dirac distribution equations comparison of B.E and F.D statistics.

#### **UNIT -VI SELF-STUDY FOR ENRICHMENTS.**

Eigen values and Eigen functions- physical interpretation of wave function-orthogonality and normalization theorems-Space group and Schoenflies symbol for point group-Kinetics of fast reactions-flow method and relaxation methods-Comparison of physisorption and chemisorption and types of adsorption isotherms-Difference between thermodynamic and statistical probability.

@ **Portions for Self-study (Not to be included for External examination)**

##### **Text Book**

1. Akins, P.W. (2008). Physical Chemistry. Oxford, UK. Oxford University Press, 8<sup>th</sup> Edition.
2. Puri, Sharma, Pathania, (2019). Principle of Physical Chemistry. Jalandhar, India. Vishal publication &Co. 47th Edition.
3. Grutu, J.N. & Grutu, A. (2015). Advanced Physical Chemistry. Pune, India. Pragathi publisher, 18th Edition.

##### **Reference Books**



1. Prasad, R.K. (2006). Quantum Chemistry. New Delhi, India. New Age International (P) Ltd., Revised 3rd Edition.
2. Albert Cotton, F. (2008). Chemical Applications of Group theory. New Delhi, India. Willy India PVT LTD publisher, 3rd Edition.
3. Laidler, K.J. (2003). Chemical Kinetics. New Delhi, India. Tata Mecra Hill, Revised 3rd Edition.
4. Gupta, M.C. (2011). Statistical Thermodynamics. New Delhi, India. New Age International (P)Ltd., 3rd Edition.

### **Web References**

1. <https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=13G8VouhmrFfuhs6rkiyTA>
2. <https://www.chem.tamu.edu/rgroup/hughbanks/courses/673/lecturenotes/lecturenotes.html>
3. <http://www.kpgcollege.org/admin/upload/1586604901.pdf>
4. <https://youtu.be/ALwziZSRiqM>
5. <https://youtu.be/ACY-Wbudg0o>
6. <https://youtu.be/yO8v0nszUz8>

### **Pedagogy**

Chalk and talk, PPT, Discussion, Assignment, Demo, Quiz, Seminar

### **Course Designers**

➤ Dr. V. Sangu,

Semester I	Internal Marks: 40		External Marks: 60	
COURSECODE	COURSETITLE	CATEGORY	Hrs / Week	CREDITS
22PCH1CC1P	ORGANIC CHEMISTRY PRACTICALS -I	Core Practical	6	3

### Course Objective

To perform the qualitative analysis of a given organic mixture and to carry out the preparation of Organic compounds.

### Course Outcomes

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Apply the principles of separation in organic mixtures.	K3
CO2	Prepare the organic compounds by single stage method.	K3
CO3	Identify various functional group in of organic compounds.	K1
CO4	Develop skills in separating techniques	K2
CO5	Analyze the nature of organic mixture containing two components.	K4

### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	2	2	2	2	1	3	2	1
CO2	2	3	2	2	2	3	2	1	3	2
CO3	2	3	3	2	3	1	1	1	2	1
CO4	3	2	2	3	2	2	3	2	3	2
CO5	2	3	3	3	2	1	2	2	2	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## Syllabus

### I QUALITATIVE ANALYSIS OF AN ORGANIC MIXTURE CONTAINING TWO COMPONENTS

Mixtures containing two components are to be separated (pilot separation) and purified (bulk separation).

### II PREPARATION OF ORGANIC COMPOUNDS (SINGLE STAGE)

1. Methyl-*m*-nitrobenzoate from methylbenzoate(nitration)
2. Glucose pentaacetate from glucose(acetylation)
3. Resacetophenone from resorcinol(acetylation)
4. Benzophenone oxime from benzophenone (addition)
5. *o*-Chlorobenzoic acid from anthranilic acid (Sandmayer reaction)
6. *p*-Benzoquinone from hydroquinone (oxidation)
7. Phenylazo-2-naphthol from aniline(diazotization)

### Text Books

1. Mohan. J.(2003),Organic Analytical Chemistry: Theory and Practice, Narosa
2. Ahluwalia. V.K Bhagat. P and Agarwal. R.(2005),Laboratory Techniques in Organic Chemistry, I. K. International

### Reference Books

1. Gnanaprakasam, N.S and Ramamurthy.G (1987), Organic Chemistry Lab Manual, S.V. Printers
2. Vogel.A.IT atchell. A.R Furniss B.S Hannaford. A.J and Smith P.W.G.(1989), Vogel's Textbook of Practical Organic Chemistry,5th Ed., Prentice Hall

### Web References

1. <https://authors.library.caltech.edu/25034/10/BPOCchapter9.pdf>
2. <http://do.chem.uni.wroc.pl/system/files/Preparatory%20classes.pdf>.

### Pedagogy

Demonstration and practical sessions

### Course Designers

- Dr. P. Pungayee Alias Amirtham
- Dr. R. Subha ,

<b>Semester I</b>	<b>Internal Marks: 40</b>		<b>External Marks: 60</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hrs / Week</b>	<b>CREDITS</b>
<b>22PCH1EC1AP</b>	<b>NANO SCIENCE AND NANOTECHNOLOGY PRACTICALS</b>	<b>CORE</b>	<b>6</b>	<b>3</b>

### Course Objective

- Covers the whole spectrum of nanomaterials ranging from overview, synthesis, properties, and characterization of nano phase materials to application including some new developments in various aspects.
- Provides an introduction to the theory and practice on Nanomaterials and various techniques used for the fabrication and characterization of nanostructures.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

<b>CO Number</b>	<b>CO Statement</b>	<b>Cognitive Level</b>
	On the successful completion of the course, students will be able to	
CO1	To foundational knowledge of the Nanoscience and related fields	K1
CO2	Apply principles of basic science concepts in understanding, analysis and prediction of matter at Nano scale.	K1
CO3	Acquire an understanding the Nanoscience and Applications	K2
CO4	Understand in broad outline of Nanoscience and Nanotechnology.	K2
CO5	Understand the synthesis of nanomaterials and their application and the impact of nanomaterials on environment	K2

#### Mapping of CO with PO and PSO

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	3	2	2	2	2	2	1	3	2	2
CO2	2	3	2	3	2	3	2	1	3	2
CO3	2	3	3	2	3	1	1	2	2	1
CO4	3	2	2	3	2	2	3	2	2	2
CO5	2	3	3	3	2	1	2	2	2	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

### Syllabus

1. Synthesis of CuO nano particles by sonochemical method
2. Synthesis of ZnO nano particles by sonochemical method
3. Synthesis of Carbon nano particles by Microwave Irradiation Method.
4. Characterization of nanoparticles by UV- Visible Spectrophotometer.
5. Synthesis of Silver Nanoparticles by Chemical reduction method and their UV-VIS absorption studies.
6. Synthesis of Iron Oxide Nanoparticles by Polyol method and their UV-VIS absorption studies.
7. Synthesis of ZnO Nanoparticles by Co-Precipitation Method.
8. Preparation of thiolated silver nanoparticles.
9. Synthesis of Nanoparticles from plant materials by Sonochemical Method.

### **Text Book**

1. Edelstein, A.S., Cammaratra, R.C. (2017). Nanomaterials: Synthesis, Properties and Applications, Second Edition. United Kingdom: Taylor & Francis.
2. Wiederrecht, G. (2010). Handbook of Nanofabrication. Italy: Elsevier Science.
3. Altavilla, C., Ciliberto E.( 2017). Inorganic Nanoparticles: Synthesis, Applications, and Perspectives. United Kingdom: CRC Press.

### **Reference Books**

1. Fritzsche, W., Köhler, M., Fritzsche, W., Köhler, M. (2008). Nanotechnology: An Introduction to Nanostructuring Techniques. Germany: Wiley.
2. Muller, A., A.K., Cheetham., Rao C.N.R. (2006). The Chemistry of Nanomaterials: Synthesis, Properties and Applications. Germany: Wiley.

### **Web Reference**

1. [https://www.researchgate.net/publication/229419482\\_Sonochemical\\_synthesis\\_size\\_controlling\\_and\\_gas\\_sensing\\_properties\\_of\\_NiO\\_nanoparticles](https://www.researchgate.net/publication/229419482_Sonochemical_synthesis_size_controlling_and_gas_sensing_properties_of_NiO_nanoparticles)
2. <https://www.sciencedirect.com/science/article/pii/S1569441018301445>
3. <https://pubs.rsc.org/en/content/articlelanding/2019/nj/c9nj01360a>
4. [https://www.researchgate.net/publication/231240704\\_UreaMelt\\_Assisted\\_Synthesis\\_of\\_NiNiO\\_Nanoparticles\\_Exhibiting\\_Structural\\_Disorder\\_and\\_Exchange\\_Bias](https://www.researchgate.net/publication/231240704_UreaMelt_Assisted_Synthesis_of_NiNiO_Nanoparticles_Exhibiting_Structural_Disorder_and_Exchange_Bias)

### **Pedagogy**

Table Work

### **Course Designers**

- Dr. G. Sivasankari
- Dr. R. Subha

Semester I	Internal Marks: 40		External Marks:60	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22PCH3EC3AP	INSTRUMENTATION TECHNIQUES (P)	CORE	6	3

### Course Objective

- Gain proficiency in the use of analytical pipettes, volumetric measurements, and analytical instruments.
- learn how to correctly use a UV/Vis spectrophotometer.
- Gain familiarity with a new technique.
- Perform quantitative analytical methods including titrations, pH measurements, spectrophotometry, and chromatography.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	To be trained in lab safety, preparation of solutions numerically.	K1
CO2	To develop students' ability and skill to acquire expertise in calibration techniques.	
CO3	Become familiar with fundamental concepts of instruments.	K1
CO4	Develop the core skills to parse existing chromatographic protocols and identify the key factors influencing a chromatography experiment	K2
CO5	Learn application of Instrumentation Techniques	K2

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	3	3	3	3	2	3	2	3	3
CO2	2	2	2	1	2	2	2	3	2	2
CO3	3	2	2	2	2	1	2	2	2	2
CO4	3	2	3	2	2	3	2	2	2	3
CO5	2	3	2	3	3	2	2	2	2	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## **Syllabus**

1. Use and calibration of volumetric equipment (volumetric flasks, pipette's and burette's).
2. Separation and identification of monosaccharide present in a given mixture by paper chromatography.
3. Determination of residual chlorine in city water supply using colorimetry.
4. Analysis of soil
  - i) Determination of pH of soil.
  - ii) Determination of total soluble salts by conductometry
5. pH measurements
  - a) Measurement of pH of different solutions like aerated drinks, fruit juices, shampoos and soaps (use dilute solutions of soaps and shampoos to prevent damage to the glass electrode) using pH- meter.
6. Separation of a mixture of metals by TLC .
7. Determining the Concentration of Citric Acid in soft drink Using Titration.
8. Photometric Determination of Equilibrium Constant.
9. Spectrophotometric Analysis of a Mixture: Caffeine and Benzoic Acid in a Soft Drink.
10. Determination of Ascorbic Acid in Orange Juice by titration.
11. Spectrophotometric Determination of Iron in Vitamin Tablets.
12. Estimation of aspirin from tablet using titration method.
13. Determination of strength of commercial vinegar by Conductometry.
14. Analysis of potassium permanganate by UV/visible spectrophotometer.
15. Estimation of fluoride content in water by potentiometric titration.

## **Text Book**

1. Fifield, F.W. (2011). Principles and Practice of Analytical Chemistry. United States: Springer
2. Lundanes, E., Reubsaet, L., Greibrokk, T., Lundanes, E., Reubsaet, L., Greibrokk, T. (2013)
3. Chromatography: Basic Principles, Sample Preparations and Related Methods. Germany: Wiley.

4. Franson, S., Mary, H. (2007). Standard Methods for the Examination of Water and Wastewater. United States: American Public Health Association.

### **Reference Books**

1. Harris, D. C. (2012). Exploring Chemical Analysis: International Edition. United Kingdom: Macmillan Learning.
2. Dilts, R. V. (2010). Analytical Chemistry: Methods of Separation. United Kingdom: Van Nostrand.
3. Harris, D. C., Lucy, C. A. (2019). Quantitative Chemical Analysis. United States: W. H. Freeman.
4. Mikeš, O., Mike S, O., Chalmers, R. A. (2007). Laboratory Handbook of Chromatographic Methods United Kingdom: Van Nostrand.

### **Web Reference**

1. <https://www.epa.gov/sites/default/files/2015-12/documents/9214.pdf>
2. [https://chem.libretexts.org/Ancillary\\_Materials/Laboratory\\_Experiments/Wet\\_Lab\\_Experiments/General\\_Chemistry\\_Labs/Online\\_Chemistry\\_Lab\\_Manual/Chem\\_10\\_Experiments/11%3A\\_A\\_Titration\\_of\\_Vinegar\\_\(Experiment\)](https://chem.libretexts.org/Ancillary_Materials/Laboratory_Experiments/Wet_Lab_Experiments/General_Chemistry_Labs/Online_Chemistry_Lab_Manual/Chem_10_Experiments/11%3A_A_Titration_of_Vinegar_(Experiment))
3. [https://www.lacitycollege.edu/Departments/Chemistry/documents/Chemistry-101-Experiments-Documents/E12B\\_titration2016](https://www.lacitycollege.edu/Departments/Chemistry/documents/Chemistry-101-Experiments-Documents/E12B_titration2016)
4. [https://www.uobabylon.edu.iq/eprints/publication\\_10\\_11891\\_250.pdf](https://www.uobabylon.edu.iq/eprints/publication_10_11891_250.pdf)

### **Pedagogy**

Table Work

### **Course Designers**

Dr. G. Sivasankari.



**BACHELOR OF SCIENCE IN  
CHEMISTRY CURRICULUM AND SYLLABUS  
(FOR STUDENTS ADMITTED FROM  
ACADEMIC YEAR 2020-2021 ONWARDS)  
UNDER CHOICE BASED CREDIT SYSTEM**



**DEPARTMENT OF CHEMISTRY  
CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)  
Nationally Re-Accredited (III Cycle) with 'A' grade (CGPA-3.41 out of 4)  
by NAAC  
TIRUCHIRAPPALLI -620 018**

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**  
**B.SC., CHEMISTRY COURSE STRUCTURE**  
**UNDER CHOICE BASED CREDIT SYSTEM**  
**(For the candidates admitted from the academic year 2020-2021)**

Sem	Part	Course	Title	Subject code	Inst Hrs/ week	Credit	Exam Hrs	Marks		Total
								INT	EXT	
I	I	Language Course I (LC)	,f;fhy ,yf;fpak; Story, Novel, Hindi Literature-1 & Grammar-I	19ULT1	6	3	3	25	75	100
			History of popular Tales Literature and Sanskrit story	19ULH1						
			Communication in French-I	19ULS1						
				19ULFI						
	II	English Language Course-I (ELC)	Functional Grammar for Effective Communication-I	19UE1	6	3	3	25	75	100
	III	Core Course-I (CC)	General Chemistry-I	19UCH1CC1	6	5	3	25	75	100
		Core Practical -I (CP)	Volumetric Analysis	19UCH1CC1P	3	3	3	40	60	100
		First Allied Course-I (AC)	Mathematics-I	19UCH1AC1	4	3	3	25	75	100
		First Allied Course-II (AC)	Mathematics-II	19UCH1AC2	3	-	-	-	-	-
	IV	UGC Jeevan Kaushal Life Skills	Universal Human Values	20UGVE	2	2	3	25	75	100
	Total				30	19				600
II	I	Language Course II (LC)	,ilf;fhy ,yf;fpaKk; GjpdKk;	19ULT2	6	3	3	25	75	100
			Prose, Drama, Hindi Literature-2 & Grammar-II	19ULH2						

			Poetry Textual Grammar and Alakara	19ULS2						
			Communication in French-II	19ULF2						
	II	English Language Course –II (ELC)	Functional Grammar for Effective Communication-II	19UE2	6	3	3	25	75	100
	III	Core Course- II (CC)	General Chemistry- II	19UCH2CC2	6	5	3	25	75	100
		Core Practical –II (CP)	Organic Chemistry Practical -I	20UCH2CC2P	3	3	3	40	60	100
		First Allied Course- II (AC)	Mathematics-II	19UCH1AC2	4	3	3	25	75	100
		First Allied Course- III (AC)	Mathematics-III	19UCH2AC3	3	3	3	25	75	100
	IV	Environment al Studies	Environmental Studies	19UGES	2	2	3	25	75	100
	V	Extra Credit Course	Swayam Online Course	To be fixed later	As per UGC recommendations					
	Total				30	22				700
III	I	Language Course III (LC)	fhg;gpaKk; ehlfKk;	19ULT3	6	3	3	25	75	100
			Medieval, Modern Poetry & History of Hindi Literature-3	19ULH3						
			Poetry Textual Grammar and Vakyaarachana	19ULS3						
			Communication in French-III	19ULF3						
	II	English Language Course –III (ELC)	Reading and Writing for effective Communication-I	19UE3	6	3	3	25	75	100
	III	Core Course- III (CC)	General Chemistry- III	19UCH3CC3	6	5	3	25	75	100
Core Practical –III (CP)		Semi-micro Analysis (P)	19UCH3CC3P	3	3	3	40	60	100	

		Second Allied Course-I (AC)	Physics –I	19UCH3AC4	4	3	3	25	75	100
		Second Allied Course-I (AP)	Physics Practical	19UCH3AC1P	3	-	-	-	-	-
	IV	Non Major Elective –I For those who studied Tamil Under Part-I	Chemistry in Everyday life/	19UCH3NME1/						
		a)Basic Tamil for other language students	Basic Tamil	19ULC3BT1/	2	2	3	25	75	100
		b)Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree program	Special Tamil	19ULC3ST1						
	V	Extra Credit Course	Swayam Online Course	To be fixed later	As per UGC recommendations					
	Total				30	19				600
IV	I	Language Course IV (LC)	gz;ila ,yf;fpak;	19ULT4	6	3	3	25	75	100
			Letter writing, General Essays, Technical Terms, Proverbs, Idioms & Phrases, Hindi Literature-4	19ULH4						
			Drama, History of Drama Literature	19ULS4						
			Communication in French-IV	19ULF4						
	II	English Language Course –IV (ELC)	Reading and writing for effective communication-II	19UE4	6	3	3	25	75	100

	III	Core Course-IV (CC)	General Chemistry-IV	19UCH4CC4	5	5	3	25	75	100
		Core Practical-IV (CP)	Organic Qualitative Analysis (P)	19UCH4CC4P	3	3	3	40	60	100
		Second Allied Course-I (AP)	Physics Practical	19UCH3AC1P	3	3	3	40	60	100
		Second Allied Course-II (AC)	Physics II	19UCH4AC5	3	3	3	25	75	100
	IV	Non Major Elective –II For those who studied Tamil Under Part-I	Food Adulterants and Health Care/	19UCH4NME2/	2	2	3	25	75	100
		a)Basic Tamil for other language students	Basic Tamil	19ULC4BT2/						
		b)Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree program	Special Tamil	19ULC4ST2						
		Skill Based Elective-I	Forensic Chemistry	19UCH4SBE1A						
	Food Chemistry		19UCH4SBE1B							
	V	Extra Credit Course	Swayam Online Course	To be fixed later	As per UGC recommendations					
Total				30	24					800
V	III	Core Course-V (CC)	Inorganic Chemistry-I	19UCH5CC5	5	5	3	25	75	100
		Core Course-VI (CC)	Organic Chemistry-I	19UCH5CC6	5	5	3	25	75	100
		Core Course-VII (CC)	Physical Chemistry-I	19UCH5CC7	6	5	3	25	75	100
		Core Practical-V (CP)	Physical Chemistry (P)	19UCH5CC5P	3	3	3	40	60	100

		Major Based Elective-I	Nuclear and Industrial Chemistry	20UCH5MBE1A/	5	5	3	25	75	100
			Basics of Nano science and Nanotechnology	20UCH5MBE1B						
	IV	Skill Based Elective-II	Chemistry of Consumer Products (P) /	19UCH5SBE2AP	2	2	3	40	60	100
			Dye Chemistry	19UCH5SBE2BP						
		Skill Based Elective-III	Water Analysis (P)/	20UCH5SBE3AP	2	2	3	40	60	100
			Biofuels (P)	19UCH5SBE3BP						
		UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100
	V	Extra Credit Course	Swayam Online Course	To be fixed later	As per UGC recommendations					
	Total				30	29				800
VI	III	Core Course-VIII (CC)	Organic Chemistry-II	19UCH6CC8	6	5	3	25	75	100
		Core Course-IX (CC)	Physical Chemistry-II	19UCH6CC9	6	5	3	25	75	100
		Core Practical- VI (CP)	Gravimetric Analysis and Physical Constants (P)	20UCH6CC6P	4	4	3	40	60	100
		Major Based Elective-II	Analytical Techniques (P)/	20UCH6MBE2A/	3	3	3	40	60	100
			Chemistry of Nanoscience (P)	20UCH6MBE2B						
		Major Based Elective-III	Polymer Chemistry/	19UCH6MBE3A/	5	5	3	25	75	100
			Pharmaceutical Chemistry	19UCH6MBE3B						
	Project Work	Dissertation	20UCH6PW	5	3	-	40	60	100	
	V	Extension Activities	Extension Activities (EA)	19UGEA	-	1	-	-	-	-
		Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100

	Total		30	27			700
	Grand Total		180	140			4200

Language Part – I - 4

English Part –II - 4

Core Paper - 9

Core Practical - 6

Allied Paper - 5

Allied Practical - 1

Non-Major Elective - 2

Skill Based Elective - 3

Major Based Elective - 3

Environmental Studies - 1

Value Education - 1

Soft Skill Development – 1

Gender Studies - 1

Extension Activities - 1

\*\* Extension Activities shall be outside instruction hours

Non Major Elective I & II – for those who studied Tamil under Part I

a) Basic Tamil I & II for other language students

b) Special Tamil I & II for those who studied Tamil upto 10th or +2 but opt for other languages in degree programme.

2. Practical 40 60

<b>Semester V</b>	<b>NUCLEAR AND INDUSTRIAL CHEMISTRY</b>	<b>Hours/Week 6</b>	
<b>Major Based Elective-I</b>		<b>Credit 5</b>	
<b>Subject Code</b> <b>20UCH5MBE1A</b>		<b>Internal</b> <b>25</b>	<b>External</b> <b>75</b>

### Objective

- This course helps to learn the principles of nuclear and radiation chemistry.
- To understand the importance chemicals used in industries.

### Course Outcomes

On successful completion of the course, the student will be able to

<b>CO</b>	<b>CO Statement</b>	<b>Knowledge level</b>
CO 1	Discuss about nuclear chemistry	K1
CO 2	Explore about Fundamentals of Radio chemistry	K2
CO 3	Explore about leather techniques	K2
CO 4	Discussing about various chemical process in industries	K3
CO 5	Explore about essential cosmetics and cleansing agents	K3

### Mapping with Programme Outcomes

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	M	S
CO2	S	S	M	S	M
CO3	S	M	M	S	M
CO4	S	S	M	S	M
CO5	S	M	S	M	S

**S-Strong; M-Medium**



## SEMESTER V

### NUCLEAR AND INDUSTRIAL CHEMISTRY

#### **UNIT I Introduction to Nuclear Science (18 Hrs)**

Introduction - composition of nucleus and nuclear forces (meson field theory) - nuclear stability - mass defect - binding energy - packing fraction - n/p ratio - magic numbers - nuclear models - liquid drop - shell and collective model – isotopes - detection (Thomson positive ray analysis, Dempster mass spectrograph)- separation (Thermal diffusion method, distillation method, gaseous diffusion method) - isobars, isotones and isomers.

#### **UNIT II: Nuclear Reactions and Reactor (18 Hrs)**

Nuclear reaction - comparison with chemical reaction - Types - fission (atom bomb) and fusion (hydrogen bomb) - photonuclear reactions – stripping, spallation and pick-up reactions - Stellar energy – nuclear reactor – atomic power projects in India.

#### **UNIT III Radiation Chemistry (18 Hrs)**

Radioactivity- Laws of radioactivity- the rate of disintegration –half-life and average life - group displacement law – radioactive decay process (alpha, beta, and gamma decay) - radioactive series – K capture – nuclear isomerism and isomeric transition– Detection and measurement of radioactivity (Geiger Muller counter, Cloud Chamber, ionization chamber) – radioisotopes applications- Hazards of radiation- radioactive waste disposal.

#### **UNIT IV Common Chemicals in Industries (18 Hrs)**

Gaseous fuels– Types (producer gas, water gas, natural gas, coal gas)–composition- manufacture and applications- cement manufacture – wet and dry processes, composition and setting of cement. Primary constituents of paints- Dispersion medium - binder- Pigments- formulation of paints and varnishes- requirements of good paint.

#### **UNIT V Cosmetic Chemistry (18 Hrs)**

Cosmetics– definition – types of cosmetics – composition of cosmetics – face powder, face creams sun screen lotion- nail polish- nail polish removers- deodorants-hair dye –shampoo- perfumes - their side effects-method of -preparation of soaps- synthetic detergents-alkyl aryl sulphonate and cleansing action of soaps.

### Text Books

S.No.	Author's Name	Year of Publication	Title of the Book	Publisher Name
1.	H. J. Arnikar	2005	Essentials of Nuclear Chemistry	New International Publishers, New Delhi, Age New
2.	S.Glasstone, D.Van Nostrand,	1987	Source Book on Atomic Energy	East-West press, New Delhi,
3.	P.Singh, T.M.Joesph, R.G.Dhavale.	1983	Industrial Chemistry,	Himalaya Publishing House, Bombay, 4th Ed.,
4	A. Kent, Riegel	2009	Handbook of Industrial Chemistry,	CBS Publishers, New Delhi.
5.	B. K. Sharma	2013	Industrial Chemistry	Goel Publishing House

### Reference Books

S.No.	Author's Name	Year of Publication	Title of the Book	Publishers Name
1.	A.K. Srivatsava and P. Jain	1989	Essentials of Nuclear chemistry	S. Chand, New Delhi,
2.	M. Haissinsky, Addison	1964	Nuclear Chemistry and its applications	Wesley, New York.
3.	Bagavathi Sundari	2006	Applied Chemistry	MJP Publishers, Chennai
4.	P. C. Jain, M. Jain	2003	Engineering Chemistry	Dhanpat Rai & Sons, Delhi

### Chemistry Teaching Pedagogy:

Chalk and talk, PPT, Discussion, Assignment, Demo, Quiz, Seminar

### Course Designer:

Dr. K.UmaSivakami, Assistant Professor, Department of Chemistry.

<b>Semester V</b>	<b>Basics of Nanoscience and Nanotechnology</b>	<b>Hours/Week 5</b>	
<b>Major Based Elective-I</b>		<b>Credit 5</b>	
<b>Subject Code 20UCH5MBE1B</b>		<b>Internal 25</b>	<b>External 75</b>

### Course Objective

- To know the synthetic methods of nanomaterials.
- To understand the characterization of nanomaterials.
- To understand carbon based nanomaterials.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

<b>CO</b>	<b>CO Statement On the successful completion of the course, students will be able to</b>	<b>Knowledge Level</b>
CO1	Recall the basic concepts macro, micro and nanoscale materials	K1
CO2	Explain the synthesis of nanomaterials	K1
CO3	Analyze the characterization techniques of nanomaterials	K2
CO4	Understand the nano catalyst and carbon based nanomaterials.	K2
CO5	Illustrate the applications of nanomaterials.	K3

### Mapping with Programme Outcomes

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	M	S
CO2	S	S	M	S	M
CO3	S	M	M	S	M
CO4	S	S	M	S	M
CO5	S	M	S	M	S

**S-Strong; M-Medium**

## **SEMESTER V**

### **BASICS OF NANOSCIENCE AND NANOTECHNOLOGY**

#### **UNIT –I Fundamentals of Nanoscience (18 Hrs)**

Definition - nano – scale, materials, science - nano technology - scale of materials - natural and man-made - significance of nanoscale - optical, electrical, mechanical, and magnetic properties – nanomaterials - different types of nanomaterial and structures - quantum wells – quantum wires – quantum dots – nanoclusters – nanocrystals – nanowires and nanotubes (preliminary level).

#### **UNIT-II Synthesis of nanomaterials (18 Hrs)**

Physical methods - laser ablation- chemical vapour deposition (CVD) - solvated metal atom dispersion (SMAD) - Chemical methods - microwave irradiation -sol-gel process - precipitation technology - synthesis using microorganisms - precipitation method - thermal decomposition of complex precursors.

#### **UNIT –III Characterization techniques of nanomaterials (18 Hrs)**

Principle and Instrumentation techniques - X-ray diffraction technique, (XRD) - Ellipsometer, Confocal microscopy. Scanning Electron Microscopy (SEM) –Field Emission Scanning Electron Microscopy- Optical Absorption and Emission Spectroscopy.

#### **UNIT –IV Carbon based nanomaterials (18 Hrs)**

Structure and bonding in nano material – arm chair – zigzag – chiral patterns – theory of formation of different structures and growth process of CNT – single walled carbon nano tubes – multi walled carbon nano tubes – graphite – diamond – different types of carbon nano materials CNT, CNF, CNB - structure and properties.

#### **UNIT-V Applications of nanomaterials (18 Hrs)**

Molecular electronics – nano electronics – quantum electronic devices – CNT based transistor – field emission display – biological applications – cancer therapy - biosensor – membrane-based water purification – nano painting – nano coating – nano materials for renewable energy – nano carbon in lithium batteries.

### **TextBook**

S.No	AUTHOR	TITLE OF THE BOOK	PUBLISHER/ EDITION	YEAR OF PUBLICATION
1.	C. N. R. Rao, A. Muller and A. K. Cheetham	The Chemistry of Nanomaterials: (Eds),	Wiley-VCH; Germany, Vol. 1 and 2	2004
2.	T. Pradeep	The Essentials in Understanding Nanoscience and Nanotechnology 1st Ed.,	Tata McGraw Hill, New York, 1st Ed.,	2007
3.	S. Thomas, N. Kalarikkal, A. Manuel Stephan, B. Raneesh	Advanced Nanomaterials thesis, Properties, and Applications	Apple Academic Press	2021.
4.	N. John Dinardo	Nanoscale Charecterisation of surfaces and Interfaces	Weinheim Cambridge, Wiley.	2000
7.	A. Lakhtakia	The Hand Book of Nano Technology, Nanometer Structure, Theory, Modeling and Simulations	Prentice-Hall of India (P) Ltd, New Delhi	2007

### **ReferenceBooks**

S.No	AUTHOR	TITLE OF THE BOOK	PUBLISHER /EDITION	YEAR OF PUBLICATION
1.	G. Timp	Nanotube Super fiber Materials: Science, Manufacturing, Commercialization (Micro and Nano Technologies)	2nd Edition, Kindle	2020
2.	T. Awan, A. Bashir, A. Tehseen	The Chemistry of Nanomaterials fundamentals and Applications	Elsevier, e-book	2020

### **Pedagogy**

Chalkandtalk, PPT, Discussion, Assignment, Demo, Quiz, Seminar

### **CourseDesigners**

1. Dr. G. Sivasankari, Assistant Professor, Department of Chemistry
2. Ms. P. Thamizhini, Assistant Professor, Department of Chemistry
3. Dr. K. Uma Sivakami, Assistant Professor, Department of Chemistry





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**Annamalai Nagar, Trichy -18.**

**PG & Research Department of Computer Science**

**THE AGENDA FOR THE SIXTH MEETING OF THE BOS**

**ITEM NO. BOS/06/01**

To consider and to approve III Semester syllabus of **B.Sc. Computer Science with Cognitive Systems** for 2021-2022 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**ITEM NO. BOS/06/02**

To consider and to approve the PSO, the Programme Structure and I Semester syllabus of **B.Sc. Computer Science with Cognitive Systems** for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**ITEM NO. BOS/06/03**

To consider and to approve the PSO, the Programme Structure and I Semester syllabus of **B.Sc. Computer Science** for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**ITEM NO. BOS/06/04**

To consider and to approve the syllabus of **Allied Course-I and Allied Course-II** offered by the department of Computer Science for 2021-2022 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**ITEM NO. BOS/06/05**

To consider and to approve the PSO, the Programme structure and I Semester syllabus of **M.Sc. Computer Science** for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18

**ITEM NO. BOS/06/06**

To suggest panel of names for appointment of examiners and Question paper setter to the Academic Council, Cauvery College for Women (Autonomous), Trichy -18.

**ITEM NO. BOS/06/07**

To thank the members of BOS.

**ITEM NO. BOS/06/08**

Any other matter with the permission of the Chair



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**PG & Research Department of Computer Science**

**MINUTES OF THE SIXTH MEETING OF THE BOS**

**DATE:** 05.05.2022

**TIME:** 10.30 a.m.

**VENUE:** CS Lab& Google Meet

**Members Present:**

- |                                 |                                 |
|---------------------------------|---------------------------------|
| 1. Dr. V. SinthuJanitaPrakash   | Chairperson, Professor &HoD     |
| 2. Mr. Stephen Moses Dhinakaran | Nominated BoS Member from TCS   |
| 3. Prof.S. Nickolas             | University Nominee              |
| 4. Dr. K.S.JeenMarseline        | Subject Expert, OtherUniversity |
| 5. Dr.S.Sukumaran               | Subject Expert, Otheruniversity |
| 6. Ms.N.Girubagari              | Member                          |
| 7. Ms.A.SahayaJenitha           | Member                          |
| 8. Ms.K.Pradeepa                | Member                          |
| 9. Dr.D.Radhika                 | Member                          |
| 10. Dr.K.Reka                   | Member                          |
| 11. Ms.S.Udhayapriya            | Member                          |
| 12. Ms.P.Muthulakshmi           | Member                          |
| 13. Ms.R.RitaJenifer            | Member                          |
| 14. Ms.V.Kavitha                | Member                          |
| 15. Ms.R.Sangeetha              | Member                          |
| 16. Ms.S.Saranya                | Member                          |
| 17. Ms.N.Agalya                 | Member                          |
| 18. Ms.G.Sujatha                | Member                          |
| 19. Ms.R.Ramya                  | Member                          |
| 20. Dr.M.Parveen                | Special Invitee                 |



21. Dr.R.MerlinPackiam	Special Invitee
22. Dr.H.Krishnaveni	Special Invitee
23. Dr.J.Sangeetha	Special Invitee
24. Dr.A.Bhuvaneswari	Special Invitee
25. Dr.P.Tamilselvi	Special Invitee

**The leave of absence was granted to:**

1.Mr. LaxmiNarasimhanVaradhan	Placement Representative fromIndustry
2.Ms.DisanthiniRetnaraj	AlumnaMember
3.Mr.K.PhaniKumar	Subject Expert, TCS(Special Invitee)

**ACTION TAKEN REPORT OF SPECIAL BOS HELD ON 05.12.2021**

The Special BoS Meeting was held online on 15.12.2021 through Google Meet, The Chairman of the BoS read the minutes of the meeting and the Resolution BoS/S/01 pertaining to II Semester Syllabus of B.Sc Computer Science with Cognitive Systems was confirmed.

**MINUTES OF THE SIXTH MEETING OF BOS HELD ON 05.05.2022**

The following Resolutions were passed by the BoS members

**RESOLUTION NO. BOS/06/01**

Resolved to approve the III Semester syllabus of **B.Sc. Computer Science with Cognitive Systems** for 2021-2022 batch and onwards and recommended to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**RESOLUTION NO. BOS/06/02**

Considered and approved the PSO, the Programme Structure and I Semester syllabus of **B.Sc. Computer Science with Cognitive Systems** for 2022-2023 batch and onwards and recommended to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**RESOLUTION NO. BOS/06/03**

Resolved to approve the PSO, the Programme Structure and I Semester syllabus of **B.Sc. Computer Science** for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following revision of syllabus for

**1. Core course 19UCS1CC1-Programming in C**

- **Portion of Self-study is given in each Unit**

Unit I: Mathematical Function

Unit II: Jumps in Loop

Unit III: Nesting of Functions

Unit IV: Structures within structures and Chain of Pointers

Unit V: Command Line Arguments

- Topics included in Unit I: Type Conversion
- Topics removed from Unit III: Scope and life time of variables
- Topic removed from Unit IV: Unions

**2. Core course 19UCS1CC1P-Programming in C Lab**

One program is added in the existing list Command line arguments

Program Listing is modified with

- Operators and Data types
- Reading data from file
- Writing data into file

- Dr Nickolas (University Nominee) suggested to bring Core Course VIII(CC) - Operating Systems to III semester, so that students will have a basic understanding required to study Cloud Computing

**RESOLUTION NO. BOS/06/04**

Considered and approved the syllabus of Allied Course-I and Allied Course-II offered by the department of Computer Science for 2021-2022 batch and onwards and recommended to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18

**RESOLUTION NO. BOS/06/05**

Resolved to approve the PSO, the Programme structure and I Semester syllabus of **M.Sc. Computer Science** for 2022-2023 batch and onwards and recommended to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following revision of syllabus for

**1. Core course –I Mathematical Foundation for Computer Science(19PCS1CC1)**

- **Portion of Self-study is given in each Unit**

Unit I: Equivalence of Formulas

Unit II: First order linear Recurrence Relation

Unit III: The application of Residue arithmetic to computers

Unit IV: Operations on Graphs, Spanning Trees

Unit V: Fuzzy Complements

- **Topics added in**

Unit III: Algebraic Structures

- **Topics reduced in**  
Unit II: The Pigeonhole Principle  
Unit IV: Rooted binary trees  
Unit V: Theorem Proofs

2. **Core course- III Web Technologies(19PCS1CC3)**

- **Portion for Self-study is given in each Unit**  
Unit I: Some Fundamental HTML Elements- Lists-tables  
Unit II: Beyond the Normal Flow: properties for positioning, relative, float, absolute positioning  
Unit III: Built-in Objects  
Unit IV: Application Development with RMI  
Unit V: Writing a java web service client
- **Topics added in Unit-1:** TCP/IP-UDP-DNS-Domain Names
- **Topics reduced in**  
Unit I: History and versions  
Unit II: Other properties  
Unit III: JavaScript Debuggers  
Unit IV: Data Storage and Created Distributed Application Development with RMI  
Unit V: Completely changed and new contents were included

3. **Core Practical -I(CP)-Web Technologies Practical(19PCS1CC1P)**

**Program Removed**

Write a XML program for job listing in HTML.

**Program Added**

Create an application using basic JSP tag

4. **Elective Course-I(EC)-Advanced Computer Architecture(19PCS2EC1C)**

- **Portion of Self-study is given in each Unit**  
Unit I: Performance Evaluation  
Unit II: Limitations of ILP  
Unit IV: Intel I7 Processor, SMT & CMP Processors.  
Unit V: I/O Performance Measures

**Unit V Entirely Modified**

- **Topic Removed:**  
Cache Performance  
Memory Technology types  
RAID  
Reliability
- **Topic Added**  
Programming Models

Workloads for Warehouse  
Scale Computers  
Cloud Computing  
The Return of Utility Computing

**5. Elective Course-II(EC)-Advanced Database System(19PCS2EC2B)**

- **Portion of Self-study is given in each Unit**

Unit I: Parallel Query Optimization

Unit II: Distributed Recovery

Unit III: Comparing RDBMS, OODBMS and ORDBMS.

Unit IV: Deadlock.

Unit V: Managing Text in a DBMS

**Unit V Entirely Modified**

- **Topic Removed**

Unit V: Spatial data management: Types of Spatial Data and Queries- Applications Involving Spatial Data. NoSQL databases Introduction - Column oriented stores- Key -Value stores - Document databases - Graph database

- **Topic Added**

Data encryption

Reduction and masking techniques

Authentication and authorization

Database auditing

**Newly Introduced Courses:**

**1.Core Course- III:Machine Learning Techniques** - Machine Learning offered earlier as the Elective Course is now offered as Core Course

**2.Elective- I(EC): Software Testing**

- Dr Nickolas (University Nominee) suggested to remove Core Course IX(CC) - Cloud Computing in IV semester as the students have studied the same course extensively in the Under Graduate programme and to include a course in latest technology instead.

**RESOLUTION NO. BOS/06/06**

Considered and approved the Panel of names for appointment of examiners and Question Paper Setters and suggested to the Academic Council, Cauvery College for Women (Autonomous), Trichy -18.

## **RESOLUTION. BOS/06/07**

Dr. V. SinthuJanitaPrakash, Chairperson, Professor &HoD expressed her gratitude for the valuable suggestions given by the external BoS members during the BoS meetings for the period 2019-2022 and thanked all the members of BOS

## **RESOLUTION. BOS/06/08**

### **Any other matter with the permission of the Chair**

The members of the board discussed the components of the internal and external marks and the question paper pattern for Under Graduate and Post Graduate Programme and concluded to

- ✓ Alter the Continuous Internal Assessment component **Library** as **Library/e-resources** for all the courses under BSc Computer Science for the 2022 - 2023 batch and onwards and is forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.
- ✓ Prof.Sukumaran suggested the following question paper pattern for all the courses under BSc Computer Science for the 2022 - 2023 batch and onwards.
  - Section-A (15 x 1 =15 Marks)
  - Section-B (5 x 6 =30 Marks)
  - Section-A (3 x 10 =30 Marks)
- ✓ No change in Question paper pattern for MSc Computer Science for the 2022 - 2023 batch and onwards.

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**TIRUCHIRAPPALLI**

**PG & RESEARCH DEPARTMENT OF COMPUTER SCIENCE**



**B.Sc Computer Science  
Semester I  
2022-2023 and Onwards**

**Cauvery College for Women (Autonomous)**

**Programme Structure- I Semester**

**B.Sc Computer Science**

(For the candidates admitted from the Academic year **2022-2023** and onwards)

Semester	Part	Course	Title	Course Code	Inst. Hrs. / week	Credits	Exam			Total
							Hrs.	Marks		
								Int.	Ext.	
I	I	Language Course-I (LC)	Ikkala Ilakiyam	22ULT1	6	3	3	25	75	100
			Hindi Literature & Grammar - 1	22ULH1						
			History of popular tales, Literature and Sanskrit story	22ULS1						
			Basic French – I	22ULF1						
	II	English Language Course- I(ELC)	Functional English for Effective Communication -I	22UE1	6	3	3	25	75	100
	III	Core Course – I(CC)	Programming in C	22UCS1CC1	5	5	3	25	75	100
		Core Practical - I (CP)	Programming in C Practical	22UCS1CC1P	3	3	3	40	60	100
		First Allied I	Essential Mathematics	22UCS1AC1	4	3	3	25	75	100
		First Allied II	Numerical Analysis and Statistics	22UCS1AC2	4	3	3	25	75	100
	IV	UGC Jeevan Kaushal	Universal Human Values	22UGVE	2	2	3	25	75	100
<b>Total</b>					<b>30</b>	<b>22</b>				<b>700</b>

Semester I	Internal Marks: 25		External Marks : 75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs./Week	CREDITS
22UCS1CC1/ 22UCA1CC1/ 22UIT1CC1	PROGRAMMING IN C	CORE	5	5

### Course Objective

- To understand the basics of C language
- To get the deep knowledge of programming using C language
- To develop logics which will help them to create programs and applications in C.
- Enhance skill on problem solving by constructing algorithms

### Course Outcomes and Cognitive Level Mapping

On the successful completion of the course, the students will be able to

CO Number	CO Statement	Cognitive Level
CO1	Define the basic concepts of Programming	K1
CO2	Understand the components of C programming	K2
CO3	Apply the knowledge to develop programs	K3
CO4	Solve real time problems using C	K4
CO5	Design algorithms and data structures swiftly and faster computation using programs	K5

### Mapping of CO with PO and PSO

COs\ PSOs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	2	3	2	2	2	2	2	3	2
CO2	3	2	3	2	3	3	3	2	3	2
CO3	3	3	3	2	3	3	3	2	3	3
CO4	3	2	3	2	3	2	2	2	3	3
CO5	3	3	3	2	3	3	3	2	2	3



## Syllabus

### UNIT I

(15 Hours)

**Developing a program in C:** Algorithm-Pseudocode-Flowchart- Planning a C program- Writing a C program- Compile and Run a C Program-**Overview of C:** – Structure of C program – Character set-Tokens – Data types – Variables – Declaration of variables - Symbolic constant – Operators and Expressions

### UNIT II

(15 Hours)

**Managing Input and Output Operations:** Reading and Writing a character -Formatted Input and Output. **Decision Making and Branching:** If, Switch, The ?: operator - The GoTo Instruction – **Decision Making and Looping:** Introduction – While, DO, For Statements –Jumps in Loops.

### UNIT III

(15 Hours)

**Array** – One dimensional array – Two and multidimensional array – Character array – String functions – **User-Defined Functions:** Need for User -Defined Functions –A Multi-Function Program-Elements of User-Defined Functions-Definition of Functions –Return values and Their Types-Function Calls- Function Declaration- Category of Functions – Nesting of Functions - Recursion - Storage Class-The scope and lifetime of variables in functions.

### UNIT IV

(15 Hours)

**Structures and Unions:** Structure definition – Structure Initialization – Array of structure – Array within structure –Structure within Structure-Union– **Pointers:** Understanding pointers - Accessing the address of a variable - Declaring and Initializing pointers - Accessing a variable through its pointers - Pointer Expressions - Pointers and Arrays - Pointers and Character strings.

### UNIT V

(15 Hours)

**File Management :** Defining and Opening File –Closing a File – I/O operations on Files – Error handling during I/O operations – Random Access to Files- Command Line Arguments.

### UNIT VI - Self Study for Enrichment (Not to be included for External Examination)

Develop algorithms for real time scenario - Area calculations, Conversion programs, swapping numbers (with and without using temporary variable).

Programs for checking eligibility, Triangle formation, Sum of numbers, Sum of series, Array manipulations (Sorting, searching, insert, delete and merging), String handling programs, Dynamic memory management using pointers, Employee pay bill preparation using Files.

### **Text Books**

1. Balagurusamy, E. (2017). *Programming in ANSI C*. 7<sup>th</sup> Edition , Mc Graw Hill Education New Delhi.
2. Byron Gottfried. (2018). *Programming with C*. 4th Edition ,Tata McGraw Hill.

### **Reference Books**

1. Yashavant Kanetkar. (2020). *Let Us C*. 16<sup>th</sup> Edition, BPB Publications, New Delhi.
2. Ashok N. Kamthane, Amit Ashok Kamthane. (2015). *Programming in C*. 3<sup>rd</sup> Edition, Pearson India Education Services Pvt. Ltd.

### **Web References**

1. <https://www.learn-c.org/>
2. <https://www.cprogramming.com/>
3. <https://www.tutorialspoint.com/cprogramming/index.htm>

### **Pedagogy**

Chalk and Talk, PPT, Discussion, Assignment, Demo, Quiz and Seminar.

### **Course Designers**

Dr.M.Anandhi, Associate Professor, Department of Information Technology  
Ms. R. Sridevi, Assistant Professor, Department of Computer Applications



## **List of Exercises**

1. Data types & Operators
2. Control Statements
3. Looping Statements
4. Functions
5. Arrays
6. String Handling Functions
7. Pointers
8. Structures
9. Command line Arguments
10. Reading data from file
11. Writing data into file

## **Web References:**

1. <https://beginnersbook.com/2015/02/simple-c-programs/>
2. <https://www.javatpoint.com/c-programs>
3. <http://www.tutorialspoint.com/cprogramming/index.htm>
4. <http://www.w3schools.in/c>
5. <http://fresh2refresh.com/c-tutorial-for-beginners>

## **Pedagogy:**

PowerPoint Presentations, Demo by e-Contents

## **Course Designers :**

Ms.S.Saranya , Ms.N.Agalya



## Syllabus

### UNIT I

(12 HOURS)

#### Matrices:

Matrix – Special types of matrices – Scalar multiplication of a matrix – Equality of matrices – Addition of matrices – Subtraction – Multiplication of Matrices – Inverse matrix – Relation between adjoint and inverse matrices – Solution of simultaneous equations – Rank of a matrix – A system of  $m$  homogeneous linear equations in  $n$  unknowns – System of non-homogeneous linear equations – Eigen values and Eigenvectors – Similar matrices – Cayley-Hamilton Theorem (proof not needed) – Simple applications only.

### UNIT II

(12 HOURS)

#### Differentiation:

Maxima and Minima (Problems Only) – Points of inflexion.

#### Partial differentiation:

Functions of function rule – Total Differential Coefficient – A Special case – Implicit Functions – Homogeneous functions – Euler's Theorem (proof not needed) – Simple problems only.

### UNIT III

(12 HOURS)

#### Integration:

Integration of Rational algebraic functions – Rule (a) – Rule (b): Type i:  $\int \frac{dx}{ax^2+bx+c}$ ,  
Type ii:  $\int \frac{lx+m}{ax^2+bx+c} dx$  – Integration of Irrational functions : Case (ii) Integration of the form  
 $\int \frac{px+q}{\sqrt{ax^2+bx+c}}$  – Type  $\int \frac{dx}{a+b\cos x}$  – Properties of definite integrals.

### UNIT IV

(12 HOURS)

#### Differential Equations:

Linear Differential Equation with constant coefficients – The Operators  $D$  and  $D^{-1}$  – Particular Integral – Special methods of finding P.I.:  $X$  is of the form (a)  $e^{\alpha x}$  (b)  $\cos ax$  or  $\sin ax$ , where  $\alpha$  is a constant (c)  $x^m$  (a power of  $x$ ),  $m$  being a positive integer (d)  $e^{\alpha x}V$ , where  $V$  is any function of  $x$ .

## UNIT V

(12 HOURS)

### Graph Theory:

Introduction – Definition of Graphs – Applications of Graphs – Finite and infinite graphs – Incidence and Degree – Isolated Vertex, Pendant Vertex, and Null Graph.

### Path and Circuits:

Isomorphism – Subgraphs – Walks, Paths, and Circuits – Connected Graphs, Disconnected Graphs, and Components – Euler graphs.

## UNIT VI

### Self-Study for Enrichment: (Not to be included for External Examination)

Symmetric matrix – Skew symmetric matrix – Hermitian and skew Hermitian matrices Concavity and Convexity– Integration by parts – Linear equation – Hamiltonian Paths and Circuits.

### Text Books

1. T.K.Manicavachagom Pillay, T.Natarajan, K.S.Ganapathy.(2015). *Algebra, Volume II*. S. Viswanathan (Printers & Publishers) Pvt., Ltd.
2. S.Narayanan, T.K.Manicavachagom Pillay.(2015).*Calculus,Volume I*. S. Viswanathan (Printers & Publishers) Pvt., Ltd.
3. S.Narayanan, T.K.Manicavachagom Pillay.(2015).*Calculus,Volume II*. S. Viswanathan (Printers & Publishers) Pvt., Ltd.
4. S.Narayanan, T.K.Manicavachagom Pillay.(2015).*Calculus,Volume III*. S. Viswanathan (Printers & Publishers) Pvt., Ltd.
5. Narsingh Deo. (2003). *Graph Theory with applications to Engineering and Computer*. Prentice Hall of India Private Limited

UNIT-I Chapter 2: Section 1 to 5, 7, 8, 10 to 16[1]

UNIT-II Chapter V: Section 1.1 to 1.5[2]

Chapter VIII: Section 1.2 to 1.6[2]

UNIT-III Chapter 1: Section 7.1 to 7.3, 8 (CASE II), 9, 11[3]

UNIT-IV Chapter 2: Section 1 to 4[4]

UNIT-V Chapter 1: Section 1.1 to 1.5[5]

Chapter 2: Section 2.1, 2.2, 2.4 to 2.6[5]

## **Reference Books**

1. A.Singaravelu. (2003). *Allied Mathematics*. A.R.Publications
2. P.R.Vittal. (2014). *Allied Mathematics*. Margham Publications, Chennai.
3. S.Arumugam and S.Ramachandran.(2006). *Invitation to Graph Theory*. Sci Tech Publications (India) Pvt Ltd., Chennai

## **Weblinks**

1. <https://youtu.be/rowWM-MijXU>
2. <https://youtu.be/TOvxWaOnrqI>
3. <https://youtu.be/pvLj1s7SOtk>
4. [https://youtu.be/Gxr3AT4NY\\_Q](https://youtu.be/Gxr3AT4NY_Q)
5. <https://youtu.be/xlbbebfYLzg>
6. <https://youtu.be/b0RJkIBhfEM>
7. <https://youtu.be/s5KZw1EpBEo>

## **Pedagogy**

Assignment, Seminar, Lecture, Quiz, Group discussion, Brain storming, e-content.

## **Course Designers**

1. Dr. V. Geetha
2. Dr. S. Sasikala



**FIRST ALLIED COURSE-II (AC)**  
**NUMERICAL ANALYSIS AND STATISTICS**

Semester I	Internal Marks: 25		External Marks:75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22UCS1AC2/ 22UCA1AC2/ 22UIT1AC2	NUMERICAL ANALYSIS AND STATISTICS	ALLIED	4	3

(2022-2023 Onwards)

**Course Objective**

- **Understand** the implementation of various methods of Numerical Analysis.
- **Organize** and **summarize** the statistical data.
- **Analyze** and **evaluate** the strengths of the conclusions based on data.

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

CO Number	CO Statement	Cognitive Level
CO1	On the successful completion of the course, students will be able to Explain the concept of solving algebraic and Transcendental Equations using Numerical Methods and solving Linear Systems using Gaussian Elimination Method and Iterative Methods and Arithmetic Mean, Median, Mode, Geometric Mean, Harmonic Mean, Correlation and Linear Regression.	K2

<b>CO2</b>	Compute Numerical Solution to Ordinary Differential Equations using various methods and Range, Quartile Deviation, Mean Deviation and Standard Deviation.	K3
<b>CO3</b>	Applying Trapezoidal, Simpson's $\frac{1}{3}$ and $\frac{3}{8}$ rules for finding Numerical Integration.	K3
<b>CO4</b>	Compute Finite Differences, Rank Correlation and solution of Algebraic and Transcendental Equations using various methods.	K3
<b>CO5</b>	Determine Interpolation using Newton's and Lagrange's Interpolation formula and Mean, Median, Mode, Mean Deviation, Standard Deviation, Correlation and Regression.	K4

### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
<b>CO1</b>	3	3	3	3	3	3	3	2	3	2
<b>CO2</b>	3	3	2	2	2	3	2	3	2	3
<b>CO3</b>	2	3	3	2	2	2	3	3	2	3
<b>CO4</b>	3	2	3	2	2	3	3	2	3	2
<b>CO5</b>	3	3	2	3	3	3	2	2	3	3

### Syllabus

#### UNIT I

(12 HOURS)

#### Solution of Algebraic & Transcendental Equations:

Introduction – The Bisection Method – The Iteration Method – Newton-Raphson Method  
(Problems Only)

**Interpolation:**

Finite Differences: Forward Differences, Backward Differences – Newton’s Formulae for Interpolation – Interpolation with unevenly spaced Points: Lagrange’s Interpolation formula

**UNIT II** (12 HOURS)

**Numerical Integration:**

Numerical Integration: Simpson’s 1/3-Rule – Simpson’s 3/8-Rule (proof not needed).

**Linear Systems of Equations:**

Solution of Linear Systems–Direct Methods: Gaussian Elimination Method – Solutions of Linear Systems – Iterative Methods (Problems Only)

**UNIT III** (12 HOURS)

**Numerical solution of Ordinary Differential Equations:**

Introduction – Euler’s Method – Modified Euler’s Method – Runge-Kutta Methods – Predictor - Corrector Methods : Adams-Moulton Method

**UNIT IV** (12 HOURS)

**Measures of Central Tendency:**

Arithmetic Mean – Median – Mode – Geometric Mean – Harmonic Mean.

**Measures of Dispersion:**

Mean Deviation – Standard Deviation (Simple Problems Only)

**UNIT V** (12 HOURS)

**Correlation:**

Introduction – Meaning of Correlation – Scatter Diagram – Karl Pearson’s co-efficient of Correlation – Rank Correlation: Spearman’s Rank Correlation Coefficient (Derivation not needed and Simple Problems Only).

**Linear Regression:**

Introduction – Linear Regression (Derivation not needed and Simple Problems Only)

## UNIT VI

### Self-study for Enrichment: (Not to be included for External Examination)

The method of False Position & Central Differences - Trapezoidal rule - Solution by Taylor's Series and Milne's Method - Range – Quartile Deviation - Rank Correlation (Repeated Ranks).

#### Text Books

1. Sastry S. S. (1998). Introductory methods of Numerical Analysis, Third Edition. Prentice Hall of India Private Limited.
2. Gupta. S.C & Kapoor, V.K (2007). Fundamentals of Mathematical Statistics. Sultan Chand & sons, New Delhi.

#### Chapters and Sections

- UNIT – I Chapter 2: Sections 2.1 - 2.3(Omit 2.3.1), 2.5(Omit 2.5.1) [1]  
Chapter 3: Sections 3.3 (Omit 3.3.4), 3.6, 3.9(3.9.1only) [1]
- UNIT – II Chapter 5: Sections 5.4(5.4.2 & 5.4.3 only) [1]  
Chapter 6: Sections 6.3(6.3.2 only) & 6.4 [1]
- UNIT – III Chapter 7: Sections 7.1, 7.4- 7.6 (Omit 7.4.1 & 7.6.2) [1]
- UNIT – IV Chapter 2: Sections 2.5 - 2.9, 2.13 (Omit 2.13.1 & 2.13.2) [2]
- UNIT –V Chapter 10: Sections 10.1 - 10.4, 10.7(10.7.1 Only) [2]  
Chapter 11: Sections 11.1 & 11.2 [2]

#### Reference Books

1. Jain M. K, Iyengar S. R.K. and Jain R.K. (1999). Numerical Analysis Numerical Methods for Scientific and Engineering Computations. New Age International Private Limited.
2. Froberg C.E. (1979). Introduction to Numerical Analysis. II Edition. Addison Wesley

## **Web Links**

1. <https://youtu.be/qCzUXav5Nk>
2. <https://youtu.be/r6MTvrI8SQ4>
3. <https://youtu.be/s05dONL4xAs>
4. <https://youtu.be/XaHFNhHfXwQ>
5. <https://youtu.be/zPG4NjIkCjc>

## **Pedagogy**

Power point presentations, Group Discussions, Seminar, Quiz, Assignment.

## **Course Designers**

1. Dr.R.Buvaneswari
2. Ms.A.Gowri Shankari

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**  
**NATIONALLY ACCREDITED WITH “A” GRADE BY NAAC**  
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**TIRUCHIRAPPALLI**

**PG & RESEARCH DEPARTMENT OF COMPUTER SCIENCE**



**B.Sc Computer Science with Cognitive Systems**

**Semester I**

**2022-2023 and Onwards**

**Cauvery College for Women (Autonomous)**  
**Programme Structure- I Semester**

**B.Sc. Computer Science with Cognitive Systems**

(For the candidates admitted from the Academic year 2022-2023 and Onwards)

Semeste	Part	Course	Title	Course Code	Inst. Hrs	Credits	Exam			Total		
							Hrs	Marks				
								Int.	Ext.			
I	I	Language Course-I (LC)	Ikkala Ilakiyam	22ULT1	6	3	3	25	75	100		
			Hindi Literature & Grammar - 1	22ULH1								
			History of popular tales, Literature and Sanskrit story	22ULS1								
			Basic French – I	22ULF1								
	II	English Language Course- I(ELC)	Functional English for Effective Communication -I	22UE1	6	3	3	25	75	100		
	III	Core Course – I (CC)	Operating System (Theory & Practical)	22UCG1CC1	4+2	5	2	50*	50*	100		
				Core Practical - I (CP)	Introduction to Worksheets Practical	22UCG1CC1P	2	2	3	40	60	100
				Core Course – II (CC)	IT Cognition and Problem Solving	22UCG1CC2	4	3	3	25	75	100
				First Allied I	Essential Mathematics	22UCG1AC1	4	3	3	25	75	100
	IV	UGC Jeevan Kaushal	Universal Human Values	22UGVE	2	2	3	25	75	100		
<b>TOTAL</b>					<b>30</b>	<b>21</b>				<b>700</b>		

Semester I	Internal Marks: 50		External Marks:50		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs. / Week		CREDITS
21UCG1CC1	OPERATING SYSTEM (THEORY& PRACTICAL)	CORE	T	P	5
			4	2	

### Course Objective

- To recognize the concepts and principles of Windows Operating System
- To inculcate knowledge on Backup and Recovery
- To learn how to install, configure, deploy, manage and maintain the Operating System

### Course Outcome and Cognitive Level Mapping

On the successful completion of the course, students will be able to

CO Number	CO Statement	Cognitive Level
CO1	Examine to work in Windows 10 Operating System, its tools and Utilities	K1
CO2	Compare the roles and features of Windows Server	K2
CO3	Monitor Windows Servers	K3
CO4	Analyze the basics of Server Management	K4
CO5	Perform Server Backup and Restoration	K4

### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	2	3	2	3	2	2	3	2
CO3	3	3	3	3	3	3	3	3	3	2
CO4	3	3	3	2	2	3	2	2	3	2
CO5	3	3	3	3	3	3	2	2	3	2

### Syllabus

#### Theory:

#### UNIT – I

(12 Hours)

**Operating System overview and Windows:** Introduction to Windows, Versions of Windows, GUI Components, Windows Features, Windows 10 Installation, User Management, Disk



Management, Security, IP Configuration, File Permissions and Sharing, Backup & Recovery, Devices and Printers.

**UNIT –II** (12 Hours)

**Server Operating System:** Introduction to Windows Server, Version of Windows Servers, Windows Roles and Features, Installation of Server OS, Installation of Roles and Features.

**UNIT –III** (12 Hours)

**Managing Windows Servers:** Account Management, Group Management, Server Access Management, Network Configuration and Storage Management.

**UNIT –IV** (12 Hours)

**Monitoring Windows Servers:** Task Manager, Performance Management, Event Log Management, Alerts and Reports.

**UNIT –V** (12 Hours)

**Backup and Recovery of Windows Servers:** Overview of Backup, Types of Backup, Server Backup & Restoration, Basic Server Troubleshooting.

**Unit – VI -Self Study for Enrichment: (Not to be included for External Examination)**

Installation of various OS – Create and run virtual machine with Hyper-V – Configure IPv4 and IPv6- Group policy management- Virtualization in Cloud computing.

**Practical:**  
**List of Exercises**

1. Windows 10 OS
  - a. Windows 10 Installation
  - b. Creating Users
  - c. Configuring Disks
  - d. Exploring File Permissions
  - e. Backup & Recovery of Windows 10
2. Windows Server OS
  - a. Installation of Windows Server OS
  - b. Installation of different Roles and Features
3. Managing Windows Servers
  - a. Create Users and Groups
  - b. Explore Roles and Access
  - c. Explore Network Configuration
  - d. Explore Storage Management
4. Monitor Windows Servers
  - a. Exploring Task Manager
  - b. Exploring Performance Monitor
  - c. Exploring Event Log
  - d. Exploring Alerts and Reports
5. Backup & Recovering Windows Servers
  - a. Backup Windows Server
  - b. Restore Windows Server Backup

## Software Essentials: OS – Windows/Linux

### Suggested Readings

TCS Material

### Web References

#### Theory:

1. [https://www.tutorialspoint.com/windows10/windows10\\_overview.htm](https://www.tutorialspoint.com/windows10/windows10_overview.htm)
2. <https://docs.microsoft.com/en-us/windows-server/administration/server-manager/install-or-uninstall-roles-role-services-or-features>
3. <https://docs.microsoft.com/en-us/windows-server/storage/disk-management/overview-of-disk-management>
4. <https://docs.microsoft.com/en-us/windows-server/troubleshoot/windows-server-troubleshooting>

#### Practical:

5. <https://www.youtube.com/watch?v=CraR01ya9ds>
6. [https://it.hessercan.com/wp-content/uploads/2017/09/laboratory\\_01-2017.pdf](https://it.hessercan.com/wp-content/uploads/2017/09/laboratory_01-2017.pdf)
7. <https://docs.microsoft.com/en-us/windows/deployment/windows-10-poc>

### Pedagogy

Chalk and talk, Power point Presentation, Assignment, Seminar, Quiz, Demonstration, e-content

### Course Designer

TCS

Semester I	Internal Marks:40		External Marks:60	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs./Week	CREDITS
22UCG1CC1P	INTRODUCTION TO WORKSHEETS	CORE	2	2

### Course Objective

- To perform basic calculations and formatting
- To inculcate the knowledge of Macros
- To create applications using VBA code

### Course Outcomes and Cognitive Level Mapping

On the successful completion of the course, students will be able to

CO Number	CO Statement	Cognitive Level
CO1	Demonstrate the use of basic functions, LOOKUPS and Formatting	K2
CO2	Build Applications using VBA code	K3
CO3	Write Macros	K3
CO4	Implement data visualization	K3
CO5	Handle large amount of data using Pivot table	K3

### Mapping of CO with PSO and PO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	3	3	3	2	3	2
CO2	3	3	3	2	3	3	3	2	3	2
CO3	3	3	3	3	3	3	3	2	3	3
CO4	3	3	3	3	2	3	3	2	2	2
CO5	3	3	3	3	2	3	2	2	3	3

### List of Exercises

#### EXCEL

1. Excel worksheet for Formatting, Math function and Text function
2. Excel worksheet for Graph Function
3. Excel worksheet for VLOOKUP, HLOOKUP and other LOOKUPS
4. Excel worksheet for Pivot

## **VBA**

5. Unhide all worksheets at oneGo
6. Hide All Worksheets except the Active Sheet
7. Protect and Unprotect All worksheets in a Workbook
8. Save each Worksheets as a separate PDF
9. Change the Letter Case of Selected Cells to Upper Case
10. Sort Data by Single and Multiple Columns
11. Highlight Blank Cells with VBA

## **Software Essentials: Microsoft office 2007**

### **Web References**

1. <https://www.excel-exercise.com/beginner/>
2. <https://trumpexcel.com/excel-macro-examples/>

### **Pedagogy**

Power point Presentation, Demonstration

### **Course Designer**

TCS

<b>Semester I</b>	<b>Internal Marks:25</b>		<b>External Marks:75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hrs./Week</b>	<b>CREDITS</b>
<b>22UCG1CC2</b>	<b>IT COGNITION &amp; PROBLEM SOLVING</b>	<b>CORE</b>	<b>4</b>	<b>3</b>

### Course Objective

- To enable the learners to understand the concepts of cognitive process
- To empower the learners with the skills required for virtual collaboration and cultural sensitivity

### Course Outcomes and Cognitive Level Mapping

On the successful completion of the course, students will be able to

<b>CO Number</b>	<b>CO Statement</b>	<b>Cognitive Level</b>
CO1	Outline Cognitive Process	K1
CO2	Reproduce perceptual process	K1
CO3	Identify factors affecting memory	K2
CO4	Solve different types of problems	K3
CO5	Experiment different skills	K4

### Mapping of CO with PSO and PO

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	3	3	3	2	2	3	2	2	1	1
CO2	3	3	3	3	2	3	2	1	2	1
CO3	3	3	3	3	2	3	1	3	3	2
CO4	3	3	3	3	3	3	3	1	3	3
CO5	3	3	3	3	3	2	3	3	3	3

### Syllabus

#### Unit I

(7 Hours)

Introduction To Cognition: Meaning, Cognitive processes, Development of cognitive psychology.

#### Unit II

(15 Hours)

Perceptual Processes; Attention: Divided attention, Selective Attention, Visual attention and Auditory attention. Consciousness: Varieties, Subliminal Perception. Visual Perception Perceptual Organizational Processes, Multisensory interaction and Integration: Synthesis, Comparing the senses, Perception and Action.

**Unit III** (15 Hours)

Memory- Working Memory: Factors affecting the capacity of working Memory. Long Term Memory: Encoding and Retrieval in Long Term Memory, Autobiographical Memory. Memory Strategies: Practice, Mnemonics using Imagery, Mnemonics using organization. Meta cognition: Meta memory, TOT, Meta comprehension.

**Unit IV** (15 Hours)

Problem Solving, Reasoning and Decision Making: VUCA World Problem Solving, Types of problems, Factors that influence Problem Solving, creativity, Reasoning: Inductive and Deductive Reasoning. Decision Making: Heuristics in decision making, representativeness, availability and Anchoring and adjustment. The framing effect, Over confidence in decisions, The Hindsight Bias.

**Unit V** (8 Hours)

Future Skills: Critical thinking, Adaptive thinking, Cognitive Load Management, Design thinking, Virtual Collaboration and Cultural Sensitivity.

**Unit VI -Self study for Enrichment: (Not to be included for External Examination)**

Language Production and Bilingualism: Speaking – Producing a word, producing a sentence, speech errors, producing disclosure. Writing – Cognitive model of writing, planning the writing assignment. Bilingualism and Second Language Acquisition – Background and advantages of bilingualism.

**Reference Books**

1. Matlin, M.W. (2003). *Cognition* (5<sup>th</sup> Edition). Wiley Publication.
2. Riegler, B.R., Reigler, G.L. (2003). *Cognitive Psychology–Applying the Science of Mind* (2<sup>nd</sup> Edition). Pearson Education.
3. Benjafield, J.G. (2007). *Cognition* (3<sup>rd</sup> Edition). Oxford University Press.
4. Goldstein, B.E. (2008). *Cognitive Psychology* (2<sup>nd</sup> Edition). Wadsworth.

**Web References**

1. [https://sjsu.edu/people/mark.vanselst/courses/p135/s1/Kellogg\\_c1\\_fall2013.pdf](https://sjsu.edu/people/mark.vanselst/courses/p135/s1/Kellogg_c1_fall2013.pdf)
2. <https://jvpartners.com/problem-solving-and-decision-making-in-a-vuca-environment/>
3. <https://plato.stanford.edu/entries/critical-thinking/>

**Pedagogy**

Chalk &Talk, Power point Presentation, Seminar, Assignment, Quiz

**Course Designer**

TCS

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**M. Sc Computer Science**  
**2022-2023 and Onwards**

**Cauvery College for Women (Autonomous)**

**Programme Structure – Semester I**

**M.Sc Computer Science**

**(For the candidates admitted from the Academic year 2022-2023 and onwards)**

Semester	Course	Course Title	Course Code	Inst.Hrs./week	Credits	Exam			Total
						Hrs	Mark		
							Int.	Ext.	
I	Core Course– I(CC)	Mathematical Foundation For Computer Science	22PCS1CC1	6	5	3	25	75	100
	Core Course– II(CC)	Web Technologies	22PCS1CC2	6	5	3	25	75	100
	Core Practical– I(CP)	Web Technologies Practical	22PCS1CC1P	6	4	3	40	60	100
	Core Course –III (CC)	Machine Learning Techniques	22PCS1CC3	6	4	3	25	75	100
	Elective Course- I (EC)	Advanced Computer Architecture/ Advanced Database System/ Software Testing	22PCS1EC1A/ 22PCS1EC1B/ 22PCS1EC1C	6	4	3	25	75	100
	<b>Total</b>				<b>30</b>	<b>22</b>	-	-	-



Semester: I	Internal Marks: 25		External Marks:75	
COURSE CODE	COURSE TITLE	CATEGORY	HOURS/WEEK	CREDITS
22PCS1CC1	MATHEMATICAL FOUNDATION FOR COMPUTER SCIENCE	CORE	6	5

### Course Objective

- Explore the basic concepts of Discrete Mathematics, Graph Theory
- Acquire the knowledge of Fundamentals in Fuzzy set Theory and combinatorics
- Analyze the method of logical reasoning to solve variety of problems

### Prerequisites

Basic Knowledge in Essential Mathematics, Numerical and Statistics.

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
CO 1	Explain the concepts of Permutation	K2
CO 2	Apply the concepts of connectives, theory of inference for the statement calculus and fuzzy set theory	K3
CO 3	Examine basic terminologies in graph to draw various kinds of graphs	K4
CO 4	Differentiate the theory of Boolean Algebra and Lattices	K4
CO 5	Explain the general properties in algebraic systems and the number of applications dealing with the theory of communication process and error detecting and correcting codes	K2

### Mapping of CO with PO and PSO

CO s	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	2	2	3	2	2	3	2	2	2	3
CO 2	2	2	3	2	2	2	2	2	2	3
CO 3	3	2	3	2	2	3	2	2	3	3
CO 4	3	2	2	2	2	2	2	2	2	2
CO 5	2	2	2	2	3	2	3	1	2	2

### Syllabus

#### UNIT I

(18 HOURS)

**Mathematical Logic:** Statements and notation – Connectives – Negation– Conjunction– Disjunction–Statement Formulas and Truth Tables – Conditional and Bi conditional – Well-formed Formulas – Tautologies – Duality law – Tautological Implications – Theory of inference for the statement calculus–Validity using Truth Tables – Rules of inference – Consistency of Premises and indirect Method of Proof.

## UNIT II

(18 HOURS)

**Ordering:** Partial ordering – Partially Ordered Set: Representation and Associated Terminology.

**Lattices and Boolean Algebra:** Lattices as Partially ordered sets – Definition and Example- Some Properties of Lattices – Boolean Algebra – Definition and examples- Sub algebra, Direct Product and Homomorphism– Fundamental principles of counting: Permutations – Combinations: The Binomial theorem – combinations with repetition– the principle of Inclusion and Exclusion: The principle of Inclusion and Exclusion.

## UNIT III

(18 HOURS)

**Algebraic Structures:** Algebraic Systems: Example and General Properties: Definition and Examples - Some Simple Algebraic Systems and General Properties – Semigroups and Monoids : Definitions and Examples – Homomorphism of Semigroups and Monoids – Sub semigroups and Sub monoids – Groups: Definitions and Examples – Subgroups and Homomorphisms – Cosets and Lagrange’s Theorem. **Group Codes:** The Communication Model and Basic Notions of Error Correction – Generation of Codes by Using Parity Checks – Error Recovery in Group Codes.

## UNIT IV

(18 HOURS)

**Graph Theory:** Introduction-Definition of a Graph-Application of Graphs-Finite and Infinite graphs-Incidence and degree-Isolated vertex, pendant vertex and null graph. **Paths and Circuits:** Subgraphs-Walks, paths and circuits-Connected graphs, Disconnected graphs and components-Euler graphs-more on Euler graphs-Hamiltonian paths and circuits. **Trees and Fundamental Circuits:** Trees– Some Properties of Trees–Pendant Vertices in a Tree.

## UNIT V

(18 HOURS)

**From Classical (Crisp) Sets to Fuzzy Sets:** Fuzzy sets: Basic types – Fuzzy sets: Basic Concepts. **Fuzzy Sets Versus Crisp Sets:** Additional Properties of  $\alpha$  – cuts **Operations on Fuzzy Sets:** Types of Operations– Fuzzy Intersections: t-Norms – Fuzzy Unions: t-Conorms (Proof not needed).

## UNIT VI Self Study for Enrichment (Not included for End Semester Examinations)

Equivalence of Formulas – Recurrence relations: First order linear Recurrence Relation – The Application of Residue Arithmetic to Computers: Introduction to Number Systems – Residue Arithmetic – Operations on Graphs, Spanning trees – Fuzzy Complements.

### Text Books

- 1.Tremblay, J.P. & Manohar, R. (1997). *Discrete Mathematical Structures with Applications to Computer Science*, Tata McGraw- Hill Publishing Company Limited, New Delhi.
2. Ralph,P. Grimaldi.( 2002). *Discrete and Combinatorial Mathematics*, Pearson Asia Education.
- 3.Narsingh Deo.(1997). *Graph Theory With Applications To Engineering & Computer Science*. Prentice Hall of India, New Delhi.
- 4.Klir, G. J. and Yuan . R , (2001).*Fuzzy Sets And Fuzzy Logic*, Prentice Hall of India, New Delhi.

### Chapters and Sections

UNIT-I Chapter 1: Sections 1-1, 1-2(1-2.1 to 1-2.4,1-2.6 to 1-2.8, 1-2.10, 1-2.11)[1],

1-4(1-4.1 to 1-4.3) [1]

UNIT-II Chapter 2: Sections 2-3(2-3.8, 2-3.9 ) [1]

Chapter 4: Sections 4-1( 4-1.1, 4-1.2), 4-2(4-2.1, 4-2.2) [1]

Chapter 1: Sections 1.2 to 1.4 [2]

Chapter 8: Sections 8.1 [2]

UNIT-III Chapter 3: Sections 3-1, 3-2, 3-5 ( 3-5.1, 3-5.2 & 3-5.3 Only), 3-7 [1]

UNIT- IV Chapter 1: Sections 1.1 to 1.5 [3]

Chapter 2: Sections 2.2, 2.4 to 2.6, 2.8, 2.9 [3]

Chapter 3: 3.1 to 3.3 [3]

UNIT- V Chapter 1: Sections 1.3, 1.4 [4]

Chapter 2: Sections 2.1 [4]

Chapter 3: Sections 3.1, 3.3, 3.4 [4]

### **Reference Books**

1. Ganesh, G.J.M. (2006). *Introduction To Fuzzy Sets And Logic*, Prentice-Hall of India, New Delhi.
2. Arumugam, S. & Ramachandran, S. (2001). *Invitation To Graph Theory*, Scitech Publications India Pvt Limited, Chennai.
3. Seymour Lipschutz, Marc Laris Lipson.(1999). *Schuam's Outlines Discrete Mathematics*. Tata McGraw- Hill Publishing Co., Ltd.. New Delhi.

### **Web References**

1. [https://www.youtube.com/results?search\\_query=negation+of+the+statement](https://www.youtube.com/results?search_query=negation+of+the+statement)
2. [https://www.youtube.com/results?search\\_query=permutation](https://www.youtube.com/results?search_query=permutation)
3. [https://www.youtube.com/results?search\\_query=graph+theory+definitions+and+examples](https://www.youtube.com/results?search_query=graph+theory+definitions+and+examples)
4. [https://www.youtube.com/results?search\\_query=trees+in+graph+theory](https://www.youtube.com/results?search_query=trees+in+graph+theory)
5. [https://www.youtube.com/results?search\\_query=fuzzi+sets+](https://www.youtube.com/results?search_query=fuzzi+sets+)

### **Pedagogy**

Chalk and Talk, Group discussion, Seminar & Assignment.

### **Course Designer**

Dr.S.Saridha

<b>Semester: I</b>	<b>Internal Marks: 25</b>		<b>External Marks: 75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>HRS/WEEK</b>	<b>CREDITS</b>
<b>22PCS1CC2</b>	<b>WEB TECHNOLOGIES</b>	<b>CORE</b>	<b>6</b>	<b>5</b>

### Course Objective

- To create own Web page and how to host own web site on internet.
- To introduce Server side programming with Java Servlets, JSP and to commence Client side scripting with Java script
- To analyze the basics involved in publishing content on the World Wide Web and to transform graduates with potential in computational and as experts in information technology that the industry requires from time to time

### Prerequisites

Java, HTML and Scripting

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
<b>CO 1</b>	Understand the basic tags of HTML	K2
<b>CO 2</b>	Apply suitable scripting languages for Client side and Server side programming	K3
<b>CO 3</b>	Analyze the tags of JSP	K3
<b>CO 4</b>	Inspect the basics involved in publishing content on the World Wide Web	K4
<b>CO 5</b>	Assess oneself to get employment with Practical Hands on training.	K6

### Mapping of CO with PO and PSO

CO s	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5
<b>CO 1</b>	3	3	2	3	2	3	3	2	3	2
<b>CO 2</b>	3	3	2	3	2	3	3	2	3	2
<b>CO 3</b>	3	3	2	3	2	3	3	2	3	2
<b>CO 4</b>	3	3	2	3	3	3	3	2	3	2
<b>CO 5</b>	3	3	2	3	3	3	3	3	3	3

### Syllabus

#### UNIT I

(16 HOURS)

Web Essentials - Clients, Servers, and Communication. The Internet-Basic Internet Protocols – TCP/IP-UDP-DNS-Domain Names–The World Wide Web-HTTP request message-response message-Web Clients - Web Servers-. Markup Languages: .An Introduction to HTML History-Versions-Basic HTML Syntax and Semantics- Some Fundamental HTML Elements-Relative URLs-Lists-tables-Frames-Forms- Some Fundamental HTML Elements- Lists-tables.

## UNIT II

(18 HOURS)

Style Sheets-CSS -Introduction to Cascading Style Sheets-Features-Core Syntax-Style Sheets and HTML Style Role Cascading and Inheritance-Text Properties-Box Model Normal Flow Box Layout-Beyond the Normal Flow - Beyond the Normal Flow- Beyond the Normal Flow: properties for positioning, relative, float, absolute positioning.

## UNIT III

(16 HOURS)

Client- Side Programming - The JavaScript Language-History and Versions Introduction JavaScript in Perspective-Syntax Variables and DataTypes-Statements-Operators-Literals-Functions-Objects-Arrays-Built-in Objects- Built-in Objects.

## UNIT IV

(20 HOURS)

Server-Side Programming-Java Servlets -Architecture-Overview-A Servlet-Generating Dynamic Content-Life Cycle-Parameter Data-Sessions-Cookies- URL Rewriting - Servlets and Concurrency. RMI Architecture - Working With RMI- Application Development With RMI- Application Development With RMI.

## UNIT V

(20 HOURS)

Separating Programming and Presentation: JSP Technology- Introduction to JSP- Running JSP applications: Web Applications and Parameters- Basic JSP – Support for the Model-view-Controller Paradigm – **Web Services:** Web Services Concepts-WSDL-Representing Data Types: XML Schema-Writing a java web service client.

## UNIT VI -Self Study for Enrichment (Not included for End Semester Examinations)

Search Engine features – Real time applications for client and server side programming (JavaScript, RMI) – Platform supporting for webservices

### Text Book

1. Jeffrey C.Jackson.(2009). *Web Technologies-A Computer Science Perspective*. Pearson Edition.

### Reference Books

1. Robert W.Sebesta.(2007). *Programming the World Wide Web*. Fourth Edition, Pearson Edition.
2. Harvey M.Deitel, Paul J.Deitel,Andrew B.Goldberg.(2006). *Internet & World Wide Web How To Program* . Third Edition, Pearson Education.
3. Marty Hall, Larry,Brown.(2001) .*Core Web Programming*. Second Edition, Volume I& II, Pearson Education.
4. Bates.(2006). *Developing Web Applications*. Wiley.
5. Herbert Schildt. (2012). *The Complete Reference–JAVA*. 7<sup>th</sup>Edition, TMH.

### Web References

1. [www.w3schools.com](http://www.w3schools.com)
2. [www.geeksforgeeks.org/web-technology/](http://www.geeksforgeeks.org/web-technology/)
3. [www.guide.freecodecamp.org](http://www.guide.freecodecamp.org)
4. [www.alphadevx.com](http://www.alphadevx.com)

### Pedagogy

Chalk and Talk, Group discussion, Seminar & Assignment.

### Course Designer

Dr.K.Reka

<b>Semester: I</b>	<b>Internal Marks: 40</b>		<b>External Marks: 60</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>HRS/WEEK</b>	<b>CREDITS</b>
<b>22PCS1CC1P</b>	<b>WEB TECHNOLOGIES PRACTICAL</b>	<b>CORE</b>	<b>6</b>	<b>4</b>

### Course Objective

- To provide fundamental concept of Internet, JavaScript, Servlet with a view to developing professional software development skills
- To implement JSP and Servlet concepts to create an interactive application
- To inculcate knowledge in developing application using RMI

### Prerequisites

Java, HTML and Scripting

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
<b>CO1</b>	Recognize the usage of HTML Tags	K2
<b>CO2</b>	Demonstrate the usage of Java Script	K3
<b>CO3</b>	Apply JSP tags to create a small application	K3
<b>CO4</b>	Experiment the client/server application using RMI	K4
<b>CO5</b>	Develop web application using Servlet	K5

### Mapping of CO with PO and PSO

CO s	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5
<b>CO 1</b>	3	3	2	3	2	3	3	3	3	2
<b>CO 2</b>	3	3	2	3	2	3	2	2	2	2
<b>CO 3</b>	3	3	2	3	3	3	3	3	3	3
<b>CO 4</b>	3	3	3	3	3	3	3	3	3	2
<b>CO 5</b>	3	3	3	3	3	3	3	3	3	3

### Exercises

1. Develop your college web portal using HTML.
2. To develop a Style Sheet using Link, Table, Box, List and Positioning.
3. Write a Java Script code block, which checks the contents entered in a form's text element. If the text entered is in the lower case, convert to uppercase.
4. Write a Java Script code block, which validates a username and password.
  - a) If either the name or password field is not entered, display an error message.
  - b) If the fields are entered do not match with default values display an error message.
  - c) If the fields entered match, display the welcome message.

5. Write a program in Java to implement a Client/Server application using RMI.
6. Write a program in Java to create a Cookie and set the expiry time of the same.
7. Write a program in Java to create Servlet to count the number of visitors to a web page.
8. Write a program in Java to create a form and validate a password using Servlet.
9. Create an application using basic JSP tag

### **Web References**

1. <https://www.w3.org/TR/html401/present/styles.html>
2. [www.studytonight.com/java/rmi-in-java.php](http://www.studytonight.com/java/rmi-in-java.php)
3. <https://www.tutorialspoint.com/servlets/servlets-session-tracking.htm>
4. <https://www.edureka.co/blog/servlet-and-jsp-tutorial/>

### **Pedagogy**

Demonstration

### **Course Designer**

Ms.S.Udhaya priya

<b>Semester: I</b>	<b>Internal Marks: 25</b>		<b>External Marks: 75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>HRS/WEEK</b>	<b>CREDITS</b>
<b>22PCS1CC3</b>	<b>MACHINE LEARNING TECHNIQUES</b>	<b>CORE</b>	<b>6</b>	<b>4</b>

### Course Objective

- To understand the need of machine learning to solve problems in real time applications
- To study the various learning algorithms in machine learning
- To learn the new approaches in machine learning

### Prerequisites

Basic Knowledge in Programming Languages (Python, R), Statistics, Linear Algebra and Calculus

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
CO 1	Learn Machine Learning and its Architecture	K1
CO 2	Apply the Concept Learning and Decision Tree Learning Algorithms	K3
CO 3	Interpret Artificial Neural Networks and Genetic Algorithms	K2
CO 4	Classify Bayesian Learning and Computational Learning Theory	K4
CO 5	Dissect Instance-Based Learning and Inductive and Analytical Learning	K4

### Mapping of CO with PO and PSO

CO s	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	3	3	3	3	3	2	2	2	2	2
CO 2	3	2	3	2	3	2	3	3	2	3
CO 3	2	3	2	3	2	3	3	3	3	3
CO 4	3	3	3	2	3	2	3	3	2	2
CO 5	2	3	3	3	2	2	3	3	3	3

### Syllabus

#### UNIT I

(12 HOURS)

**Machine Learning:** General Introduction to Machine Learning – The Details of Machine Learning - **The Practical Concepts of Machine Learning:** Machine Learning, AI, the Brain and the Business of Intelligence – General Architecture of Machine Learning – Types of Machine Learning

#### UNIT II

(18 HOURS)

**Concept Learning and the General-to-Specific Ordering:** A Concept Learning Task– Concept Learning as Search – Version Spaces and Candidate Elimination Algorithm - Inductive Bias – **Decision Tree learning:** Decision Tree Representation – Basic Decision Tree Learning Algorithm – Issues in Decision Tree Learning



### UNIT III

(20 HOURS)

**Artificial Neural Networks:** Neural Network Representation – Problems for Neural Network Learning – Perceptrons – Multilayer Networks and Back Propagation Algorithm –**Genetic Algorithms:** Genetic Algorithms –Hypothesis Space Search – Genetic Programming – Models of Evaluation and Learning

### UNIT IV

(20 HOURS)

**Bayesian Learning:** Bayes Theorem – Bayes Theorem and Concept Learning –Bayes Optimal Classifier – Gibbs Algorithm – Naïve Bayes Classifier – Bayesian Belief Network – EM Algorithm – **Computational Learning Theory:** Sample Complexity for Finite Hypothesis Spaces - Sample Complexity for Infinite Hypothesis Spaces

### UNIT V

(20 HOURS)

**Instance-Based Learning:** K- Nearest Neighbor Learning – Locally Weighted Regression – Radial Basis Functions–Case Based Reasoning -**Combining Inductive and Analytical Learning:** The EBNN Algorithm – The FOCL Algorithm – Reinforcement Learning: Q Learning

### UNIT VI Self study for Enrichment (Not included for End Semester Examinations)

Machine Learning Models- Find-S: Finding a Maximally Specific Hypothesis- Advanced Topics in Artificial Neural Networks- The Mistake Bound Model of Learning- Industrial Applications of Machine Learning: Manufacturing Analytics – Healthcare Analytics.

#### Text Books

1. Patanjali Kashyap(2017). *Machine Learning for Decision Makers*. Apress. (Unit I)
2. Tom M. Mitchell(2018). *Machine Learning*. McGraw-Hill Education (India) Private Limited.(Units II-V)

#### Reference Books

1. Ethem Alpaydin (2010). *Introduction to Machine Learning*. Second Edition.The MIT Press.
2. Stephen Marsland (2014). *Machine Learning: An Algorithmic Perspective..* Second Edition. CRC Press.

#### Web References

1. <https://www.simplilearn.com/tutorials/machine-learning-tutorial>
2. <https://machinelearningmastery.com/start-here/>
3. <https://www.mygreatlearning.com/blog/machine-learning-tutorial/>

#### Pedagogy

Chalk and talk, Discussion, Quiz, Assignment & PPT

#### Course Designer

Ms S.Udhaya priya

<b>Semester: I</b>	<b>Internal Marks: 25</b>		<b>External Marks : 75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>HRS/WEEK</b>	<b>CREDITS</b>
22PCS1EC1A	ADVANCED COMPUTER ARCHITECTURE	ELECTIVE	6	4

### Course Objective

- To understand the micro-architectural design of processors
- To learn about the various techniques used to obtain performance improvement and power savings in current processors
- To gain knowledge in distributed and Parallel Computing Architecture

### Prerequisites

Microprocessor

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
CO 1	Review Instruction level parallelism	K2
CO 2	Understand the concepts of Pipelining	K2
CO 3	Articulate about RAID	K3
CO 4	Analyze the Performance of different level parallelism techniques	K4
CO 5	Manage Cache and Memory Related Issues in Multi-Processors	K5

### Mapping of CO with PO and PSO

CO s	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	3	3	3	3	3	2	2	2	2	2
CO 2	3	2	3	2	3	2	3	3	2	3
CO 3	2	3	2	3	2	3	3	3	3	3
CO 4	3	3	3	2	3	2	3	3	2	2
CO 5	2	3	3	3	2	2	3	3	3	3

### Syllabus

#### UNIT I (10 HOURS)

Fundamentals of Quantitative Design and Analysis: Introduction-classes of computers-defining computer architecture –Trends in Technology, Power, Energy and Cost, Dependability.

#### UNIT II (20 HOURS)

ILP Concepts and challenges: – Compiler Techniques for Exposing ILP – Dynamic Branch Prediction-Dynamic Scheduling-Multiple Instruction Issue-Hardware based Speculation-Static Scheduling-Multi threading.

**UNIT III** (20 HOURS)  
Vector Architecture-SIMD Extensions–Graphics Processing Units– Loop Level Parallelism.

**UNIT IV** (20 HOURS)

TLP: Introduction-Centralized Shared Memory- Architectures-Performance of Symmetric shared memory multiprocessor-Synchronization-Models of Memory Consistency.

**UNIT V** (20 HOURS)

Programming Models and Workloads for Warehouse-Scale Computers- Computer Architecture of Warehouse Scale Computers - Physical Infrastructure and Costs of Warehouse Scale Computers - Cloud Computing: The Return of Utility Computing.

**UNIT VI Self study for Enrichment** (Not included for End Semester Examinations)

Historical Perspectives Quantitative Design and Analysis-Limitations of Instruction-Level Parallelism and Its Exploitation-Fallacies and pitfalls of Data-Level Parallelism in Vector Cross Cutting Issues in Thread-Level Parallelism-Using Energy Efficiency inside the server.

### **Text Books**

1. John L Hennessey,David A Patterson(2012). *Computer Architecture A Quantitative Approach*. Fifth Edition,Morgan Kaufmann Elsevier.

### **Reference Books**

1. KaiHwang,FayeBrigg(2000). *Computer Architecture And Parallel Processing*. International Edition,McGraw-Hill.
2. Sima D,Fountain T,KacsukP(2000). *Advanced Computer Architectures: A Design Space Approach*.Addison Wesley.

### **Web References**

1. [www.cs.iitk.ac.in/](http://www.cs.iitk.ac.in/)
2. <https://passlab.github.io/CSE565/note>

### **Pedagogy**

Chalk and talk & Seminar

### **Course Designer**

Ms.R. Rita Jenifer

<b>Semester: I</b>	<b>Internal Marks: 25</b>		<b>External Marks: 75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>HRS/WEEK</b>	<b>CREDITS</b>
<b>22PCS1EC1B</b>	<b>ADVANCED DATABASE SYSTEM</b>	<b>ELECTIVE</b>	<b>6</b>	<b>4</b>

### Course Objective

- To inculcate knowledge in Transaction Management with ACID properties
- To learn about advanced concepts of Database Management System
- To gain Knowledge in Information retrieval using XML and Internet Databases

### Prerequisites

RDBMS

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
<b>CO 1</b>	Understand the concepts of parallel database and query	<b>K2</b>
<b>CO 2</b>	Apply distributed transaction and concurrency control	<b>K3</b>
<b>CO 3</b>	Test various queries ORDBMS and OODBMS	<b>K4</b>
<b>CO 4</b>	Combine Advanced databases like Spatial and XML databases for handling data	<b>K5</b>
<b>CO 5</b>	Deduct applications with Map Reduce concept	<b>K6</b>

### Mapping of CO with PO and PSO

CO s	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5
<b>CO 1</b>	3	3	3	3	3	2	2	2	2	2
<b>CO 2</b>	3	2	3	2	3	2	3	3	2	3
<b>CO 3</b>	2	3	2	3	2	3	3	3	3	3
<b>CO 4</b>	3	3	3	2	3	2	3	3	2	2
<b>CO 5</b>	2	3	3	3	2	2	3	3	3	3

### Syllabus

#### UNIT I

(16 HOURS)

Parallel Databases: I/O Parallelism-Inter Query Parallelism -IntraQuery Parallelism - Interpretational Parallelism -Query Optimization-Design of Parallel Systems-Parallelism on Multicore Processors.

#### UNIT II

(20 HOURS)

Distributed Databases: Homogeneous and Heterogeneous Databases-Distributed Data Storage-Distributed Transactions-Commit Protocol-Concurrency Control in Distributed Databases-Distributes Query Processing- Heterogeneous Distributed Databases-Cloud Based Databases-Directory Systems.

**UNIT III****(18 HOURS)**

Object Database System : Complex Data Types-Structured types and Inheritance in SQL– Table Inheritance-Object Identity and Reference Types in SQL –Implementing O-R features – Object Relational Mapping-Object- Oriented versus Object-Relational.

**UNIT IV****(18 HOURS)**

Transactions: Transaction Concepts—A Simple Transaction Model-Transaction Atomicity and Durability–Transaction Isolation- Transaction Isolation and Atomicity– Concurrency Control:Lock based Protocols-Deadlock Handling-Multiple Granularity-Timestamp-Based Protocol-Validation- Based Protocol.

**UNIT V****(18HOURS)**

Emerging Technologies: XML and Internet Databases: Structured Semi Structured and Unstructured Data-XML Hierarchical (Tree) Data Model-XML Documents, DTD, XML Schema-XML Documents and Databases-XML Querying.

**UNIT VI Self study for Enrichment (Not included for End Semester Examinations)**

Query Optimization techniques supporting platforms (SQL, MYSQL, Oracle)-Most popular Cloud Databases and their Features (DynamoDB,NO SQL)- Popular Object Databases and their Features(Mongo DB)- Transaction and Concurrency control used in Real time Systems- Advanced Technologies in Database Systems: Data mining, Information Retrieval(Text DataBase).

**Text Books**

- 1.Abraham Silberschatz., Henry F. Korth. S. Sudharshan (2013). *Database System Concepts*.6<sup>th</sup> Edition, Tata McGraw Hill. (Unit I-IV)
- 2.Ramez Elmasri,Shamkant. B.Navathe (2015). *Fundamentals of Database Systems*.6<sup>th</sup> Edition, Pearson Education. (Unit V)

**Reference Books**

- 1.Thomas Connolly, Carolyn Begg (2015). *Database Systems, A Practical Approach to Design, Implementation and Management*. 6<sup>th</sup> Edition,Pearson Education.
- 2.Raghu Ramakrishnan.,Johannes Gehrke (2007).*Database Management System*.3<sup>rd</sup> Edition, McGraw Hill Higher Education.

**Web References**

1. <https://www.db-book.com/db6/>
2. <https://www.worldcat.org>

**Pedagogy**

Chalk and talk, Lecture, Discussion, Quiz, Demonstration and PPT

**Course Designer**

Ms.G.Sujatha

<b>Semester: I</b>	<b>Internal Marks: 25</b>		<b>External Marks: 75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>HRS/WEEK</b>	<b>CREDITS</b>
<b>22PCS1EC1C</b>	<b>SOFTWARE TESTING</b>	<b>ELECTIVE</b>	<b>6</b>	<b>4</b>

### Course Objective

- To understand the quality aspects of a software
- Able to identify and prevent the defects of the software
- Provides exposure on principles in testing

### Prerequisites

Software Engineering

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
CO 1	Describe the phases of software project	K2
CO 2	Illustrate various types of testing	K3
CO 3	Analyze the performance of testing	K4
CO 4	Distinguish the quality parameters	K4
CO 5	Evaluate the planning, management and execution	K5

### Mapping of CO with PO and PSO

CO s	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5
CO1	3	3	3	2	2	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	2	2	3	3	2	3	2
CO5	3	3	3	2	3	3	3	3	3	3

### Syllabus

#### UNIT I

(20 HOURS)

Software Development Life Cycle Models: Quality, Quality Assurance and Quality control – Testing, Verification & Validation – Process Model – Life Cycle Models - White Box Testing: White Box Testing – Static Testing – Structural Testing – Black Box Testing - Phases of Software Project

#### UNIT II

(15 HOURS)

Integration Testing – Integration Testing as a Type of Testing – Integration Testing as a Phase of Testing – Scenario testing – Defect Bash - System and Acceptance Testing: Overview –System Testing – Functional Vs Non Functional Testing – Functional System Testing – Non Functional Testing – Acceptance Testing –Summary of Testing Phases.

#### UNIT III

(20 HOURS)

Factors governing Performance Testing – Methodology for Performance Testing – Tools for Performance Testing – Process for Performance Testing - Regression Testing - Best Practices in Regression Testing.

#### **UNIT IV**

**(20 HOURS)**

Test Phases – Enabling Testing – Locale Testing – Validation – Language Testing – Localization Testing – Tools– Ad hoc Testing: - Overview – Buddy Testing – Pair Testing – Exploratory Testing – Iterative Testing – Agile and Extreme Testing – Usability and Accessibility Testing: - Usability Testing – Quality Factors – Aesthetics Testing

#### **UNIT V**

**(15 HOURS)**

Test Planning, Management, Execution and Reporting: Test Planning -Test Management – Test Process – Test Reporting – Best Practices - Software Test Automation: Terms used in Automation – Skills Needed for Automation – Automate, Scope of Automation– Process model for Automation – Selecting a Test tool – Automation for Extreme Programming Model – Challenges in Automation

#### **UNIT VI Self study for Enrichment (Not included for End Semester Examinations)**

Tools for White Box and Black Box Testing- Specialized Testing types in Functional and Non-Functional Testing-Tools for Regression and performance Testing- Agile and Extreme testing in Real time with example-Different types of Automated tools for Software testing

#### **Text Book**

1.Srinivasan Desikan, Gopaldaswamy Ramesh (2011). *Software Testing – Principles & Practices*. Pearson Education.

#### **Reference Books**

- 1.Ron Patton (2006). *Software Testing*. 2<sup>nd</sup> Edition, Pearson Education.
- 2.William E. Perry (2006). *Effective Methods for Software Testing*.3<sup>rd</sup> Edition,Wiley India.
- 3.Renu Rajani, Pradeep Oak(2004). *Software Testing – Effective Methods, Tools and Techniques*.TMH Publishing Company Limited.

#### **Web References**

1. <https://www.gcreddy.com/2021/05/software-testing-syllabus.html>
2. [https://onlinecourses.nptel.ac.in/noc19\\_cs71/preview](https://onlinecourses.nptel.ac.in/noc19_cs71/preview)
3. <https://www.softwaretestinghelp.com/online-software-testing-course-syllabus/>

#### **Pedagogy**

Chalk and talk, PPT, Discussion, Assignment, Quiz and Seminar

#### **Course Designer**

Dr.D.Radhika

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**

**Nationally Accredited (III Cycle) with “A” Grade by NAAC**

**ISO 9001:2015 Certified**

**Annamalai Nagar, Trichy – 18.**



**DEPARTMENT OF COMPUTER APPLICATIONS**

**AUTONOMOUS SYLLABUS**

**BOARD OF STUDIES - 6**

**2022 - 2023**





**Cauvery College for Women (Autonomous)**

**Nationally Accredited (III Cycle) with “A” Grade by NAAC**

**ISO 9001:2015 Certified**

**Annamalai Nagar, Trichy -18.**

**MINUTES OF THE MEETING-Board of Studies:6**

**Department of Computer Applications**

**DATE: 04.05.2022**

**TIME: 10.30AM**

**VENUE: CA LAB**

**The Agenda for the meeting was as follows:**

**1. ITEM NO.BOS/06/01**

To consider and approve the PSO, the Programme Structure of BCA for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**2. ITEM NO.BOS/06/02**

To approve and recommend the I semester syllabus for the Core Course I (CC) & Practical - “Programming in C “ & “C Programming – Practical” in I semester for BCA students for 2022-2023 batch and onward.

**3. ITEM NO.BOS/06/03**

To approve and recommend the syllabus for the Allied Course I (AC) “Fundamentals of Computer and Internet” of I semester for B.Com CA students for 2022-2023 batch and onward.

**4. ITEM NO.BOS/06/04**

To suggest panel of names to the Academic Council for appointment of examiners.

**5. ITEM NO.BOS/06/05**

To thank the Board of Studies Members who contributed to prepare the syllabus.



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**ISO 9001:2015 Certified**  
**Annamalai Nagar, Trichy -18.**

**MINUTES OF THE MEETING-Board of Studies:6**

**Department of Computer Applications**

**DATE:** 04 -05- 2022

**TIME:** 10.30 AM

**Members Present**

- |                             |  |
|-----------------------------|--|
| 1) Dr.R. Merlin Packiam     | Chairperson, Associate Professor & Head  |
| 2) Dr. L. Ravi              | Subject Expert, Other University         |
| 3) Dr.K. Meenakshi Sundaram | Subject Expert, Other University         |
| 4) Dr.J.G.R. Sathiaseelan   | Subject Expert, Bharathidasan University |
| 5) Dr.A. Kangaammal         | Alumna, Member                           |
| 6) Dr.H. Krishnaveni        | Member                                   |
| 7) Dr.R. Brenda             | Member                                   |
| 8) Ms.T. Julie Mary         | Member                                   |
| 9) Ms.A. Anandhavalli       | Member                                   |
| 10)Dr. LakshnaArun          | Member                                   |
| 11) Ms.R. Sridevi           | Member                                   |
| 12)Dr.K. Akila              | Member                                   |
| 13) Ms.V. Yasodha           | Member                                   |
| 14) Ms.V. Infine Sinduja    | Member                                   |
| 15) Ms.M. Ellakkiya         | Member                                   |
| 16) Ms.A. Jabeen            | Member                                   |
| 17)Dr.N. Sivapriya          | Member                                   |

**Members in Absence**

- |                    |   |
|--------------------|---|
| 1) Mr.Derrick Alex | Placement Representative from Industry Corporate Sector |
|--------------------|---|

## Minutes of the Sixth BoS:

### 1. Resolution NO.BOS/06/01

The Programme Structure, PSO for BCA (2022-2023) and onwards were confirmed and recommended

### 2. Resolution NO.BOS/06/02

Considered and approved the I Semester syllabus of **BCA** for 2022-2023 and onwards and forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following changes.

Revision of syllabus of core course “Programming with C” (21UCA1CC1)

- Portion for Self study is given in each Unit
  - Unit I: Precedence of Arithmetic Operators & Associativity
  - Unit II: Do
  - Unit III: Nesting of Functions
  - Unit IV: Unions
  - Unit V: Command Line Arguments
- Topics removed in
  - Unit I: Overview of C
  - Unit V: Chain of Pointers
- Topics included in
  - Unit IV: Arrays of Structures, Arrays within Structures, Structures within Structures, Structures and Functions, Size of Operator.
  - Unit V: Pointers and Arrays, Pointers and Character strings, Text File, Data File, Error Handling during I/O Operations, Random Access to Files, Command Line Arguments.

Revision of syllabus of core course “C Programming – Practical”

- List of Practical exercises has been modified

### **3. Resolution NO.BOS/06/03**

Considered and approved the I Semester Allied Course syllabus of **B.COM CA** for 2022-2023 and onwards and forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following changes.

Revision of syllabus of allied course “Fundamentals of Computer and Internet”

- Portion for Self-study is given in Units IV and V  
Unit IV: User Identification and Authentication.  
Unit V: Electronic Mail and Uses of Internet.
- Topics removed in  
Unit I: Digital and Analog Computers, History of Computer, Generation of Computer  
Unit IV: History of Internet  
Unit V: File Transfer Protocol, Terminal Network, News, Internet Relay Chat
- New Units are included: Unit II: Data Representation and Computer Programming Fundamental
- Topics included in  
Unit III: Types of Software, Information Systems (IS), Characteristics of Information, Computer-based Information System (CBIS), Categories of Information System – Operations and Management support System, Specialized Information System - Careers in information System.  
Unit IV: Computer Security

### **4. Resolution NO.BOS/06/04**

The panel of names to the Academic Council for appointment of examiners were discussed

and approved.

#### **5. Resolution NO.BOS/06/05**

The chairman reported the members that the Department conducted more than five meetings with the faculty members of the Department of Computer Applications, to discuss the PSO and contents of the syllabus to be framed by the Department. The chairman appreciated the efforts of the members of BoS, for their valuable contribution in preparing the syllabus.

The Board of Studies meeting was resolved and concluded by recommending the PSO of UG Computer Applications, Programme structure (I to VI semester) and syllabus of I Semester BCA for the batch 2022-2023 of BCA to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**Dr. L. Ravi**

Associate Professor & Head  
Dept. of Computer Science  
Sacred Heart College (A)  
Tiruppattur – 635 601.

**Dr. K. Meenakshi Sundaram**

Associate Professor & Head  
Dept. of Computer Science  
Erode Arts and Science College(A)  
Erode – 638 009.

**Dr. J.G.R. Sathiaseelan**

Associate Professor & Head  
Dept. of Computer Science  
Bishop Heber College (A)  
Trichy – 620 017.

**Dr. A. Kangaialmmal**

Assistant Professor  
Dept. of Computer Applications  
Govt. Arts College (A)  
Salem -636 007.

**Dr. R. Merlin Packiam**

Chairperson  
Associate Professor & Head  
Dept. of Computer Applications  
Cauvery College for Women (A)  
Trichy-620 018.

**Cauvery College for Women (Autonomous), Trichy-18**

**BCA Programme Structure**

**(For the Candidates admitted from the Academic year 2022-2023 and onwards)**

Semester	Part	Course	Title	Course Code	Inst. Hrs. / week	Credits	Exam			Total		
							Hrs.	Marks				
								Int.	Ext.			
I	I	Language Course-I (LC)	Ikkala Ilakiyam- I	22ULT1	6	3	3	25	75	100		
			Hindi Literature & Grammar - I	22ULH1								
			History of Popular Tales, Literature and Sanskrit Story	22ULS1								
			Basic French – I	22ULF1								
	II	English Language Course- I(ELC)	Functional English for Effective Communication -I	22UE1	6	3	3	25	75	100		
	III	Core Course – I(CC)	Programming in C	22UCA1CC1	5	5	3	25	75	100		
				Core Practical - I (CP)	C Programming – Practical	22UCA1CC1P	3	3	3	40	60	100
				First Allied I	Essential Mathematics	22UCA1AC1	4	3	3	25	75	100
				First Allied II	Numerical Analysis and Statistics	22UCA1AC2	4	3	3	25	75	100
	IV	UGC Jeevan Kaushal	Universal Human Values	22UGVE	2	2	3	25	75	100		
					<b>30</b>	<b>22</b>				<b>700</b>		

Semester I	Internal Mark: 25		External Mark: 75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs/Week	CREDITS
22UCS1CC1/ 22UCA1CC1/ 22UIT1CC1	PROGRAMMING IN C	CORE	5	5

### Course Objectives

- To understand the basics of C language
- To get the deep knowledge of programming using C language
- To develop logics which will help them to create programs and applications in C
- Enhance skill on problem solving by constructing algorithms

### Course Outcomes and Cognitive Level Mapping

On the successful completion of the course, the students will be able to

CO Number	CO Statement	Cognitive Level
CO1	Define the basic concepts of Programming	K1
CO2	Understand the components of C programming	K2
CO3	Apply the knowledge to develop programs	K3
CO4	Solve real time problems using C	K4
CO5	Design algorithms and data structures swiftly and faster computation using programs	K5

### Mapping of CO with PO and PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	2	2	2	2	3	2
CO2	3	3	3	2	2	3	3	2	3	2
CO3	3	3	3	2	2	3	3	2	3	3
CO4	3	3	3	2	1	2	2	2	3	3
CO5	3	3	3	3	1	3	3	2	2	3

“1” – Slight (Low) Correlation “2” – Moderate (Medium) Correlation

“3” – Substantial (High) Correlation “-” indicates there is no correlation.

## Syllabus

### UNIT I

(15 Hours)

**Developing a program in C:** Algorithm-Pseudocode-Flowchart- Planning a C program- Writing a C program- Compile and Run a C Program-**Overview of C:** – Structure of C program – Character set-Tokens – Data types – Variables – Declaration of variables - symbolic constant – Operators and Expressions

### UNIT II

(15 Hours)

**Managing Input and Output Operations:** Reading and Writing a character -Formatted Input and Output. **Decision Making and Branching:** If, Switch, The ?: operator - The GoTo Instruction – **Decision Making and Looping:** Introduction – While, DO, For Statements –Jumps in Loops.

### UNIT III

(15 Hours)

**Array:** One dimensional array – Two and multidimensional array – Character array – String functions – **User-Defined Functions:** Need for User -Defined Functions –A Multi-Function Program-Elements of User-Defined Functions-Definition of Functions –Return values and Their Types-Function Calls- Function Declaration- Category of Functions – Nesting of Functions - Recursion - Storage Class-The scope and lifetime of variables in functions.

### UNIT IV

(15 Hours)

**Structures and Unions:** Structure definition – Structure Initialization – Array of structure – Array within structure –Structure within Structure-Union– **Pointers:** Understanding pointers - Accessing the address of a variable - Declaring and Initializing pointers - Accessing a variable through its pointers - Pointer Expressions - Pointers and Arrays - Pointers and Character strings.

### UNIT V

(15 Hours)

**File Management:** Defining and Opening File –Closing a File – I/O operations on Files – error handling during I/O operations – Random Access to Files- Command Line Arguments.

### UNIT VI Self Study for Enrichment (not included for End Semester Examinations)

Develop algorithms for real time scenario, Area calculations, Conversion programs, swapping numbers (with and without using temporary variable).

Programs for checking eligibility, Triangle formation, Sum of numbers, sum of series, Array manipulations (Sorting, searching, insert, delete and merging), String handling programs, Dynamic memory management using pointers, Employee pay bill preparation using Files.



### **Textbook**

1. Balagurusamy. E. (2017). Programming in ANSI C, 7<sup>th</sup> Edition, Mc Graw Hill Education New Delhi.
2. Byron Gottfried. (2018). Programming with C, 4th Edition, Tata McGraw Hill.

### **References**

1. Yashavant Kanetkar, (2020). Let Us C, 16<sup>th</sup> Edition, BPB Publications, New Delhi.
2. Ashok N. Kamthane, Amit Ashok Kamthane (2015). Programming in C, 3<sup>rd</sup> Edition, Pearson India Education Services Pvt. Ltd.

### **Web References**

1. <https://www.learn-c.org/>
2. <https://www.cprogramming.com/>
3. <https://www.tutorialspoint.com/cprogramming/index.htm>

### **Pedagogy**

Chalk and Talk, PPT, Discussion, Assignment, Demo, Quiz and Seminar.

### **Course Designers**

1. Dr. M. Anandhi, Associate Professor, Department of Information Technology.
2. Ms. R. Sridevi, Assistant Professor, Department of Computer Applications.

Semester I	Internal Mark: 40		External Mark: 60	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs/Week	CREDITS
22UCA1CC1P	C PROGRAMMING - PRACTICAL	CORE	3	3

### Course Objectives

- To introduce students to the basic knowledge of programming fundamentals of C language.
- To impart writing skill of C programming to the students and solving problems.
- To impart the concepts like looping, array, functions, pointers and structure.

### Course Outcome and Cognitive Level Mapping

On successful completion of the course, students will be able to

CO NUMBER	CO STATEMENT	COGNITIVE LEVEL
CO1	Identify the logic for a given problem	K1,K2
CO2	Recognize the syntax and construction of C programming code	K1,K2
CO3	Apply the steps involved in compiling, linking and debugging C code	K3,K4
CO4	Analyze the concepts of iteration or looping, branching, array, structure, union and pointers	K4
CO5	Create C programs using all the concepts that have been covered in the theory course	K4

### Mapping of CO with PO and PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	2	2
CO3	3	3	3	3	3	3	3	3	2	1
CO4	3	3	3	2	2	3	3	2	2	1
CO5	3	3	3	3	2	3	3	3	2	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## List of Practicals

1. Simple Programs
  - a. Create a C program to display “This is my first C Program”
  - b. Create a C program to add two numbers and display its sum
  - c. Create C program to evaluate each of the following equations.  
(i)  $E = MC^2$ .                      (ii)  $S = ut + \frac{1}{2}at^2$
2. Selection Structures
  - a. Create a C Program to Check Whether a Number is Prime or not
  - b. Create a C program to swap values of two variables with and without using third variable
  - c. Create a C program to compute grade of students using if else ladder. The grades are assigned as followed:

Marks	Grade
$\text{marks} < 50$	F
$50 \leq \text{marks} < 60$	C
$60 \leq \text{marks} < 70$	B
$70 \leq \text{marks} < 80$	B+
$80 \leq \text{marks} < 90$	A
$90 \leq \text{marks} \leq 100$	A+

3. Iterative Structures
  - a. Create a C program to print N Natural numbers
  - b. Create a C program to reverse a given integer
4. Arrays
  - a. Create a C program to find the largest and smallest element in Array
  - b. Create a C program to find the addition of two matrices
5. Function
  - a. Create a C program to calculate factorial of a number using recursion
  - b. Create a C program to find power of a number using recursion
6. Pointers
  - a. Create a C program to find the length of string using pointer
  - b. Create a C program to copy one string to another using pointer
7. Structures
  - a. Create a C program to read and print Student’s Details using Structure
8. Files
  - a. Create a C Program to print the strings using command Line Arguments

### **Web References**

1. <https://www.programiz.com/c-programming/examples>
2. <https://beginnersbook.com/2015/02/simple-c-programs/>
3. <https://www.tutorialgateway.org/c-programming-examples/>
4. <https://www.studytonight.com/c/programs/>

### **Pedagogy**

Power Point Presentations, Demonstrations, Seminars and Practical Sessions.

### **Course Designer**

Ms. V.Infine Sinduja, Assistant Professor, Department of Computer Applications.

Semester I	Internal Marks: 25		External Marks:75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs. / Week	CREDITS
22UCC1AC1	FUNDAMENTALS OF COMPUTER & INTERNET	ALLIED	4	3

### Course Objective

- At the end of the course the students shall be able to get the basic knowledge about computer, memory, input and output devices, OS, DB, networks, security and internet.

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Describe the fundamental concepts of computer and its parts, OS, DB, networks, security and internet.	K1
CO2	Summarize the concepts of memory representation, OS, DB, networks, security and internet architecture.	K2
CO3	Interpret the concepts of input, output devices, algorithm, types of OS, hacking and firewalls in security and internet connections.	K3
CO4	Make use of the number system conversions, internet, the Computer-Based Information System (CBIS) and sketch the flowchart.	K3
CO5	Distinguish the different types of memories, number systems, OS, networks and manage the internet.	K4

### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	2	3	2	2	1	-
CO2	3	2	2	3	2	3	2	1	1	-
CO3	3	2	1	1	2	2	2	1	2	1
CO4	3	3	3	2	3	3	2	1	2	-
CO5	3	3	2	1	1	2	1	1	1	1

“1” – Slight (Low) Correlation ← “2” – Moderate (Medium) Correlation

“3” – Substantial (High) Correlation ← “-” indicates there is no correlation.

## **Syllabus**

### **UNIT I: BASICS OF COMPUTER, MEMORY & INPUT OUTPUT DEVICES (12 HOURS)**

Introduction to Computer: Characteristics of Computer – Classification of Computer–The Computer System – Application of Computers. The Computer System Hardware: Central Processing Unit. Computer Memory: Memory Representation – Memory Hierarchy– CPU Registers– Cache Memory–Primary Memory –Secondary Memory. Input and Output devices: Input-Output Unit – Input devices – Output devices.

### **UNIT II: DATA REPRESENTATION AND COMPUTER PROGRAMMING FUNDAMENTALS (12 HOURS)**

Data Representation: Number System – Conversions – Binary Arithmetic – Binary Addition – Binary Subtraction. Computer Programming Fundamentals: Program Development Life Cycle – Algorithm – Control Structures – Flowchart.

### **UNIT III: FUNDAMENTALS OF OS AND DB (12 HOURS)**

Interaction of User and Computer: Types of Software – System Software – Application Software. Operating System (OS): Introduction – Objectives of OS – Type of OS – Function of OS – Examples of OS. Information Systems (IS): Data, Information and Knowledge – Characteristics of Information – Information System (IS) – Computer-based Information System (CBIS) – Need for Efficient Information System – Categories of Information System – Operations support System – Management Support System – Specialized Information System – Careers in information System.

### **UNIT IV: COMPUTER NETWORKS AND SECURITY (12 HOURS)**

Data Communication and Computer Network: Importance of Networking – Computer Network – Network types – LAN Topologies – Communication Protocol – Network Devices – Wireless Networking. Computer Security: Security Thread and Security Attack – Malicious Software – Hacking – Security Services – Firewall – User Identification and Authentication.

### **UNIT V: THE INTERNET AND IT'S SERVICES (12 HOURS)**

Introduction –Internetworking Protocol – The Internet Architecture – Managing the Internet – Connecting to Internet – Internet Connections – Internet Addresses - World Wide Web – Electronic Mail – Uses of Internet.

### **UNIT VI: SELF STUDY FOR ENRICHMENT**

E-mail Address Creation – Send and Receive Mails – Chatting – Search Engines – Search and Download E-Books – Online Course Registration – Online Purchasing and Cancellation – Creating a Meet ID through zoom and Google meet.

### **Textbook**

1. Anita Goel. ( 2022). Computer Fundamentals, Pearson India Education Services Pvt. Ltd. Thirty Fourth Impression.

### **References**

1. Dr.Shalii Jain, M.Geeta. (2016). Course on Computer Concepts, BPB Publications.
2. Paul E.Hoffman. (2016). The Internet Instance Reference, BPB Publications.

### **Web References**

1. [https://www.tutorialspoint.com/computer\\_fundamentals/index.htm](https://www.tutorialspoint.com/computer_fundamentals/index.htm)
2. <https://www.javatpoint.com/computer-fundamentals-tutorial/>

### **Pedagogy**

Chalk and Talk, PPT, Discussion, Assignment, Demo, Quiz and Seminar

### **Course Designer**

Ms.V. Yasodha, Assistant Professor, Department of Computer Applications.

**Cauvery College for Women (AUTONOMOUS)  
Nationally Accredited (III Cycle) with “A” Grade  
(CGPA 3.41 out of 4) by NAAC  
Annamalai Nagar, Trichy -18**



**The Agenda for the meeting was as follows:**

**1. ITEM NO.BOS/06/01**

To consider and approve the PSO, the Programme Structure and I semester syllabus of B.Sc Information Technology for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women(Autonomous), Trichy-18.

**2. ITEM NO.BOS/06/02**

To approve the Ratification of UG syllabus of Major Based Elective course I Software Engineering with course code 19UIT5MBE1A in semester V for 2020-2021 batch.

**3. ITEM NO.BOS/06/03**

To approve the Ratification of UG syllabus of Core course IX Mobile Application Development with Course code 19UIT6CC9 of Semester VI for 2020-2021 batch.

**4. ITEM NO.BOS/06/04**

To suggest a panel of names to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 appointment of examiners.

**5. ITEM NO.BOS/06/05**

To Appreciate the Board of Studies Members who contributed to prepare the syllabus.



**Cauvery College for Women (AUTONOMOUS)**  
**Nationally Accredited (III Cycle) with “A” Grade**  
**(CGPA 3.41 out of 4) by NAAC**  
**Annamalai Nagar, Trichy -18**



**MINUTES OF THE SIXTH MEETING**

**Board of Studies - Department of Information Technology**

**DATE :06.05.2022**

**VENUE : DT LAB**

**TIME : 11.00 a.m.**

**Members Present**

- |                            |   |
|----------------------------|---|
| 1) Dr. M. Parveen          | Chairperson, Professor & HoD                                |
| 2) Dr. T. Kokilavani       | University Nominee, Bharathidasan University                |
| 3) Dr. V. Bhuvaneshwari    | Subject Expert, Other university                            |
| 4) Dr. S. Vidya            | Subject Expert, Other university                            |
| 5) Mr. I. Johnson          | Placement Representative from Industry/<br>Corporate Sector |
| 6) Ms. D. Jeevitha         | Alumna, Member  |
| 7) Dr. A. R. Jasmine Begum | Member  |
| 8) Dr. J. Sangeetha        | Member  |
| 9) Dr. M. Anandhi          | Member  |
| 10) Dr. A. Bhuvaneshwari   | Member  |
| 11) Dr. S. Latha           | Member  |
| 12) Dr. S. Sugunadevi      | Member  |
| 13) Dr. P. Tamilselvi      | Member  |
| 14) Mrs. M. Thangam        | Member  |

**Action taken report of Fifth BoS held on 04.06.2021**

The Resolution No.BoS/05/01 to Resolution No. BoS/05/04 in connection with the outcome based Programme structure and syllabus for the semester VI of UG degree programme for the batch 2019-2022 onwards were implemented.

## **MINUTES OF THE SIXTH BoS:**

**The following resolutions were passed by the board**

### **1. RESOLUTION NO. BOS/06/01**

Considered and approved the PSO, the Programme structure and I Semester syllabus of **B.Sc. Information Technology** for 2022-2023 batch and onwards and forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following changes.

Revision of syllabus of core course 19UIT1CC1-Programming in C

Portion for Self study is given in each Unit

- In Unit I, instead of Fundamentals of Information Technology basics of programming have been introduced
- Applications of each concept have been changed in each Unit
- In Unit V, the topic Bitwise operation has been included
- In Core Course I, Dr. V. Bhuvaneshwari suggested to include recent edition books as Textbooks and Reference books

### **ITEM NO.BOS/06/02**

Ratification of UG syllabus of Major Based Elective course I Software Engineering with course code 19UIT5MBE1A in semester V for 2020-2021 batch was approved. The concept of testing has been removed from the syllabus.

### **ITEM NO.BOS/06/03**

Ratification of UG syllabus of Core course IX Mobile Application Development with Course code 19UIT6CC9 of Semester VI for 2020-2021 batch was approved. For easy understanding of the concept the textbook of the above course has been changed with the recommendation of the members.

### **ITEM NO.BOS/06/04**



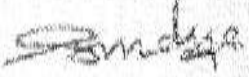



The panel of names for the appointment of examiners has been submitted and verified by the members.

### **ITEM NO.BOS/06/05**

The Chairman reported to the Members that the Department conducted regular meetings with the faculty members of Information Technology to discuss the contents of the

syllabus to be framed by the Department. The Chairman appreciated the efforts of the members of Board of Studies, for their valuable contributions and suggestions in preparing the syllabus.

The Board of Studies meeting was resolved and concluded by recommending the Curriculum and Syllabus of UG Information Technology to the Academic Council, Cauvery College for Women(Autonomous), Trichy-18.

S.NO	NAME AND DESIGNATION	SIGNATURE
1.	<b>CHAIRPERSON</b> <b>Dr. M. Parveen,</b> Professor & Head, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	
2.	<b>UNIVERSITY NOMINEE</b> <b>Dr. T. Kokilavani,</b> Assistant Professor, Department of Computer Science, St. Joseph's College, Trichy.	
3.	<b>SUBJECT EXPERT</b> <b>Dr. S. Vidya,</b> Associate Professor, Department of Computer Science, Fatima College, Madurai.	
4.	<b>SUBJECT EXPERT</b> <b>Dr. V. Bhuvaneshwari,</b> Associate Professor, Department of Computer Science, Bharathiyar University, Coimbatore.	
5.	<b>INDUSTRIAL REPRESENTATIVE</b> <b>Mr. I. Johnson,</b> Managing Director, Shalom InfoTech, Trichy	
6.	<b>MEMBER ALUMNA</b> <b>Ms. D. Jeevitha,</b> Technical Lead, Wipro Technologies, Chennai.	

MEMBERS		
7.	<b>Dr. A. R. Jasmine Begum,</b> Associate Professor, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	
8.	<b>Dr. J. Sangeetha,</b> Associate Professor, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	

9.	<b>Dr. M. Anandhi,</b> Member, Associate Professor, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	
10.	<b>Dr. A. Bhuvaneshwari,</b> Associate Professor, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	
11.	<b>Dr. S. Latha,</b> Assistant Professor, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	
12.	<b>Dr. S. Suguna Devi,</b> Assistant Professor, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	
13.	<b>Dr. P. Tamilselvi,</b> Assistant Professor, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	
14.	<b>Ms. M. Thangam,</b> Assistant Professor, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	





## Cauvery College for Women (Autonomous)

Trichy-18

Department of Information Technology

(For the Candidates admitted from the Academic year 2022-2023 onwards)

<b>Programme Outcome</b>	
PO NO.	On completion of BSc-IT Programme, The students will be able to
PO 1	<b>Academic Skills &amp; Social Responsibility</b> Apply Computing, Mathematical and Scientific knowledge in various disciplines by understanding the concerns of the society.
PO 2	<b>Critical Thinking and Innovative Progress</b> Design the software applications with varying intricacies using programming languages for innovative learning in techno world to meet the changing demands.
PO 3	<b>Personality Development</b> Perceive Leadership skills to accomplish a common goal with effective communication and understanding of professional, ethical, and social responsibilities.
PO 4	<b>Lifelong Learning</b> Identify resources for Professional development and apply the skills and tools necessary for computing practice to gain real life experiences.
PO 5	<b>Creativity and Holistic Approach</b> Create a Scientific temperament and novelties of ideas to support research and development in Computer Science to uphold scientific integrity and objectivity.

PSO NO	Programme Specific Outcomes Students of B.Sc information Technology will be able to	POs Addressed
PSO1	To apply the knowledge of Science and Computing in Information Technology	PO1
PSO2	Analyze the local and global impact of computing on individuals, organizations, society and implant lifelong learning for professional development	PO4
PSO3	Improve the capability to apply the knowledge in interrelated domains and solve real world problems with modern technological tools	PO2

PSO4	To strengthen the academic quality, effective communication, good ethics and responsibilities during professional practice	PO5
PSO5	Excel in job oriented skills which are required to meet the current demand in the field of IT industry and to become an entrepreneur with confidence	PO3

Semester	Part	Course	Title	Course Code	Inst. Hrs. / week	Credits	Exam			Total
							Hr s.	Marks		
								Int	Ext.	
I	I	Language Course – I(LC)	இக்கால இலக்கியம்	22ULT1	6	3	3	25	75	100
			Hindi literature and Grammar-I	22ULH1						
			History of popular Tales literature and Sanskrit story	22ULS1						
			Communication in French-I	22ULF1						
	II	English Language Course- I(ELC)	Functional English for Effective Communication- I	22UE1	6	3	3	25	75	100
	III	Core Course – I(CC)	Programming in C	22UCS1CC1/ 22UCA1CC1/ 22UIT1CC1	5	5	3	25	75	100
				22UITICC1P						
				22UIT1AC1						
				22UIT1AC2						
IV	UGC Jeevan Kaushal	Universal Human Values	22UGVES	2	2	3	25	75	100	
					<b>30</b>	<b>22</b>				<b>700</b>

Semester I	Internal Mark: 25		External Mark: 75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs/Week	CREDITS
22UCS1CC1/ 22UCA1CC1/ 22UIT1CC1	PROGRAMMING IN C	CORE	5	5

### Course Objectives

- To understand the basics of C language
- To get the deep knowledge of programming using C language
- To develop logics which will help them to create programs and applications in C
- Enhance skill on problem solving by constructing algorithms

### Course Outcomes and Cognitive Level Mapping

On the successful completion of the course, the students will be able to

CO Number	CO Statement	Cognitive Level
CO1	Define the basic concepts of Programming	K1
CO2	Understand the components of C programming	K2
CO3	Apply the knowledge to develop programs	K3
CO4	Solve real time problems using C	K4
CO5	Design algorithms and data structures swiftly and faster computation using programs	K5

### Mapping of CO with PO and PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	2	3	2	2	2	2	2	3	2
CO2	3	2	3	2	3	3	3	2	3	2
CO3	3	3	3	2	3	3	3	2	3	3
CO4	3	2	3	2	3	2	2	2	3	3
CO5	3	3	3	2	3	3	3	2	2	3

“1” – Slight (Low) Correlation “2” – Moderate (Medium) Correlation

“3” – Substantial (High) Correlation “-” indicates there is no correlation.

### Syllabus

#### UNIT I

(15 Hours)

**Developing a program in C:** Algorithm-Pseudocode-Flowchart- Planning a C program- Writing a C program- Compile and Run a C Program-**Overview of C:** – Structure of C program – Character set-Tokens – Data types – Variables – Declaration of variables - symbolic constant – Operators and Expressions

#### UNIT II

(15 Hours)

**Managing Input and Output Operations:** Reading and Writing a character -Formatted Input and Output. **Decision Making and Branching:** If, Switch, The ?: operator - The GoTo Instruction – **Decision Making and Looping:** Introduction – While, DO, For Statements –Jumps in Loops.

#### UNIT III

(15 Hours)

**Array:** One dimensional array – Two and multidimensional array – Character array – String



functions – **User-Defined Functions:** Need for User -Defined Functions –A Multi-Function Program-Elements of User-Defined Functions-Definition of Functions –Return values and Their Types-Function Calls- Function Declaration- Category of Functions – Nesting of Functions - Recursion - Storage Class-The scope and lifetime of variables in functions.

#### UNIT IV

(15 Hours)

**Structures and Unions:** Structure definition – Structure Initialization – Array of structure – Array within structure –Structure within Structure-Union– **Pointers:** Understanding pointers - Accessing the address of a variable - Declaring and Initializing pointers - Accessing a variable through its pointers - Pointer Expressions - Pointers and Arrays - Pointers and Character strings.

#### UNIT V

(15 Hours)

**File Management:** Defining and Opening File –Closing a File – I/O operations on Files – error handling during I/O operations – Random Access to Files- Command Line Arguments.

#### UNIT VI Self Study for Enrichment (not included for End Semester Examinations)

Develop algorithms for real time scenario, Area calculations, and Conversion programs, swapping numbers (with and without using temporary variable).

Programs for checking eligibility, Triangle formation, Sum of numbers, sum of series, Array manipulations (Sorting, searching, insert, delete and merging), String handling programs, Dynamic memory management using pointers, Employee pay bill preparation using Files.

#### Textbook

1. Balagurusamy.E. (2017). Programming in ANSI C, 7<sup>th</sup> Edition, Mc Graw Hill Education New Delhi.
2. Byron Gottfried. (2018). Programming with C, 4th Edition, Tata McGraw Hill.

#### References

1. Yashavant Kanetkar, (2020). Let Us C, 16<sup>th</sup> Edition, BPB Publications, New Delhi.
2. Ashok N. Kamthane, Amit Ashok Kamthane (2015). Programming in C, 3<sup>rd</sup> Edition, Pearson India Education Services Pvt. Ltd.

#### Web References

1. <https://www.learn-c.org/>
2. <https://www.cprogramming.com/>
3. <https://www.tutorialspoint.com/cprogramming/index.htm>

#### Pedagogy

Chalk and Talk, PPT, Discussion, Assignment, Demo, Quiz and Seminar.

#### Course Designers

1. Dr. M. Anandhi, Associate Professor, Department of Information Technology.
2. Ms. R. Sridevi, Assistant Professor, Department of Computer Applications.

<b>Semester – I</b>	<b>PROGRAMMING IN C PRACTICALS</b>	<b>Hours/Week-3</b>	
<b>Core Practical – I(CP)</b>		<b>Credits - 3</b>	
<b>Course Code 22UIT1CC1P</b>		<b>Internal-40</b>	<b>External-60</b>

### Objectives:

- To develop and execute C programs
- To apply the knowledge of control structures, Arrays and functions
- To manipulate C functions

### Course Outcomes and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
<b>CO1</b>	Recall program execution and Debugging	<b>K1</b>
<b>CO2</b>	Demonstrate the ideas of control structures	<b>K2</b>
<b>CO3</b>	Make use of functions, arrays, apply string handling functions and develop files	<b>K3</b>
<b>CO4</b>	Develops the ability to analyze a problem and implement an algorithm to solve it.	<b>K4</b>
<b>CO5</b>	Acquire logical thinking, Identify the correct and efficient ways of solving problems	<b>K5</b>

### Mapping with Programme Outcomes

COs\ POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
<b>CO1</b>	3	3	3	2	2	2	3	1	2	3
<b>CO2</b>	3	2	3	2	3	3	2	2	2	3
<b>CO3</b>	3	2	2	2	2	3	3	2	3	2
<b>CO4</b>	3	3	2	3	2	3	3	2	3	3
<b>CO5</b>	3	3	3	2	3	3	3	3	2	3

### Syllabus

1. Simple Programs
2. Control Structures – Branching statements
3. Control structures – Looping statements
4. Array Manipulations
5. Handling Strings
6. Implementation of functions
7. Applications of Pointers
8. Structures and Files
9. Programs using Graphics functions
10. Simple game programs
11. Special programs
  - Ring a bell
  - Printing patterns
  - String tokenizer

- Use Sleep function

<b>SEMESTER - V</b>	<b>SOFTWARE ENGINEERING</b>	<b>Hours/Week-5</b>	
<b>Major Based Elective I</b>		<b>Credits - 5</b>	
<b>Course Code-</b> <b>20UIT5MBE1A</b>		<b>Internal-25</b>	<b>External-75</b>

### **COURSE OBJECTIVES**

- The course is intended to influence the knowledge on constructing reliable software products.
- It also highlights several software testing to improve the quality of the software.

### **COURSE OUTCOMES**

The successful completion of the course will equip the students to

<b>CO Number</b>	<b>CO Statement</b>	<b>Knowledge Level</b>
CO1	Outline the progression in software and software engineering practice.	K1
CO2	Categorize the development phases and life cycle models of a project.	K2
CO3	Illustrate the model in software project design and quality.	K2
CO4	Discuss the fundamentals of software testing with its various types.	K3
CO5	Explain the method of performance and internationalization testing.	K3

### **Mapping with Programme Outcomes**

<b>COs /POs</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>
CO1	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
CO2	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
CO3	<b>S</b>	<b>S</b>	<b>M</b>	<b>S</b>
CO4	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
CO5	<b>S</b>	<b>S</b>	<b>M</b>	<b>S</b>

### **SYLLABUS**

#### **UNIT I**

**(15 Hours)**

**Overview of Software:** The nature of Software–Web based systems and applications-**Introduction to Software Engineering:** Software engineering- Software engineering practice - Communication practices - Planning practices - Modeling practices - Construction practice- Deployment-Software myth

#### **UNIT II**

**(15 Hours)**

**Software Development Process Model:** Generic process model- Prescriptive process models-**Requirements Modeling** - Requirements Analysis- Analysis Modeling Approaches – Data Modeling

concepts-Class based modeling -Flow Oriented Modeling

### UNIT III

(15 Hours)

**Design concepts** - Design within the context of software engineering - **The Design Process** - Software Quality Guidelines and Attributes -Evolution of Software Design - **Design Concepts:** Abstraction-Refinement-Modularity-Functional Independence - **The Design model – Component Level Design:** Designing Class - Based Components- **Quality concepts-** What is Quality? - Software Quality: McCall’s Quality Factors - Achieving Software Quality

### UNIT IV

(15 Hours)

**Testing Approaches:** Software Testing Fundamentals -**Types of Testing:** White Box Testing - Static Testing-Structural Testing-Black Box Testing- Challenges in White Box and Black Box Testing. **Integration Testing:** Integration Testing- Integration Testing as Type of Testing. **System and Acceptance Testing:** System Testing Overview- Functional testing versus Non- functional Testing- Functional testing - Non-functional Testing – Acceptance Testing and its criteria

### UNIT V

(15 Hours)

**Performance Testing:** Factors governing Performance testing-What is Regression testing- Best Practices in Regression Testing. **Internationalization Testing:** Primer on Internationalization - Test Phase for Internationalization – Internationalization Validation – Fake Language Testing – Language Testing – Localization Testing

### TEXT BOOKS

S.N O	AUTHORS	TITLE	PUBLISHER S	YEAR OF PUBLICATION
1.	Roger S. Pressman	Software Engineering: A Practitioner's Approach (Unit 1,2,3)	McGraw-Hill Education	7 <sup>th</sup> Edition, 2010
2.	Srinivasan Desikan, Gopaldaswamy Ramesh	Software Testing Principles and Practices (Unit 4,5)	Pearson Education	2012

### REFERENCE BOOKS

S.N O	AUTHOR S	TITLE	PUBLISHE RS	YEAR OF PUBLICATION
1.	Ian Somerville	Software Engineering	Pearson Education	7 <sup>th</sup> Edition 2010

2.	Paul C. Jorgensen	Software Testing: A Craftsman's Approach, Fourth Edition	Auerbach Publications	4 <sup>th</sup> Edition 2013
3.	Naresh Chauhan	Software Testing-Principles and Practices	Oxford University Press	2012

<b>SEMESTER – VI</b>	<b>MOBILE APPLICATION DEVELOPMENT</b>	<b>Hours/Week-6</b>	
<b>CORE – IX</b>		<b>Credits - 6</b>	
<b>Course Code</b> <b>20UIT6CC9</b>		<b>Internal-25</b>	<b>External-75</b>

## OBJECTIVE

This course explores the knowledge over Mobile Application Development with its framework, layouts, intents and database connectivity.

## COURSE OUTCOMES

On the successful completion of the course, students will be able to

<b>CO Number</b>	<b>CO Statement</b>	<b>Knowledge Level</b>
CO1.	Choose the development framework and the need for mobile applications	K1
CO2.	Demonstrate the activity and intent usage	K2
CO3.	Design applications with intents and broadcast receivers.	K3
CO4.	Compile an application with database connectivity	K4
CO5.	Develop real time applications to improvise user experience	K5

## Mapping with Programme Outcomes

<b>COs\POs</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>M</b>
<b>CO2</b>	<b>S</b>	<b>M</b>	<b>M</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>M</b>	<b>M</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

## SYLLABUS

### UNIT I: Getting Started with Android Programming

(18 Hrs)

Introduction to Android – Obtaining the Required Tools – Launching your First Android Application - Using Android Studio for Android Development – Activities, Fragments and Intents.

**UNIT II: Getting to Know the Android User Interface (18 Hrs)**

Understanding the Components of a Screen – Designing User Interface with Views: Basic Views – Displaying Pictures and Menus with Views.

**UNIT III: Data Persistence and Content Providers (18 Hrs)**

Saving and Loading User Preferences – Persisting Data to Files – Creating and Using Databases. Content Providers: Sharing Data in Android – Using a Content Provider.

**UNIT IV: Messaging and Location Based Services (18 Hrs)**

Messaging: SMS Messaging – Sending Email. Location Based Services: Displaying Maps – Getting Location Data - Monitoring Location

**UNIT V: Networking and Developing Android Services (18 Hrs)**

Networking: Consuming Web Services Using HTTP – Consuming JSON Services. Developing Android Services: Creating your own services - Establishing Communication between a Service and an Activity - Binding Activities to Services – Understanding Threading.

**TEXT BOOK:**

S.N O	AUTHORS	TITLE	PUBLISHERS/EDITION	YEAR
1.	J. E. DiMarzio	Beginning Android Programming with Android Studio	4 <sup>th</sup> Edition, John Wiley & Sons	2017

**Reference Books:**

<http://developer.android.com/develop/index.html>

S.N O	AUTHORS	TITLE	PUBLISHERS/EDITIO N	YEAR
1.	Reto Meier	Professional Android Application Development	Wiley	2012
2.	Charlie Collins, Michael Galpin and Matthias Kappler	Android in Practice	DreamTech	2012



**Cauvery College for Women (AUTONOMOUS)  
Nationally Accredited (III Cycle) with A Grade by NAAC  
Annamalai Nagar, Trichy- 18.**

**PG & Research Department of Microbiology  
Agenda for the sixth Meeting of the BOS on 06.05.2022**

**1. ITEM NO. BOS/06/01**

To consider and approve the PSO, the Programme Structure and I semester syllabus of B.Sc., Microbiology for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**2. ITEM NO. BOS/06/02**

To consider and approve the PSO, the Programme Structure and I semester syllabus of M.Sc., Microbiology for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**3. ITEM NO. BOS/06/03**

To suggest panel of names to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18, for appointment of examiners.

**4. ITEM NO. BOS/06/04**

To thank the members of BOS.



**PG AND RESEARCH DEPARTMENT OF MICROBIOLOGY**

**MINUTES OF THE BOARD OF STUDIES MEETING IN THE PG AND RESEARCH DEPARTMENT OF MICROBIOLOGY CONDUCTED ON 06.05.2022 AT 10.00 A.M.**

The following members attended the meeting:

- |                            |  |
|----------------------------|--|
| 1) Dr. B. Thamilmaraiselvi | Chairperson, Professor & HOD                   |
| 2) Dr. A. Veera Ravi       | Subject Expert, Alagappa University            |
| 3) Dr. A. Panneerselvam    | Member, Bharathidasan University               |
| 4) Dr. N. Thajuddin        | Special Invitee, Bharathidasan University      |
| 5) Dr. R. Senthil Kumar    | Member, Placement Representative from Industry |
| 6) Ms. S. Priyadharshni    | Member, Alumna                                 |
| 7) Dr. N. Pushpa           | Member, Associate Professor                    |
| 8) Dr. S. Jeyabharathi     | Member, Assistant Professor                    |
| 9) Ms. N. Jeenathunisa     | Member, Assistant Professor                    |
| 10) Ms. K. Sangeetha       | Member, Assistant Professor                    |
| 11) Ms. S. Sathya          | Member, Assistant Professor                    |
| 12) Ms.N.Sathammai Priya   | Member, Assistant Professor                    |
| 13) Dr. R. Nithyatharani   | Member, Assistant Professor                    |
| 14) Dr. P.F. Steffi        | Member, Assistant Professor                    |
| 15) Dr. S. Jenny           | Member, Assistant Professor                    |
| 16) Dr. E. Priya           | Member, Assistant Professor                    |
| 17) Dr. V. Aruna           | Member, Assistant Professor                    |
| 18) Dr. P. Bhuvaneswari    | Member, Assistant Professor                    |

The leave of absence was granted to Dr. N. Thajuddin and Ms.N.Sathammai Priya.

**The Agenda for the meeting was as follows:**

**1. ITEM NO. BOS/06/01**

To consider and approve the PSO, the Programme Structure and I semester syllabus of B.Sc., Microbiology for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**2. ITEM NO. BOS/06/02**

To consider and approve the PSO, the Programme Structure and I semester syllabus of M.Sc., Microbiology for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**3. ITEM NO. BOS/06/03**

To suggest panel of names to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18, for appointment of examiners.

**4. ITEM NO. BOS/06/04**

In UG Programme Structure, major and allied practicals has been incorporated in semester I as Microbiology Practical-I and Biochemistry practical.

**5. ITEM NO. BOS/06/05**

In UG Programme Structure, Fundamentals of Biochemistry course has been changed to Nutritional Biochemistry and syllabus has been reframed.

**6. ITEM NO. BOS/06/06**

In PG Programme Structure, Core Practical title has been changed from 'Essentials of microbiology, Virology, Biological macromolecules and Microbial ecology Practical to Microbiology Practical-I.

Practical hours have been reduced to 6hrs from 8hrs.

**7. ITEM NO. BOS/06/07**

In PG Programme Structure, the credit hours of essentials of microbiology and biological macromolecules have been increased from 4 to 5.

**8. ITEM NO. BOS/06/08**

In PG Programme Structure, Instructional hours and credit hours of microbial ecology has been increased from 5 to 6 and 4 to 5 respectively.

**9. ITEM NO. BOS/06/09**

In PG Programme Structure, virology paper has been changed to clinical virology.

In PG Programme Structure, Instructional hours and credit hours of Clinical Virology has been increased from 5 to 6 and 4 to 5 respectively.

**10. ITEM NO. BOS/06/10**

To thank the members of BOS.

**RESOLUTION NO. BOS/06/01**

*To consider and approve the PSO, the Programme Structure and I semester syllabus of B.Sc., Microbiology for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.*

Considered and approved the PSO, the programme structure and I semester syllabus of B.Sc., Microbiology for 2022-2023 batch and onwards and forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 with the following changes

Revision of syllabus of core course General Microbiology

- Portion of self study is given in each unit

Unit I: Microscopic operations

Unit II: Classification of microorganisms

Unit III: Cellular Organizations

Unit IV: Isolation and identification of microorganisms

Unit V: Cultivation methods of Extremophiles

Revision of syllabus of Allied course Nutritional Biochemistry

- Portion of self study is given in each unit

Unit I: Factors affecting BMR

Unit II: Regulation of Blood Glucose level

Unit III: Role of essential aminoacids

Unit IV: Types of blood plasma lipoproteins

Unit V: Fortified foods with vitamins and minerals

**RESOLUTION NO. BOS/06/02**

*To consider and approve the PSO, the Programme Structure and I semester syllabus of M.Sc., Microbiology for 2022-2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.*

Considered and approved the PSO, the programme structure and I semester syllabus of M.Sc., Microbiology for 2022-2023 batch and onwards and forwarded to the Academic

Council, Cauvery College for Women (Autonomous), Trichy-18 with the following changes

Revision of syllabus of core course Essentials of Microbiology

- Portion of self study is given in each unit

Unit I: Nomenclature and modern methods of bacterial taxonomy

Unit II: Electron Microscopy- TEM and SEM- principle, construction, ray diagram and uses

Unit III: Behaviour of microorganisms

Unit IV: Purification assay of virus and Protozoa

Unit V: Bacterial nutrition

Revision of syllabus of core course Biological Macromolecules

- Portion of self study is given in each unit

Unit I: Meiosis

Unit II: Allosteric enzymes

Unit III: Biosynthesis of cholesterol

Unit IV: Biological buffer system- Types and functions

Unit V: ATP Production

Revision of syllabus of core course Clinical Virology

- Portion of self study is given in each unit

Unit I: Cultural characters of viruses

Unit II: Qualitative and Quantitative estimation of viruses

Unit III: Structure and lifecycle of viruses

Unit IV: Etiology and classification of viruses

Unit V: Viral Prophylaxis

Revision of syllabus of core course Microbial Ecology

- Portion of self study is given in each unit

Unit I: Changes involved in succession

Unit II: Aeromicroflora, dispersal of microbes

Unit III: Sources and sinks of greenhouse gases, acid rain

Unit IV: Sources and sinks of heavy metals

Unit V: Biodiversity hot spots in India and world.

### **RESOLUTION NO. BOS/06/03**

*To suggest panel of names to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18, for appointment of examiners.*

Suggested the panel of names to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18, for appointment of examiners.

**RESOLUTION NO. BOS/06/04**

***In UG Programme Structure, major and allied practicals have been incorporated in semester I as Microbiology Practical-I and Allied Practical-I***

Resolved the syllabus of Microbiology Practical-I and Allied Practical-I have been approved and recommended to Academic Council, Cauvery College for Women (Autonomous), Trichy-18 for further action.

**RESOLUTION NO. BOS/06/05**

***In UG Programme Structure, Fundamentals of Biochemistry course has been changed to Nutritional Biochemistry and syllabus has been reframed.***

Resolved the syllabus of Fundamentals of Biochemistry has been reframed and changed to Nutritional Biochemistry and have been approved and recommended to Academic Council, Cauvery College for Women (Autonomous), Trichy-18 for further action.

**RESOLUTION NO. BOS/06/06**

***In PG Programme Structure, Core Practical title has been changed from 'Essentials of microbiology, Virology, Biological macromolecules and Microbial ecology Practical to Microbiology Practical-I. Practical hours have been reduced to 6hrs from 8hrs.***

Resolved the syllabus of 'Essentials of microbiology, Virology, Biological macromolecules and Microbial ecology Practical and changed to Microbiology Practical-I and Practical hours have been reduced to 6hrs. It has been approved and recommended to Academic Council, Cauvery College for Women (Autonomous), Trichy-18 for further action.

**RESOLUTION NO. BOS/06/07**

***In PG Programme Structure, the credit hours of essentials of microbiology and biological macromolecules have been increased from 4 to 5.***

Resolved the credit hours of Essentials of Microbiology and Biological Macromolecules to 5 hours and it has been approved and recommended to Academic Council, Cauvery College for Women (Autonomous), Trichy-18 for further action.

**RESOLUTION NO. BOS/06/08**

***In PG Programme Structure, Instructional hours and credit hours of microbial ecology has been increased from 5 to 6 and 4 to 5 respectively.***

Resolved the instructional and credit hours of Microbial Ecology to 6 hours and 5 hours respectively and it has been approved and recommended to Academic Council, Cauvery College for Women (Autonomous), Trichy-18 for further action.

**RESOLUTION NO. BOS/06/09**

***In PG Programme Structure, virology paper has been changed to clinical virology.***

***In PG Programme Structure, Instructional hours and credit hours of Clinical virology has been increased from 5 to 6 and 4 to 5 respectively***

Resolved the syllabus of Virology course to Clinical Virology and the instructional and credit hours of Clinical Virology has been increased to 6 hours and 5 hours respectively and it has been approved and recommended to Academic Council, Cauvery College for Women (Autonomous), Trichy-18 for further action.

**RESOLUTION NO. BOS/06/10**

***To thank the members of BOS.***


There being no other matter, the meeting was concluded with a vote of thanks given by Dr. B. Thamilmaraivelvi, Professor & HOD, Chairperson.

Sd/-

**Dr. B. Thamilmaraivelvi,  
Chairperson, Professor & Head,  
PG Department of Microbiology,  
Cauvery College for Women (Autonomous),  
Tiruchirappalli-18.**

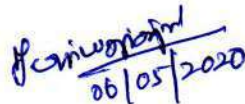
  
06/05/2022

ASSOCIATE PROFESSOR  
DEPARTMENT OF BOTANY AND MICROBIOLOGY  
AVVM SRI PUSHPAM COLLEGE  
THANJAVUR

  
06/05/22  
Prof. A. VEERA RAVI.  
Dept. of Biotechnology  
Sri Jayappa University  
Kannurkudi.

  
06/05/22

**Dr. R. SENTHIL KUMAR, M.Sc., M.Phil., Ph.D.,**  
Proprietor,  
SRI AMMAN BIOCARE & SAB RESEARCH ACADEMY,  
THIRUKKANURPATTI-613 303.  
Thanjavur (Dt) Cell:98657 78873

  
06/05/2020

STUDENT ALUMINA

# CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

NATIONALLY ACCREDITED (III CYCLE) WITH "A" GRADE BY NAAC

ISO 9001:2015 CERTIFIED

TIRUCHIRAPPALLI- 620 018

## PG AND RESEARCH DEPARTMENT OF MICROBIOLOGY



### B.Sc., MICROBIOLOGY

Syllabus

2022-2023 and Onwards





## CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

### PG AND RESEARCH DEPARTMENT OF MICROBIOLOGY

#### VISION

Our vision is to encourage eminent research work through the conception of an attractive and vibrant environment to achieve goals of our department.

#### MISSION

- To impart relevant, ultimate, principle-oriented education and practical expertise in the field of Microbiology.
- To strive to provide quality education conjugated with innovative technology so as to be able to gain technical and educational expertise locally, nationally, internationally.
- Our prime focus is to enrich the ambitions of our students, staff and steer with constructive collaboration towards excellence.

**PROGRAMME OUTCOMES FOR B.Sc., (LIFE SCIENCES) PROGRAMMES**

<b>PO NO</b>	<b>PROGRAMME OUTCOME</b> <b>On completion of B.Sc., Programme, the students will be able to</b>
<b>PO1</b>	<b>Academic Excellence and Competence:</b> Elicit firm fundamental knowledge in theory as well as practical for coherent understanding of academic field to pursue multi and interdisciplinary science careers in future.
<b>PO2</b>	<b>Holistic and Social approach:</b> Create novel ideas related to the scientific research concepts through advanced technology and sensitivity towards sustainable environmental practices as well as social issues.
<b>PO3</b>	<b>Professional ethics and Team Work:</b> Explore professional responsibility through projects, internships, field trip/industrial visits and mentorship programmes to transmit communication skills.
<b>PO4</b>	<b>Critical and Scientific thinking:</b> Equip training skills in Internships, Research Projects to do higher studies in multidisciplinary path with higher level of specialization to become professionals of high quality standards.
<b>PO5</b>	<b>Social Responsibility with ethical values:</b> Ensure ethical, social and holistic values in the minds of learners and attain gender parity for building a healthy nation.

**PROGRAMME SPECIFIC OUTCOMES FOR B.Sc., MICROBIOLOGY PROGRAMME**  
**B.Sc., MICROBIOLOGY CURRICULUM [2022 -2023 ONWARDS]**

<b>PSO NO.</b>	<b>PROGRAMME SPECIFIC OUTCOMES</b> <b>Students of B.Sc., Microbiology will be able to</b>	<b>POs Addressed</b>
<b>PSO 1</b>	Improve their knowledge on the basic concepts for retaining competence and confidence which enables them to develop interest in the new arena of Microbiology	<b>PO1, PO5</b>
<b>PSO 2</b>	Acquire expertise in practical work with independent equipment handling skill along with collection and interpretation of scientific data	<b>PO2, PO3</b>
<b>PSO 3</b>	Legitimize knowledge by emerging multiple aspects of current research.	<b>PO3, PO5</b>
<b>PSO 4</b>	Pursue the importance of substantial original Research to meet the current and future expectation.	<b>PO4, PO1</b>
<b>PSO 5</b>	Be aware of the ethical issues for the benefit of the society by adding skilled scientific work force across the country	<b>PO5, PO2</b>

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY-18**

**B.Sc., Microbiology Programme Structure under CBCS**

(For the Candidates admitted from the Academic year 2022-2023 onwards)

Semester	Part	Course	Title	Course Code	Inst. Hrs. / week	Credits	Exam			Total
							Hrs.	Marks		
								Int	Ext	
I	I	Language Course I (LC) Tamil*/Other Languages*	இக்கால இலக்கியம்	22ULT1	6	3	3	25	75	100
			Hindi Literature & Grammar-I	22ULH1						
			Communication in French-I	22ULF1						
			History of Popular Tales Literature and Sanskrit Story	22ULS1						
	II	English Language Course- I(ELC)	Functional English for Effective Communication-I	22UE1	6	3	3	25	75	100
	III	Core Course – I(CC)	General Microbiology	22UMB1CC1	5	5	3	25	75	100
				22UMB1CC1P	3	3	3	40	60	100
		First Allied I	Fundamentals of Biochemistry	22UMB1AC1	4	3	3	25	75	100
				22UMB1AC1P	4	3	3	40	60	100
	IV	UGC Jeevan Kaushal	Universal Human Values	22UGVE	2	2	3	25	75	100
<b>TOTAL</b>					<b>30</b>	<b>22</b>				<b>700</b>
II	I	Language Course- II(LC) Tamil*/Other Languages*	இடைக்கால இலக்கியமும் புதினமும்	22ULT2	5	3	3	25	75	100
			Hindi Literature & Grammar- II	22ULH2						
			Communication in French-II	22ULF2						
			Poetry Textual Grammar and Alakara	22ULS2						
	II	English Language Course- II(ELC)	Functional English for Effective Communication-II	22UE2	6	3	3	25	75	100
	Core Course – II (CC)	Microbial Physiology			5	5	3	25	75	100
			Microbial physiology Practical		3	3	3	40	60	100
	III	First Allied III	Animal and Plant Biochemistry		4	3	3	25	75	100
				Biomolecules Practical		3	3	3	40	60
	IV	Ability Enhancement Compulsory Course (AECC)-I	Environmental Studies		2	2	3	25	75	100
Ability Enhancement Compulsory Course (AECC)-II		Innovation and Entrepreneurship		2	1	3	25	75	100	

Extra Credit Course	SWAYAM	SWAYAM	As per UGC Recommendation					
<b>TOTAL</b>			<b>30</b>	<b>23</b>				<b>800</b>

III	I	Language Course-III (LC) Tamil*/Other Languages*	காப்பியமும் நாடகமும்	22ULT3	5	3	3	25	75	100
			Hindi Literature & Grammar-III	22ULH3						
			Communication in French-III	22ULF3						
			Prose, Textual Grammar and Vakyarachana	22ULS3						
	II	English Language Course-II(ELC)	Learning Grammar Through Literature-I	22UE3	6	3	3	25	75	100
	III	Core Course- III(CC)	Virology		6	5	3	25	75	100
		Second Allied I	Biostatistics		4	3	3	25	75	100
		Second Allied II	Biostatistics Practical		4	3	3	40	60	100
	IV	Generic Elective(GE) I	Mushroom Technology		2	2	3	25	75	100
Basic Tamil										
Special Tamil										
	Extra Credit Course	SWAYAM		As per UGC Recommendation						
<b>TOTAL</b>				<b>30</b>	<b>22</b>				<b>700</b>	

### 15 Days INTERNSHIP during Semester Holidays

IV	I	Language Course - IV (LC) Tamil*/Other Languages*	பண்டைய இலக்கியம்	22ULT4	6	3	3	25	75	100
			Hindi Literature & Functional Hindi	22ULH4						
			Communication in French-IV	22ULF4						
			Drama, History of Drama Literature	22ULS4						
	II	English Language Course - IV(ELC)	Learning Grammar Through Literature-II	22UE4	6	3	3	25	75	100
	III	Core Course - IV(CC)	Immunology and Immunotechnology		6	5	3	25	75	100
			Core Practical - V(CP)	Immunology and Immunotechnology Practical						
		Second Allied III	Bioinformatics		4	3	3	25	75	100
	Internship					2	-	-	-	100
	IV	Generic Elective(GE) II	Biofertilizer Technology		2	2	3	25	75	100
Basic Tamil										
Special Tamil										
	Skill Enhancement Course(SEC) - I	Herbal Medicine		2	2	3	25	75	100	
	Extra Credit Course	SWAYAM	SWAYAM	As per UGC Recommendation						
<b>TOTAL</b>				<b>30</b>	<b>23</b>				<b>800</b>	

V	III	Core Course – V(CC)	Clinical Microbiology		5	4	3	25	75	100
		Core Practical – VI (CP)	Clinical Microbiology, Agricultural Microbiology and Molecular Biology Practical		3	3	3	40	60	100
		Core Course - VI(CC)	Agricultural Microbiology		5	4	3	25	75	100
		Core Course – VII(CC)	Molecular Biology		6	5	3	25	75	100
		Discipline Specific Elective(DSE) – I	Organic Farming		5	4	3	25	75	100
	Clinical Parasitology									
	Fundamentals of Botany and Zoology									
	IV	UGC Jeevan Kaushal Life Skills	Professional Skills		2	1	3	25	75	100
		Skill Enhancement Course(SEC) – II	Biofertilizer Technology Practical		2	2	3	40	60	100
			Solid Waste Management Practical							
		Skill Enhancement Course(SEC) – III	Medical Laboratory Technology Practical		2	2	3	40	60	100
	Vermitechnology Practical									
	Extra Credit Course	SWAYAM	SWAYAM		As per UGC Recommendation					
				<b>TOTAL</b>	<b>30</b>	<b>25</b>				<b>800</b>

VI	III	Core Course – VIII(CC)	Fermentation Technology		6	5	3	25	75	100
		Core Course – IX(CC)	Food Processing Technology		5	4	3	25	75	100
		Core Practical – VII (CP)	Fermentation technology and Food processing technology Practical		3	3	3	40	60	100
		Discipline Specific Elective(DSE) – II	Microbial Genetics		5	4	3	25	75	100
			Food Adulteration							
			Biological Techniques							
		Discipline Specific Elective (DSE)– III	Microbial Biotechnology		5	4	3	25	75	100
	Intellectual Property rights									
	Microbial Nanotechnology									
	Project Work			5	3	-	-	-	100	
	V	Gender Studies	Gender Studies		1	1	3	25	75	100
		Extension activity				1		-	-	-
					<b>TOTAL</b>	<b>30</b>	<b>25</b>			
				<b>GRAND TOTAL</b>	<b>180</b>	<b>140</b>				<b>4500</b>

The Internal and external marks for theory and practical papers are as follows:

<b>Subject</b>	<b>Internal Marks</b>	<b>External Marks</b>
Theory	25	75
Practical	40	60

**For Theory:**

- a) The passing minimum for CIA shall be 40% out of 25 marks (i.e. 10 marks)
- b) The passing minimum for End Semester Examinations shall be 40% out of 75 marks (i.e. 30 marks)

**For Practical:**

- a) The passing minimum for CIA shall be 40% out of 40 marks (i.e. 16 marks)
- b) The passing minimum for End Semester Examinations shall be 40% out of 60 marks (i.e., 24 marks)

**Internal Component (Theory)**

Component	Marks
Quiz	05
Assignment & Seminar	10
CIA -I	05
Total	25

**Internal Component (Practical)**

Component	Marks
Record Note	05
Continuous Performance in Practical (Attendance and Observation)	15
CIA	15
	40

**Note:**

Part – I - Language – Tamil/Hindi/French/Sanskrit

Part –II - English

List of Allied Courses

Allied Course I – Nutritional Biochemistry & Clinical Biochemistry

Allied Course II – Biostatistics

**Total No. of :**

Core Papers - 9

Core Practical - 7

Project - 1

Allied Paper - 3

Allied Practical - 2

Part I Language – 4

Part II English - 4

Generic Elective (GE)- 2

Skill Enhancement course(SEC) - 3

Extra Credit Course - 4

Discipline Specific Elective(DSE) - 3

Value Education -1

Ability Enhancement Compulsory Course (AECC)-I -1

Ability Enhancement Compulsory Course (AECC)-II -1

Professional Skills - 1

Gender Studies - 1

Internship - 1

Extension Activities - 1 (Credit only)

\* The internal and external marks for theory and practical papers are as follows:

Subject	Internal Marks	External Marks
Theory	25	75
Practical	40	60

**For Theory:**

a) The passing minimum for CIA shall be 40% out of 25 marks (i.e. 10 marks)

b) The passing minimum for End Semester Examinations shall be 40% out of 75 marks (i.e. 30 marks)

**For Practical:**

a) The passing minimum for CIA shall be 40% out of 40 marks (i.e. 16 marks)

b) The passing minimum for End Semester Examinations shall be 40% out of 60 marks (i.e. 24 marks)

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY-18**

**B.Sc., Microbiology Programme Structure under CBCS**

(For the Candidates admitted from the Academic year 2022-2023 onwards)

Semester	Part	Course	Title	Course Code	Inst. Hrs. / week	Credits	Exam			Total
							Hrs.	Marks		
								Int	Ext	
I	I	Language Course I (LC) Tamil*/Other Languages*	இக்கால இலக்கியம்	22ULT1	6	3	3	25	75	100
			Hindi Literature & Grammar-I	22ULH1						
			Communication in French-I	22ULF1						
			History of Popular Tales Literature and Sanskrit Story	22ULS1						
	II	English Language Course- I(ELC)	Functional English for Effective Communication-I	22UE1	6	3	3	25	75	100
	III	Core Course – I(CC)	General Microbiology	22UMB1CC1	5	5	3	25	75	100
		Core Practical - I (CP)	General Microbiology Practical	22UMB1CC1P	3	3	3	40	60	100
		First Allied I	Fundamentals of Biochemistry	22UMB1AC1	4	3	3	25	75	100
		First Allied II	Fundamentals of Biochemistry Practical	22UMB1AC1P	4	3	3	40	60	100
	IV	UGC Jeevan Kaushal	Universal Human Values	22UGVE	2	2	3	25	75	100
<b>TOTAL</b>					<b>30</b>	<b>22</b>				<b>700</b>



## CORE COURSE-I (CC)

### GENERAL MICROBIOLOGY

Semester I	Internal Marks : 25	External Marks : 75		
COURSE CODE	COURSE TITLE	CATEGORY	HRS./WEEK	CREDIT
22UMB1CC1	GENERAL MICROBIOLOGY	CORE	5	5

#### Course Objectives

- This subject aims to introduce the history and development of Microbiology. The contents of this course will help students understand history, biology of microorganisms, growth and control of microbes.
- Thus the beginners are rightly exposed to foundation of Microbiology which would lead them towards progressive advancement of the subject.

#### Course Outcome and Cognitive level Mapping:

On the successful completion of the course, students will be able to

CO Number	CO Statement	Cognitive level
CO 1	Recite the Development of Microbiology	K1
CO 2	Explain the Size and Shape of Microorganisms using Microscope	K2
CO 3	Illustrate the knowledge about Bacteria and Viruses	K2
CO 4	Revise the systematic classification of bacteria	K3
CO 5	Apply various technology for microbial cultivation	K3

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	3	3	3	3	2	3
CO2	3	2	3	3	2	2	3	2	3	3
CO3	3	2	2	3	3	3	2	3	3	2
CO4	2	3	3	2	3	3	3	2	3	2
CO5	3	3	2	3	2	3	3	3	2	2

#### Syllabus

##### UNIT: I History and Scope of Microbiology

(15 hours)

Introduction- Definition, scope and Spontaneous generation vs. biogenesis. History of Microbiology- Domain and kingdom concepts, Contributions of Anton von Leeuwenhoek, Louis Pasteur, Robert Koch, Joseph Lister, Alexander Flemming Role of microorganisms in fermentation, Germ theory of disease, Development of various microbiological techniques and golden era of microbiology. Microscopy: Principles and applications of bright field, dark field, phase contrast, fluorescent SEM and TEM.

##### UNIT: II Structure of Bacteria

(15 hours)

Difference between prokaryotic and eukaryotic microorganisms. Brief outline of Bergey's manual of systemic bacteriology. Structural organization of bacteria – Size, shape and arrangement of bacterial cells - Ultrastructure of a bacterial cell - cell wall, cell membrane, ribosomes, nucleoid, slime, capsule, flagella, fimbriae, spores, cysts, plasmid, mesosomes and cytoplasmic inclusions.

##### UNIT: III Cellular and Acellular organisms

(15 hours)

General characteristics and nature of Cellular and Acellular organisms-Archaeobacteria, Mycoplasma, Rickettsiae, Chlamydia, Spirochaetes, Actinobacteria, Protozoa, Algae, Fungi, lichens, Viruses, viroids and prions.

**UNIT: IV Pure culture techniques****(15 hours)**

Sterilization: Principles and methods – physical methods- moist heat, dry heat, filtration and media preparation. Cultivation of microbes- Types of culture media- Stab, slant, broth, semisolid, solid media. Aerobic and Anaerobic culture techniques- Pure culture techniques – Maintenance and preservation of microbes. Principles and types of staining– Simple, differential, Capsule staining.

**UNIT: V Extremophiles****(15 hours)**

Introduction to Extremophiles – Thermophiles, Psychrophiles, barophiles, Halophiles, Alkanophiles, Acidophiles, Methanogenesis and their applications.

**UNIT:VI Self-study for Enrichment**

Microscopic operations, Criteria for Classification of Microorganisms, cellular organizations, Isolation and identification of Microorganisms, Cultivation methods for Extremophiles.

**References****Text Books**

1. Dubey RC and Maheswari DK. (2015). *A Text Book of Microbiology*. S Chand, New Delhi.
2. Ananthanarayan Paniker (2020). *A Text book of Microbiology*. University Press. Singapore.
3. Madigan MT, Martinko JM, and Parker J.(2019). *Biology of Microorganisms*. 12th Edition, MacMillan Press.England.
4. Pelczar MJ, Chan ECS and Kreig NR. (2015). *Microbiology*, fifth edition. McGraw-Hill.Book Co. Singapore.
5. Atlas RA and Bartha R.(2019). *Microbial Ecology. Fundamentals and Application*. Benjamin Cummings, New York.

**Reference Books**

1. Prescott L.M, Harley,J.P. and Helin, D.A. (2017). *Microbiology, Fifth Edition*. McGraw Hill.
2. Tortora GJ, Funke BR and Case CL.(2020). *Microbiology: An Introduction*. 9th Edition, Pearson Education, Singapore.
3. Black JG. (2018). *Microbiology-principles and explorations*, 6th edition. John Wiley and Sons, Inc. New York.
4. Moselio Schaechter and Joshua Leaderberg (2019). *The Desk encyclopedia of Microbiology*. Elseiver Academic press, California.
5. Madigan MT, Martinko JM, and Parker J.(2019). *Biology of Microorganisms*, 12th Edition. MacMillan Press, England.

**Web Reference:**

- 1.<https://microbenotes.com/history-of-microbiology/>
- 2.<https://byjus.com/biology/prokaryotic-and-eukaryotic-cells/>
- 3.<https://byjus.com/biology/archaeobacteria/>
- 4.<https://thebiologynotes.com/sterilization-physical-and-chemical-methods/>
- 5.<https://microbenotes.com/microbiology-of-extreme-environments/>

**Pedagogy**

Chalk and talk, PPT, Discussion, Assignment, Demo, Quiz, Seminar.

**Course Designer:**

Dr.V.Aruna

**CORE PRACTICAL - I (CP)  
GENERAL MICROBIOLOGY PRACTICAL**

<b>Semester I</b>	<b>Internal Marks : 40</b>	<b>External Marks : 60</b>		
<b>Course Code</b>	<b>Course Title</b>	<b>Category</b>	<b>Hrs/Week</b>	<b>Credits</b>
<b>22UMB1CC1P</b>	<b>General Microbiology Practical</b>	<b>Core Practical</b>	<b>3</b>	<b>3</b>

**Course Objectives:**

To enable the students to understand the basic knowledge of aseptic techniques, preparation and sterilization of media, pure culture techniques and to acquire adequate skill to handle microscope to visualize microbes.

**Course Outcomes:**

**Course Outcome and Cognitive Level Mapping**

<b>CO Number</b>	<b>CO Statement</b>	<b>Cognitive level</b>
	On the successful completion of the course, students will be able to	
CO 1	Recall the safety practice in microbiological laboratory	K1
CO 2	Explain the accuracy of sterilization	K2
CO 3	Develop skills to observe microbes using microscopes	K2
CO 4	Competently prepare and cultivate bacteria, fungi and cyanobacteria using media	K3
CO 5	Compute various pure culture techniques	K3

**Mapping of CO with PO and PSO**

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	3	2	2	3	3	3	2	2	2	3
<b>CO2</b>	3	2	3	3	2	3	2	2	3	3
<b>CO3</b>	3	3	3	2	2	3	2	3	3	2
<b>CO4</b>	3	3	2	3	2	3	2	2	3	2
<b>CO5</b>	3	3	3	2	2	3	3	3	3	2

**Slight (Low) Correlation**

**2- Moderate (Medium) Correlation**

**3- Substantial (High) Correlation**

**Syllabus**

**General Microbiology: 45 Hours**

1. Safety & Good laboratory practices
2. Basic concepts of Microscope and its operation
3. Principles and operations – Autoclave, Hot Air Oven, Incubators, Laminar Air Flow chamber, Filtration, colony counter, Centrifuge, pH meter, Colorimeter and Spectrophotometer
4. Cleaning and sterilization of glassware.
5. Preparation of culture media – solid, semi-solid and liquid.
6. Isolation of bacteria, fungi and cyanobacteria from soil and water
7. Enumeration of bacterial numbers by viable count (Plate count)
8. Pure culture techniques - Streak plate, Pour plate and Spread plate.

9. Test for motility of bacteria – Hanging drop method
10. Staining techniques – Simple staining, Gram's staining, Spore-staining, Capsular staining, LCB mount and Saline mount
11. Observation of permanent slides to study the structural characteristics of algae (*Anabaena*, *Nostoc*, *Spirulina*, *Oscillatoria*), fungi (*Pythium*, *Rhizopus*, *Saccharomyces*, *Penicillium*, *Aspergillus*, *Agaricus*) and protozoa (*Entamoeba histolytica* and *Plasmodium spp.*).

#### **REFERENCES:**

1. R.C.Dubey, Dr.D.K. Maheswari (2010), Practical Microbiology, Kindle Edition
2. Cappuccino and Sherman (2016), Microbiology – A Laboratory Manual, 11th Edition, Dorling Kindersley (India) Pvt. Ltd., New Delhi.
3. Amita Jain, Jyotsna Agarwal, Vimala Venkatesh (2018), Microbiology Practical Manual, 1<sup>st</sup> Edition, Elsevier India.
4. Shukla Das and Rumpa Saha (2019). Microbiology Practical Manual, 1st Edition CBS Publishers and Distributors.
5. Saravanan R, D. Dhachinamoorthi, CH. MM. Prasada Rao, (2019), A Handbook of Practical Microbiology, LAP LAMBERT Academic Publishing.
6. Bharti Arora, D.R. Arora (2020), Practical Microbiology, CBS Publishers & Distributors
7. Das S (2020), Microbiology Practical Manual, CBS Publishers
8. Mudili J (2020), Introductory Practical Microbiology, Narosa

#### **Web References:**

<https://unitedvrg.com/2019/03/28/microbiology-a-laboratory-manual-11th-edition-2016-pdf/>  
<https://www.youtube.com/watch?v=hxausVA8a3E>  
<https://www.youtube.com/watch?v=sxa46xKfIOY>  
<https://www.youtube.com/watch?v=lu9CvIF20pc>  
<https://study.com/learn/lesson/simple-differential-staining-techniques.html>  
<https://www.youtube.com/watch?v=xjYdOcT6s1Y>  
<https://bitesizebio.com/853/5-laboratory-sterilisation-methods/>  
<https://www.youtube.com/watch?v=QqWcUzpzZgw>

#### **Pedagogy**

Power point presentations, Group Discussion, Quiz, Brain Storming Activity.

#### **Course Designer:**

Dr.P.Bhuvaneshwari

**FIRST ALLIED I  
FUNDAMENTALS OF BIOCHEMISTRY**

<b>Semester I</b>	<b>Internal Marks : 40</b>	<b>External Marks : 60</b>		
<b>Course Code</b>	<b>Course Title</b>	<b>Category</b>	<b>Hrs/Week</b>	<b>Credits</b>
<b>22UMB1AC1</b>	<b>Fundamentals of Biochemistry</b>	<b>Allied</b>	<b>4</b>	<b>3</b>

**Course Objectives:**

To understand the structure, functions of various biomolecules and consequences of deviation from normal

**Course Outcomes:**

**Course Outcome and Cognitive Level Mapping**

<b>CO Number</b>	<b>CO Statement</b>	<b>Cognitive level</b>
	On the successful completion of the course, students will be able to	
CO 1	Recite the views of carbohydrates and their classification	K1
CO 2	Explain the structure of protein	K2
CO 3	Illustrate an idea about structure and function of nucleic acids	K2
CO 4	Relate the structure and properties of lipids	K3
CO 5	Compile view of vitamins and their deficiency diseases	K5

**Mapping of CO with PO and PSO**

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	2	2	3	3	3	2	2	3	2	3
<b>CO2</b>	3	3	1	3	3	2	2	3	3	3
<b>CO3</b>	2	3	3	2	3	3	3	1	3	3
<b>CO4</b>	2	3	3	3	1	3	2	3	3	3
<b>CO5</b>	3	3	2	3	3	3	3	2	3	3

**SYLLABUS**

**UNIT I: CARBOHYDRATES**

**12 Hours**

Introduction – concepts of macromolecules - Carbohydrate– Definition, sources, classification- monosaccharide, disaccharide and polysaccharide, biological significance, digestion and absorption of carbohydrates

**UNIT II: PROTEINS**

**12 Hours**

Proteins – Definition, sources, classification and structure of proteins - structural and non- structural proteins, Amino acids–structure- classification - essential and nonessential, protein and non-protein amino acids. Biological Significance of Proteins.

**UNIT III: LIPIDS**

**12 Hours**

Definition, basic ideas about the biochemical functions of lipids. Classification of lipids with examples,

classification of fatty acids, List of Essential and non-essential fatty acids. Compound lipids: Structure and functions of phospholipids and glycolipids.

#### **UNIT IV: NUCLEIC ACIDS**

**12 Hours**

Nucleic acids – Definition, structure – Nucleoside, Nucleotides, forms and functions of DNA. Types, structure and functions of RNA. Difference between DNA & RNA (mRNA, tRNA, rRNA).

#### **UNIT V: VITAMINS**

**12 Hours**

Vitamins– Definition, sources, deficiency disorders and functions of Fat soluble vitamins (A, D, E and K) and Water soluble vitamins (B complex and C).

#### **UNIT VI: SELF STUDY FOR ENRICHMENT**

Diabetes mellitus – Blood Plasma protein – Lipoprotein – Phosphodiester bond – structure of vitamins.

#### **TEXT BOOKS:**

1. Ambika Shanmugam (2016). Fundamentals of Biochemistry for Medical students. 8<sup>th</sup> Edition, Wolters Kluwer (India) Pvt Ltd.
2. Rafi MD, (2014) Textbook of Biochemistry for medical students, 2nd edition, Universities Press,(India) Pvt. Ltd, Hyderabad, India.
3. Charlotte W Pratt and Sathyanarayana U and Chakrapani U (2013) Biochemistry, 4th edition, Elsevier publishers.
4. Deb AC (2011). Fundamentals of Biochemistry, 10th edition, New Central Book Agency (p) ltd,London
5. Rajagopal G (2010). Concise textbook of biochemistry, 2nd edition, Ahuja Publishing House.

#### **REFERENCE BOOKS**

- Lubert Stryer; Jeremy Berg; John Tymoczko; Gregory Gatto (2019). Biochemistry, 9<sup>th</sup> Edition. Mac millon Publication.
- Denise R Ferrier, (2013) Biochemistry, 6th edition, LWW publishers.
- Reginald H Garrett and Charles M Grisham (2012). Biochemistry, 5th edition. Brooks Colepublishers.
- Albert L Lehninger, David L Nelson and Michael M Cox, (2010). Lehninger Principles of Biochemistry, 2nd edition, Wiley publisher

#### **WEBLINKS:**

1. <https://www.slideshare.net/namarta28/monosaccharides>
2. <https://www.tuscany-diet.net/proteins/classification/#:~:text=egg%20yolk%20phosvitin,http://www.Protein%20classification%20based%20on%20shape,two%20classes%3A%20fibrous%20and%20globular.>
3. <https://byjus.com/biology/lipids/#:~:text=There%20are%20two%20major%20types,than%20alcohol%20and%20fatty%20acids.>
4. <https://www.thoughtco.com/dna-versus-rna-608191>

#### **Pedagogy**

Chalk and talk, PPT, Discussion, Assignment, Quiz, Seminar

#### **Course Designer:**

Dr. B. Thamilmaraivelvi

**FIRST ALLIED PRACTICAL – I (AC)  
FUNDAMENTALS OF BIOCHEMISTRY PRACTICAL**

<b>Semester I</b>	<b>Internal Marks : 40</b>	<b>External Marks : 60</b>		
<b>Course Code</b>	<b>Course Title</b>	<b>Category</b>	<b>Hrs/Week</b>	<b>Credits</b>
22UMB1AC1P	Fundamentals of Biochemistry practical	Allied Practical	4	3

**Course Objectives:**

This course enables the students to explore the basic biochemistry practical skills.

**Course Outcomes:**

**Course Outcome and Cognitive Level Mapping**

<b>CO Number</b>	<b>CO Statement</b>	<b>Cognitive level</b>
	On the successful completion of the course, students will be able to	
CO 1	Identify the carbohydrates, amino acids, proteins present in the given sample	K1
CO 2	Interpret the amount of glucose present in the given sample by Anthrone method.	K2
CO3	Calculate the amount of amino acid present in the given sample by Ninhydrin method	K2
CO4	Analyse the amount of cholesterol present in the given sample by Zak's method	K4
CO5	Evaluate the amount of DNA present in the given sample by Diphenylamine (DPA) method	K3

**Mapping of CO with PO and PSO**

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	3	3	3	3	3	3	3	3	3	3
<b>CO2</b>	3	3	3	3	2	1	3	3	3	3
<b>CO3</b>	3	3	1	3	3	3	2	2	2	3
<b>CO4</b>	3	3	2	3	3	3	3	1	3	2
<b>CO5</b>	3	3	3	2	2	3	3	2	2	3

**SYLLABUS**

**FUNDAMENTALS OF BIOCHEMISTRY (P):45 hours**

1. Qualitative analysis of carbohydrates, amino acids and proteins.
2. Quantitative estimation of Glucose by Anthrone Method
3. Quantitative estimation of Amino acids by Ninhydrin Method
4. Quantitative estimation of Protein by Lowry's Method
5. Quantitative estimation of Cholesterol by Jacks Method
6. Quantitative estimation of DNA by Diphenylamine (DPA) Method

## **REFERENCES:**

1. Vasudevan and Sabir Kumar Doss (2022). Practical Text book of Biochemistry for Medical students
2. Damodaran Geetha K.(2016), Practical Biochemistry, JB brother medical publisher.
3. Ranjna Chawla.(2014). Practical clinical Biochemistry, JB brother medical publisher.
4. Manipal manual of clinical Biochemistry.2013, JB brother medical publisher.
5. Shawn O' Farrell and Ryan T Ranallo (2000). Experiments in Biochemistry: A Hands on Approach-A manual for the undergraduate laboratory, Thomson Learning, Inc., Australia.

## **WEBLINKS**

1. <https://www.youtube.com/watch?v=wmhmAESv72E>
2. <https://www.youtube.com/watch?v=VzYDk4t97Ok>
3. <https://www.youtube.com/watch?v=JdXbTWfOc18>
4. [https://www.youtube.com/watch?v=2LiA\\_yNMIVs](https://www.youtube.com/watch?v=2LiA_yNMIVs)

## **Pedagogy**

Chalk and talk, PPT, Discussion, Assignment, Quiz, Seminar

## **Course Designer:**

Dr. B. Thamilmaraivelvi



# CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

NATIONALLY ACCREDITED (III CYCLE) WITH "A" GRADE BY NAAC

ISO 9001:2015 CERTIFIED

TIRUCHIRAPPALLI- 620 018

## PG AND RESEARCH DEPARTMENT OF MICROBIOLOGY



**M.Sc., MICROBIOLOGY**

**Syllabus**

**2022-2023 and Onwards**



## **CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**

### **PG AND RESEARCH DEPARTMENT OF MICROBIOLOGY**

#### **VISION**

Our vision is to encourage eminent research work through the conception of an attractive and vibrant environment to achieve goals of our department.

#### **MISSION**

- To impart relevant, ultimate, principle-oriented education and practical expertise in the field of Microbiology.
- To strive to provide quality education conjugated with innovative technology so as to be able to gain technical and educational expertise locally, nationally, internationally.
- Our prime focus is to enrich the ambitions of our students, staff and steer with constructive collaboration towards excellence.

**PROGRAMME OUTCOMES FOR M.Sc., (LIFE SCIENCES) PROGRAMMES**

<b>PO NO</b>	<b>PROGRAMME OUTCOME</b> <b>On completion of M.Sc., Programme, the students will be able to</b>
<b>PO1</b>	<b>Scientific Management and Career Opportunities:</b> Master the scientific and applied aspects of the subject for employment opportunities.
<b>PO2</b>	<b>Explore Creativity and Intelligence:</b> Employ novel ideas with conceptual thinking to secure self-discipline and independence to foster scientific attitude by exploration of Science.
<b>PO3</b>	<b>Team Building and Scientific Temperament:</b> Inculcate training, internships and team spirit with leadership skills through academic projects and transmit complex scientific and technical information and contribute to the scientific community.
<b>PO4</b>	<b>Innovative Learning and Technological Advancement:</b> Perceive research in the specialized areas and to engage in life-long learning to keep pace with emerging trends in academics, research and technology.
<b>PO5</b>	<b>Personality Development with Social Responsibility:</b> Achieve ethical, social and holistic values with social responsibility to develop a healthy life.

**PROGRAMME SPECIFIC OUTCOMES FOR M.Sc., MICROBIOLOGY PROGRAMME**  
**M.Sc., MICROBIOLOGY CURRICULUM [2022 -2023 ONWARDS]**

<b>PSO NO.</b>	<b>PROGRAMME SPECIFIC OUTCOMES</b> <b>Students of M.Sc., Microbiology will be able to</b>	<b>POs Addressed</b>
<b>PSO 1</b>	Understand the applied sciences to engage them life long learning to foster their successful carrier and educational goals.	<b>PO1, PO5</b>
<b>PSO 2</b>	Focus perceptive in the subject of Microbiology to apply its principles and its applications by adding broad range of scientific knowledge.	<b>PO2, PO3</b>
<b>PSO 3</b>	Acquire contextual knowledge on basis and modern concepts in current areas with contemporary technologies and multidisciplinary domains	<b>PO3, PO4</b>
<b>PSO 4</b>	Instill to work independently identify appropriate resources, enable individual, institutional and national values to understand the impact of innovation and applications	<b>PO4, PO1</b>
<b>PSO 5</b>	Ability to imbibe moral and ethical values to formulate effective research grants and experimental designs	<b>PO5, PO2</b>

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY-18****M.Sc., Microbiology Programme Structure under CBCS****(For the Candidates admitted from the Academic year 2022-2023 onwards)**

Sem.	Course	Title	Course Code	Inst./ Hours/ Week	Credit	Exam Hours	Marks		Total
							Int.	Ext.	
I	Core Course – I (CC)	Essentials of Microbiology	22PMB1CC1	6	5	3	25	75	100
	Core Course – II (CC)	Biological Macromolecules	22PMB1CC2	6	5	3	25	75	100
	Core Course – III (CC)	Clinical Virology	22PMB1CC3	5	5	3	25	75	100
	Core Practical –I (CP)	Essentials of Microbiology, Biological Macromolecules and Clinical Virology practical	22PMB1CC1P	8	4	3	40	60	100
	Elective Course – I	A. Biological Techniques	22PMB1EC1A	5	5	3	25	75	100
		B. Organic Farming	22PMB1EC1B						
C. Microbial Cytology		22PMB1EC1C							
<b>TOTAL</b>				<b>30</b>	<b>24</b>	-	-	-	<b>500</b>
<b>15 Days INTERNSHIP during Semester Holidays</b>									
II	Core Course- V (CC)	Microbial Metabolism		6	5	3	25	75	100
	Core Course – VI (CC)	Clinical Immunology		6	5	3	25	75	100
	Core Course – IV (CC)	Microbial Ecology		5	4	3	25	75	100
	Core Practical– II (CP)	Microbial Metabolism, Clinical Microbiology and Microbial Ecology practical		8	4	3	40	60	100
	Elective Course – II	A. Biofertilizer Technology		5	4	3	25	75	100
		B. Public Health Microbiology							
		C. Marine Microbiology							
	Internship			2					100
Extra Credit Course	Swayam Online Course		As per UGC Recommendation						
<b>TOTAL</b>				<b>30</b>	<b>24</b>	-	-	-	<b>600</b>

III	Core Course-VII (CC)	Industrial Microbiology		6	5	3	25	75	100
	Core Course-VIII(CC)	Microbiology for Competitive Examinations		6	5	3	-	100	100
	Core Practical-III (CP)	Industrial Microbiology practical		8	4	3	40	60	100
	Elective Course-III (EC)	A. Clinical Mycology and Parasitology		5	4	3	25	75	100
		B. Food Adulteration							
		C. Biomedical Laboratory Technology							
	Elective Course-IV (EC)	A. Recombinant DNA Technology		5	4	3	25	75	100
		B. Microbes in Solid Waste Management							
		C. Microbial Nanotechnology							
	Extra Credit Course	Swayam Online Course		As per UGC Recommendation					
<b>TOTAL</b>				<b>30</b>	<b>22</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>500</b>
IV	Core Course – IX (CC)	Microbial Biotechnology		6	4	3	25	75	100
	Core Course – X (CC)	Molecular Biology and Microbial Genetics		6	4	3	25	75	100
	Elective Course- V (EC)	A. Bioinformatics and Biostatistics		5	4	3	25	75	100
		B. Entrepreneurial Microbiology							
		C. Molecular Taxonomy and Phylogeny							
	Core Practical-IV (CP)	Microbial Biotechnology, Molecular Biology and Microbial Genetics practical		6	4	3	40	60	100
	Project			6	4	-	-	-	100
	<b>TOTAL</b>				<b>30</b>	<b>20</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>GRAND TOTAL</b>				<b>120</b>	<b>90</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2100</b>

**Note:**

Total No. of Core Papers	-10
Total No. of Practicals	-4
Total No. of Elective Papers	-5
Internship	-1
No. of Projects	-1

Total -21

The internal and external marks for theory and practical papers are as follows:

Subject	Internal Marks	External Marks
Theory	25	75
Practical	40	60

Separate passing minimum is prescribed for Internal and External

**For Theory:**

- a) The passing minimum for CIA shall be 40% out of 25 marks (i.e. 10 marks)
- b) The passing minimum for End Semester Examinations shall be 40% out of 75marks (i.e. 30 marks) c)

The passing minimum not less than 50% in the aggregate.

**For Practical:**

- a) The passing minimum for CIA shall be 40% out of 40 marks (i.e. 16 marks)
- b) The passing minimum for End Semester Examinations shall be 40% out of 60marks (i.e. 24 marks) c)

The passing minimum not less than 50% in the aggregate.

**For PROJECT:**

Marks for Dissertation: 80 Marks

Marks for Viva Voce: 20 Marks

Total Marks: 100 Marks

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY-18****M.Sc., Microbiology Programme Structure under CBCS****(For the Candidates admitted from the Academic year 2022-2023 onwards)**

Sem.	Course	Title	Course Code	Inst./ Hours/ Week	Credit	Exam Hours	Marks		Total
							Int.	Ext.	
I	Core Course – I (CC)	Essentials of Microbiology	22PMB1CC1	6	5	3	25	75	100
	Core Course – II (CC)	Biological Macromolecules	22PMB1CC2	6	5	3	25	75	100
	Core Course –III (CC)	Clinical Virology	22PMB1CC3	5	5	3	25	75	100
	Elective Course – I	A. Biological Techniques	22PMB1EC1A	5	5	3	25	75	100
		B. Organic Farming	22PMB1EC1B						
C. Microbial Cytology		22PMB1EC1C							
Core Practical –I (CP)	Essentials of Microbiology, Biological Macromolecules and Clinical Virology practical	22PMB1CC1P	8	4	3	40	60	100	
<b>TOTAL</b>				<b>30</b>	<b>24</b>	-	-	-	<b>500</b>

**CORE COURSE I (CC)**  
**ESSENTIALS OF MICROBIOLOGY**

<b>Semester I</b>	<b>Internal Marks: 25</b>	<b>External Marks : 75</b>		
<b>Course Code</b>	<b>Course Title</b>	<b>Category</b>	<b>Hrs./Week</b>	<b>Credits</b>
<b>22PMB1CC1</b>	<b>Essentials of Microbiology</b>	<b>Core</b>	<b>6</b>	<b>5</b>

**Course Objective**

- To enable the students to understand the basic knowledge in Microbiology.

**Prerequisites:** Basic knowledge and concepts of microbiology

**Course Outcome and Cognitive Level Mapping**

On the successful completion of the course, students will be able to

<b>CO Number</b>	<b>CO Statement</b>	<b>Cognitive Level</b>
CO1	Determine the scope of Microbiology	K4
CO2	Differentiate the types of Microscopy	K4
CO3	Assess the morphological features of Eukaryotic Cell	K5
CO4	Generalize view of Prokaryotic Cell Structure	K6
CO5	Develop the cultivation methods of microbes	K6

**Mapping of CO with PO and PSO**

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	3	3	3	2	1	3	2	3	3	2
<b>CO2</b>	2	2	2	2	2	3	2	3	2	2
<b>CO3</b>	2	3	1	2	3	3	2	3	2	2
<b>CO4</b>	3	2	3	2	2	3	2	3	2	1
<b>CO5</b>	3	3	3	3	2	3	2	3	3	2



# Syllabus

## UNIT I: History of Microbiology

(18 Hours)

History and Scope of Microbiology, Classification systems – Phenetic, phylogenetic and numerical. Domain and kingdom concept - Haeckel's three kingdom concept, Whittaker's five kingdom concept, Carl Woese's three domain system, Cavalier-Smith's eight kingdom concept. Bacterial classification (outline) according to Bergey's manual of Systemic Bacteriology.

## UNIT II: Microscopy

(18 Hours)

Principles of microscopy. Compound microscope (Monocular and Binocular microscopes) – construction and function of parts, ray diagram of path of light, objectives, oculars, condensers, sources of illumination and uses. Dark field, Phase contrast and Fluorescence microscopes, Confocal microscopes, Atomic Force Microscope - principle, construction, ray diagram and applications - Electron microscopy – TEM and SEM – principle, construction, ray diagram and uses.

## UNIT III: Cell Structure of Prokaryotes

(18 Hours)

Study of bacteria: Size, shape and arrangement of bacterial cells. Structures external to cell wall – capsule, slime layer, flagella, pili, fimbriae, stalks, prosthecae. Cell wall – gram positive and gram negative. Structures internal to cell wall – cell membrane, cytoplasm, cytoplasmic inclusions, genome, spores and cysts. Reproduction in bacteria: a) Binary fission *E. coli*, *Bacillus* and *Streptococcus* b) Other methods – Budding, Fragmentation, Prostheca, Multiple fission.

## UNIT IV: Cell Structure of Eukaryotes

(18 Hours)

General characteristics, Classification, Structure and Reproduction of Algae: *Chlorophyta* (Green algae), *Diatoms*, *Rhodophyta* (Red algae), Fungi: Cell wall – chemical composition and functions, membranes and their functions, nutritional strategies of fungi. Structure and life cycle of fungi *Ascomycetes* (*Aspergillus*), *Zygomycetes* (*Mucor*), *Basidiomycetes* (*Agaricus*). Discovery, distinctive properties, morphology and ultra-structure of Virus, Classification of virus.

## UNIT V: Microbial Growth Measurements

(18 Hours)

Microbial growth - culture media - isolation of pure culture. Growth curve: Diauxy - continuous culture – chemostat – turbidostat - synchronized growth. Measurement of microbial growth – Total cell count method - viable cell count method and biomass determination - dry weight – wet weight – protein – Kjeldhal nitrogen – chlorophyll. Growth phases – kinetics – asynchronous – synchronous - batch – continuous culture. Factors affecting growth (pH, salinity, temperature, light, etc). Microbial growth control - Physical and chemical methods – sterilization and disinfection. Maintenance and preservation of microorganism.

## UNIT VI: Self-study for Enrichment

Nomenclature and modern methods of Bacterial taxonomy, Micrometry, Giant bacteria, Cultivation of virus and Protozoa, Bacterial nutrition.

## Text Books

1. [Dave Wessner](#) , [Christine Dupont](#) , [Trevor Charles](#) , [Josh Neufeld](#).(2020). *Microbiology*.Wiley.
2. [Bhagwan Rekadwad](#). (2020).*Microbial Systematics: Taxonomy, Microbial Ecology, Diversity*. CRC Press.
3. [Joan L. Slonczewski](#) , [John W. Foster](#) , [Erik R. Zinser](#).(2020). *Microbiology: An Evolving Science*. W. W. Norton & Company.
4. [Michael J. LeBoffe](#), [Burton E. Pierce](#). (2019). *Microbiology: Laboratory Theory & Application*. Morton Publishing Company.
5. Gerard Tortora , Berdell Funke , Christine Case. (2018).*Microbiology: An Introduction*,Pearson.

## Reference Books

1. Gerard Tortora , Berdell Funke , Christine Case, Derek Weber, Warner Bair . (2020).*Microbiology: An Introduction, Global Edition*.Pearson.
2. [Barry Chess](#).(2020). *Talaro's Foundations in Microbiology: Basic Principles* . McGraw Hill.
3. [Lourdes Norman-McKay](#) .(2018). *Microbiology: Basic and Clinical Principles* .Pearson.
4. [Kathleen Park Talaro](#) , [Barry Chess](#). (2017). *Foundations in Microbiology*. McGraw Hill.
5. Prescott L.M, Harley,J.P. and Helin, D.A. (2017). *Microbiology, Fifth Edition*. McGraw Hill.

## Web references:

1. <https://microbenotes.com/category/basic-microbiology/>
2. <https://microbiologyinfo.com/>
3. [https://bio.libretexts.org/Bookshelves/Microbiology/Book%3AMicrobiology\\_\(Kaiser\)/Unit\\_1%3A\\_Introduction\\_to\\_Microbiology\\_and\\_Prokaryotic\\_Cell\\_Anatomy/1%3A\\_Fundamentals\\_of\\_Microbiology](https://bio.libretexts.org/Bookshelves/Microbiology/Book%3AMicrobiology_(Kaiser)/Unit_1%3A_Introduction_to_Microbiology_and_Prokaryotic_Cell_Anatomy/1%3A_Fundamentals_of_Microbiology)
4. <https://www.biologydiscussion.com/notes/microbiology-notes/notes-microbiology-biology/34235>
5. <https://www.britannica.com/science/microbiology>

## Pedagogy:

Chalk and talk, Quiz, Assignments, Group Discussion, Demo and PPT

**Course Designer:** Dr.P.F.Steffi

**CORE COURSE II (CC)**  
**BIOLOGICAL MACROMOLECULES**

Semester I	Internal Marks:25	External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	Hrs/ Week	CREDITS
<b>22PMB1CC2</b>	<b>Biological Macromolecules</b>	<b>Core</b>	<b>6</b>	<b>5</b>

**Course objective:** To provide knowledge about cell and its function, to understand the metabolic pathways of various macromolecules.

**Prerequisite:** Basic understanding of cell and its functions, biological macromolecules.

**Course Outcome and Cognitive Level Mapping**

On the successful completion of the course students will be able to

COs	CO Statement	Cognitive Level
CO1	Classification of cell, and its structure in prokaryotes and eukaryotes	K4
CO2	Elaborate the basic concepts of enzyme and its catalysis	K4
CO3	Analyze the chemical nature and function of biological macromolecules	K5
CO4	Discuss the concepts of thermodynamics and biological buffers	K6
CO5	Explain the concepts of metabolism with detailed pathways	K6

**Mapping of CO with PO and PSO**

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
<b>CO1</b>	2	3	3	3	2	3	3	3	2	3
<b>CO2</b>	3	2	3	3	2	2	3	2	3	3
<b>CO3</b>	3	2	2	3	3	3	2	3	3	2
<b>CO4</b>	2	3	3	2	3	3	3	2	3	2

CO5	3	3	2	3	2	3	3	3	2	2
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## Syllabus

### UNIT I: Cellular organization (18Hours)

Cell and its function-Structural organization and functions of bacterial, animal and plant cell- Nucleus, Cytoplasm, Mitochondria, Golgi apparatus, Lysosomes, Ribosomes, Endoplasmic reticulum. Various specialized components of microorganisms-Pili, Fimbriae, Cilia, Flagella, S-layer, Magnetosomes-their structure and function. Cell division-Mitosis, Meiosis

### UNIT II: Enzymes (18Hours)

Enzymes-Definition –Classification –specificity-active site-Emil Fischer and Koshland Model for the mechanism of enzyme action,. Enzyme kinetics :Michaelis–Menten equation for simple enzymes-Factors affecting enzyme activity. Enzyme inhibition- competitive-Non competitive and Uncompetitive. Isozymes-coenzymes- Biological significance of enzymes

### UNIT III: Biological macromolecules and their biosynthesis (18Hours)

Macromolecules. Nucleic acid - properties, biosynthesis of purines and pyrimidines - Structure of DNA and RNA. Types of RNA. Proteins -classification - primary-secondary-tertiary - quaternary and three dimensional structure of proteins. Synthesis of proteins. Amino acids-Essential and Non Essential-Carbohydrates-mono, di, oligo and polysaccharides. Lipids and biomolecules: Fatty acids, properties, -oxidation

### UNIT IV: Bioenergetics (18Hours)

Bioenergetics –Laws of thermodynamics, strategy of energy production in the cell. Oxidation - reduction reactions, coupled reactions and group transfer. Biological energy transducers-structural features of biomembranes, transport, free energy and spontaneity of reaction,  $G$ ,  $G^\circ$ ,  $G'$  and equilibrium. Basic concepts of acids, bases, pH and buffer

### UNIT V: Concepts of metabolism (18Hours)

Basic concepts of metabolism - catabolic principles and break down of carbohydrates-Glycolysis-EMP and Entner-Doudoroff pathway, TCA cycle and HMP shunt. Lipids-Types of oxidation-proteins-Deamination, Transamination, Decarboxylation and Transmethylation- Nucleic acids – Purine and pyrimidine catabolism-significance

### UNIT VI: Self study for Enrichment

Cell cycle, Allosteric enzymes, Biosynthesis of cholesterol, Biological buffer system –Types and functions, ATP production

## REFERENCES

### Text Books

1. Amit Kumar Nayak, Amal Kumar Dhara, Dilipkumar Pal (2021) Biological Macromolecules Bioactivity and Biomedical Applications. 1<sup>st</sup> Edition. Elsevier Inc.
2. Rene Crestor Kratz, (2020) Molecular & Cell Biology 2<sup>nd</sup> edition dummies
3. Jeremy M Berg, John L Tymoczko and Lubert Stryer., (2002) *Biochemistry* .5<sup>th</sup> edition W.H. Freeman and company, New York

### Reference Books

1. David. E.Metzler and Carol.M Metzler(2001) *Biochemistry -Thechemical reactions ofliving cells-Vol1and2*.2ndedition Harcourt/Academic press ,Newyork
2. Lehninger,Albert L, David L Nelson and MichaelM Cox.(2021) *Lehninger Principles of Biochemistry*.NewYork: 8<sup>th</sup> Edition Worth Publishers.
3. StryerL BergJM and Tymoczko JL (2002) *Biochemistry* 5thedition.NewYork W.H.Freeman.
4. Thomas M Devlin.A.(2002) *Textbook of Biochemistry with clinical correlations*,5thedition. JohnWileyandsons,Inc., publication,Newyork
5. Rafi MD (2014) *Textbook of Biochemistry for medical students*, 2<sup>nd</sup>editionUniversitiesPress,(India) Pvt. Ltd,Hyderabad,India

### Web references:

1. [https://bio.libretexts.org/Bookshelves/Introductory\\_and\\_General\\_Biology/Book%3AGeneral\\_Biology\\_\(Boundless\)/03%3A](https://bio.libretexts.org/Bookshelves/Introductory_and_General_Biology/Book%3AGeneral_Biology_(Boundless)/03%3A)
2. <https://www.youtube.com/watch?v=h-z9-9OOWC4>
3. <https://www.youtube.com/watch?v=-FQmAnmLZtE>
4. <https://www.youtube.com/watch?v=ok9esggzN18>
5. <https://www.youtube.com/watch?v=PYH63o10iTE>
6. <https://www.youtube.com/watch?v=VigpwmH7E3M>
7. [https://www.youtube.com/watch?v=zm\\_DyD6FJ0](https://www.youtube.com/watch?v=zm_DyD6FJ0)
8. <https://www.youtube.com/watch?v=VGHD9e3yRIU>
9. [https://www.youtube.com/watch?v=2Jgb\\_DpaQhM](https://www.youtube.com/watch?v=2Jgb_DpaQhM)
10. <https://www.youtube.com/watch?v=NNASRkIU5Fw>
11. <https://www.youtube.com/watch?v=qVAvmieRM1E>
12. <https://www.youtube.com/watch?v=Gh2P5CmCC0M>

### Pedagogy

Chalk and talk, Quiz, Assignments, Group Discussion, Demo and PPT

**Course Designer** :Dr. N.Pushpa

## CORECOURSE – III

### CLINICAL VIROLOGY

Semester I	Internal Marks: 25	External Marks: 75		
COURSE CODE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
22PMB1CC3	Clinical Virology	Core	6	5

#### Course Objectives:

- To impart and explain the students with the advanced knowledge of the characteristics of Clinically important viruses with the focus on the General characters, Cultivation, Pathogenesis, Lab diagnosis, Prophylaxis, and Treatment of the disease.

**Prerequisites:** Basic Understanding of Etiology and Diagnostic Management of Animal Viruses.

#### Course Outcome and Cognitive Level Mapping

On the successful completion of the course, students will be able to

CO Number	CO Statement	Cognitive Level
CO1	Describe General Characters and Classification of viruses	K3
CO2	Aware different Diagnostic methods adopted for viruses	K4
CO3	Examine and differentiate the various air borne viral infections	K4
CO4	Analyse some food borne viral diseases	K6
CO5	Examine and Categorize different types of Vector borne Viral diseases and Oncogenic viruses	K6

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	3	3	3	3	3	3
CO2	3	3	3	3	3	1	3	3	3	3
CO3	3	3	2	3	3	3	2	3	3	3
CO4	2	3	1	3	3	3	1	3	3	2
CO5	3	3	3	1	3	3	3	3	1	3

#### Syllabus:

**UNIT I: General Virology**

**(18 hours)**

Introduction and Historical perspective of clinical virology. Nomenclature, General Properties and Ultra structure of viruses. viral replication, classification of Viruses – Baltimore and ICTV methods. Sample collection, Transport and examinations of viral Specimens. Incomplete viruses- Prions, Satellite Viruses, Viroids and Virusoids.

**UNIT II: General Methods of Diagnosis and Serology ( 18 hours)**

Cultivation of clinically important viruses in embryonated eggs, experimental animals, cell cultures, cell lines and transgenic systems. Serological methods – Haemagglutination & HAI; complement fixation, Immunofluorescence methods, PCR, ELISA and Radio immunoassays, Immunoblotting- Western Blot. Assay of viruses – physical, chemical and Infective assay. Antiviral agents and viral vaccines.

**UNIT III: Air borne Viruses (18 Hours)**

Clinical Course, Disease burden , risk factor, Epidemiology, Prevention and Treatment of following Air borne viruses- Rhinovirus, Influenza Virus (A,B and H1N1), Varicella virus- Chicken pox, Mumps virus, Measles virus, MERS- CoV and SARS- Cov-2.

**UNIT IV: Food borne Viruses (18 Hours)**

Causative agent, Pathogenesis, Lab Diagnosis, Treatment and Prophylaxis of following Food borne Viruses- Adenovirus, Rotavirus, Hepatitis virus, Enteroviruses- Poliomyelitis, Calcivirus, Polio virus and Coxsackie viruses.

**UNIT V: Vector borne Viruses and Oncogenic Viruses (18 Hours)**

Morphology of Causative agent, clinical symptoms, pathogenesis, mode of transmission, prevention and treatment of the following Vector borne viral diseases - Chikungunya, Dengue, Yellow fever, Rabies and Ebola Viruses.

Pathogenesis, Diagnosis and Prevention of Oncogenic viruses- Human Papiloma virus, HIV, HTLV, Herpes and Epstein Barr Virus.

**UNIT VI: Self Study for Enrichment**

Cultural Characters of Viruses, Qualitative and Quantitative estimation of Viruses, Structure and life cycle of viruses, Etiology and Classification of viruses and Viral Prophylaxis.

**References:**

**Text Books**

1. Ananthanarayan and Jayaram Paniker (2020). *Text book of Microbiology*. London: Oxford University press.
2. Geo Brooks, Karen C Carroll, Janet Butel and Stephen Morse (2020). *Medical Microbiology*. Mc Graw Hill Publication.
3. Jawetz, Melnick and Adelberg's (2019). *Medical Microbiology*. Hill Medical Publication division.
4. Kenneth J Ryan, Nafees Ahmad and Andrew Alspaugh J (2018). *Sherris Medical*

*Microbiology*. Mc GrawHill Education.

5. Mishra B (2018). *Text Book of Medical Virology*. CBS Publishers.
6. Greenwood D, Slack R C, Barer M R and Irving W L (2018). *Medical Microbiology: A Guide to Medical Infections*. Churchill Livingstone Publishers.

#### **Reference book**

1. Aejez Iqbal and Zafar Nowshad (2020). *Medical microbiology: Millennium Edition*. Notion Press.
2. Alan J. Cann (2015). *Principles of Molecular Virology*. California: Academic Press.
3. Dimmock NJ and Primerose SB (2016). *Introduction to modern virology*. London: Oxford Blackwell scientific publication.
4. Maureen A Harrison and Ian F Rae (2018). *General techniques of cell cultures*. England: Cambridge University Press.
5. Singh R.P (2015). *Immunology and Medical Microbiology*. New Delhi: Kalyani Publishers.

#### **Weblinks:**

1. <https://www.youtube.com/watch?v=SAbYEs-ak>
2. <https://www.youtube.com/watch?v=6RDofkmG1yo>
3. <https://www.youtube.com/watch?v=dGKeq7DH91c>
4. <https://www.youtube.com/watch?v=xEp-Sdgl9AU>
5. <https://www.youtube.com/watch?v=Kweu6hjWV9w>

#### **Pedagogy:**

Chalk and talk, Quiz, Assignments, Group Discussion, Demo and PPT

#### **Course Designer:**

Dr. S. Jeyabharathi



**ELECTIVE COURSE –I (EC)  
BIOLOGICAL TECHNIQUES**

<b>Semester I</b>	<b>Internal Marks :25</b>	<b>External Marks: 75</b>		
<b>Course code</b>	<b>Course Title</b>	<b>Category</b>	<b>Hrs/Week</b>	<b>Credits</b>
<b>22PMB1EC1A</b>	<b>Biological Techniques</b>	<b>Elective</b>	<b>5</b>	<b>5</b>

**Course Objective:** To educate the students with the basic principles of microbial techniques so as to develop their research aptitude and career prospects.

**Prerequisite:** Basic understanding of experimental protocols on biological research.

**Course Outcome and Cognitive Level Mapping**

On the successful completion of the course, students will be able to

<b>CO Number</b>	<b>CO Statement</b>	<b>Cognitive Level</b>
CO 1	Differentiate the microscopic techniques.	K4
CO 2	Determine the spectroscopic, Spectrophotometric methods & analytical techniques.	K4
CO 3	Critique knowledge about chromatographic techniques.	K5
CO 4	Revise about electrophoresis & its applications.	K6
CO 5	Combine view of molecular techniques.	K6

**Mapping of CO with PO and PSO**

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>1</b>
<b>CO2</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>2</b>
<b>CO3</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>2</b>
<b>CO4</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>CO5</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>2</b>

**Syllabus:**

**UNIT -I: Microscopic Techniques**

**(15 Hours)**

Basic principles, mechanisms and application of Bright Field, Dark field, Phase contrast, Polarization, Confocal laser scanning microscope, Fluorescence, Scanning Electron microscope & Transmission Electron Microscope (SEM & TEM) and Radio- frequency scanning tunneling microscopy, Atomic force microscopy. Preparation of microbial, animal and plant samples for microscopy.

**UNIT -II: Spectroscopy & Spectrophotometry**

**(15 Hours)**

Basic concepts and applications of Circular Dichroism (CD) and Optical Rotatory Dispersion

(ORD), Fluorescence spectroscopy, UV/Visible spectrophotometry, Infrared spectroscopy, Fourier-transform infrared spectroscopy (FTIR), Nuclear Magnetic Resonance spectroscopy (NMR).

**UNIT- III: Chromatographic Techniques (15 Hours)**

Basic Principles and application of Bioautography, Thin-layer chromatography, Paper chromatography, Gel filtration chromatography, Ion- exchange chromatography, Affinity chromatography, Gas chromatography and High Performance Liquid chromatography.

**UNIT- IV: Centrifugation & Electrophoresis (15 Hours)**

Basic principles and applications of Centrifuges - Preparative, analytical, high speed, low speed, ultracentrifuge, differential and density gradient. Basic concepts and applications of Gel Electrophoresis- Agarose and acrylamide (native, denaturing and gradient), Isoelectric focusing, 2D Electrophoresis, Immunoelectrophoresis and Pulse field Electrophoresis.

**UNIT-V: Radiography & Molecular Techniques (15 Hours)**

Basic principles and application of Autoradiography. Liquid scintillation counting, phosphor imaging, Imatinib Resistance Mutation Analysis. Types of PCR- Real time PCR, Reverse Transcriptase PCR, Multiplex PCR, Nested PCR and In-situ PCR. Blotting (Southern, Western, Northern) Techniques, DNA Finger printing, RFLP, RAPD and AFLP application.

**UNIT-VI: Self-study for Enrichment**

Differentiate the functions of Microscope, Interpret the results of FTIR, Separation of the compounds using chromatography and centrifugation, Working principles of DNA Amplification.

**References:**

**Text Books**

1. Rao, D. M. (2020). *Instrumental Methods of Analysis*. CBS publishers and distributors pvt ltd.
2. Gurdeep R. Chatwal. (2019). *Instrumental Methods of Chemical Analysis*. Himalaya publishing house.
3. Bhawana Pandey M.H. Fulekar. (2019). *Bioinstrumentation*. Dream tech Press.
4. Gilbert H Mitchell.(2017). *Gel Electrophoresis: Types, Applications & Research*. Nova Science Publishers .
5. Jessica carol. (2016). *Textbook of Analytical Biochemistry*. Syrawood Publishing House.

**Reference Books**

1. Ankita Jain, Haresh Kalasariya, Varsha Tailor,Nikunj Patel. (2020). *Bioinstrumentation techniques-Basics and applications*. Notion Press.
2. Gakhar, Monika Miglani, Ashwani Kumar.(2019). *Molecular Biology: A Laboratory Manual*. Dreamtech Press.

3. Almroth E.,Wright.(2018). *Principles of Microscopy: Being a Handbook to the Microscope*. Forgotten Books.
4. *Andreas Hofmann and Samuel Clokie. (2018). Wilson and Walker's Principles and Techniques of Biochemistry and Molecular Biology. Cambridge University Press.*
5. *Sanjay B Bari.(2017). Theory and Practice of Chromatographic Techniques. Pharma Med Press.*

**Web References:**

1. [http://physics.fe.uni-lj.si/students/predavanja/Microscopy\\_Kulkarni.pdf](http://physics.fe.uni-lj.si/students/predavanja/Microscopy_Kulkarni.pdf)
2. <https://research.ipmu.jp/seminar/sysimg/seminar/574.pdf>
3. <http://www-keeler.ch.cam.ac.uk/lectures/Irvine/>
4. [https://www.ccamp.res.in/sites/default/files/Basics%20of%20Chromatography\\_KR\\_C-CAMP.pdf](https://www.ccamp.res.in/sites/default/files/Basics%20of%20Chromatography_KR_C-CAMP.pdf)
5. [http://www.bdu.ac.in/schools/biotechnology-and-genetic-engineering/biomedical-science/docs/course\\_materials/Biotechniques/Electrophoresis.pdf](http://www.bdu.ac.in/schools/biotechnology-and-genetic-engineering/biomedical-science/docs/course_materials/Biotechniques/Electrophoresis.pdf)
6. [https://ehs.psu.edu/sites/ehs/files/lsc\\_theory\\_of\\_operation\\_part\\_1.pdf](https://ehs.psu.edu/sites/ehs/files/lsc_theory_of_operation_part_1.pdf)
7. <https://www.youtube.com/watch?v=kOCcmJ3nVQ4>

**Pedagogy:**

Power point presentations, Group Discussion, Seminar, Quiz, Assignment, Brain Storming Activity.

**Course Designer:**

Dr.N.Sathammai Priya

**ELECTIVE COURSE –I (EC)  
ORGANIC FARMING**

<b>Semester I</b>	<b>Internal Marks: 25</b>	<b>External Marks: 75</b>		
<b>Course code</b>	<b>Course Title</b>	<b>Category</b>	<b>Hrs./Week</b>	<b>Credits</b>
<b>22PMB1EC1B</b>	<b>Organic Farming</b>	<b>Elective</b>	<b>5</b>	<b>5</b>

**Course Objectives:** This course aims at sensitizing the need and generating knowledge and skills on various organic farming practices, so as to equip the learners carrying out organic agricultural production and management.

**Prerequisites:** Basic knowledge and concepts of organic farming

**Course Outcome and Cognitive Level Mapping**

<b>CO Number</b>	<b>CO Statement</b>	<b>Cognitive Level</b>
CO1	Analyze the origin and importance of organic farming	K4
CO2	Explain the scope of organic farming	K5
CO3	Criticize the methodology practiced in organic farming	K5
CO4	Develop an idea about biocontrol agents in crop protection	K6
CO5	Construct the strategies for the commercialization of organic products	K6

**Mapping of CO with PO and PSO**

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	2	2	2	2	3	2	3	2	2	2
CO2	3	3	2	3	3	2	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3
CO4	3	2	3	2	2	3	2	2	2	3
CO5	3	3	3	3	3	3	3	3	3	3

**Syllabus**

**Unit I: Organic Farming Concepts (15 Hours)**

Introduction - Different concepts of organic farming – Natural farming, Biodynamic farming, and Zero Budget Farming. Principles of organic farming- Conventional farming v/s Organic farming. Benefits and Need for organic farming.

**Unit II: Scope & Requirements (15 Hours)**

Development and Scope of organic farming; Requirements for organic farming- Soil fertility, Crop Nutrition & Nutrients inputs. Organic Crop Production Systems. Benefits of Integrated organic

farming system.

### **Unit III: Methods & managements (15 Hours)**

Green manuring- Composting- principles, stages, types and factors, Composting methods – Vermicomposting- and Preparation of Vermiwash, Organic amendments and sludges. Biofertilizers and their types- methods of application- advantages and disadvantages. Seed Propagation- planting materials and seed treatments, Water management - drip irrigation - rain water harvesting.

### **Unit IV: Plant protection (15 Hours)**

Integrated Pest Management- bio pesticides and Herbal pesticides- production at household/ farm level, Agniastra, Neemastra - mode of application- advantages. Biocontrol agents. Weed management- preventive practices, biological control of weeds, mechanical control, Standards for organic inputs, crop rotation- inter cropping- Mulching- Pruning.

### **Unit V: Seed conservation and marketing (15 Hours)**

Seed conservation- techniques- seed bank. Farm inspection and Process of Certification. Quality analysis of organic foods - Standards of organic foods- Organic Trademark- Marketing of Organic products. Economics of Organic Farming and Government schemes related to organic farming.

### **Unit VI: Self-study for Enrichment**

Farming components and preparation of organic nutrients. Preparation of Bio fertilizers - Bio pesticides and formulations. Study on crop rotation and mixed cropping techniques.

### **References:**

#### **Text Books:**

1. Joanne M Willey, Kathleen M Sandman and Dorothy H Wood. (2019). *Prescotts Microbiology*, McGraw-Hill Education.
2. Unni M R and Sabu Thomas. (2018). *Organic Farming Global Perspectives and Methods*. Woodhead Publishing.
3. Amitava Rakshit and H B Singh. (2018). *ABC of Organic Farming*. Jain Brothers.
4. Maliwal P.L. (2019). *Principles of Organic Farming*. Scientific Publishers.
5. Govind Mishra Munish Kumar Verma, Ajeet Singh. (2019). *Organic farming*. Sankalp Publication.

#### **Reference Books:**

1. Bansal M. (2020). *Basics of Organic Farming*. CBS publishers and Distributors Pvt. Ltd.
2. Janet Wilson. (2020). *Composting: Sustainable and Low- Cost Techniques for Beginners*. Drip Digital Publisher.
3. Debabrata Biswas, Shirley A. Micallef. (2019). *Safety and Practice for Organic Food*. Academic press Elsevier Science.
4. Rhonda Sherman. (2018). *The Worm Farmer's Handbook*. Chelsea Green Publishing Company.
5. Vinaya Kumar Sethi. (2018). *Organic farming and bio-fertilizers*. Discovery publishing house Pvt. Ltd.

#### **Web references:**

1. <https://www.24mantra.com/blogs/organic-farming-vs-conventional-farming-which-method-is-better/>
2. <https://www.onlinebiologynotes.com/biofertilizer-advantages-types-methods-of-application-and-disadvantages/>
3. <https://www.britannica.com/topic/seed-propagation>
4. <https://content.ces.ncsu.edu/extension-gardener-handbook/8-integrated-pest->

[management-ipm](#)

5. <https://www.agric.wa.gov.au/small-landholders-western-australia/marketing-organic-produce>
6. <https://youmatter.world/en/definition/organic-farming-definition-standards-benefits/>
7. <https://vikaspedia.in/agriculture/national-schemes-for-farmers/schemes-for-organic-farming>

**Pedagogy:**

Chalk and talk, Quiz, Assignments, Seminar, Group Discussion, Demo and PPT

**Course Designer:** Dr. S. Jenny

## ELECTIVE COURSE I (EC)

### MICROBIAL CYTOLOGY

Semester I	Internal Marks:25	External Marks:75		
Course Code	Course Title	Category	Hrs/Week	Credits
22PMB1EC1C	Microbial Cytology	Elective	5	5

#### Course Objectives

To introduce basics in prokaryotic and eukaryotic cell structure

#### Prerequisites

The study of microscopic and submicroscopic details of microorganisms.

#### Course Outcome and Cognitive Level Mapping

On the successful completion of the course, students will be able to

CO Number	CO Statement	Cognitive Level
CO1	Assess the main principles of cell theory	K5
CO2	Determine the Prokaryotic cell	K4
CO3	Evaluate the Structure and functions of eukaryotic cell	K5
CO4	Generalize view of cell division	K6
CO5	Examine Microbial cell communication	K4

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	3	3	2	3	3	2	2	1
CO2	3	2	2	2	3	3	2	2	2	2
CO3	2	3	2	3	2	2	3	2	3	2
CO4	3	2	3	3	2	3	3	2	2	2
CO5	2	3	3	2	3	2	3	3	2	2

#### SYLLABUS

##### UNIT I: Introduction of Cytology (15 Hours)

History of microbial cytology, Cell- definition and general concepts, Main principles of the cell theory, cell as basic unit of life, broad classification of cell types- Prokaryotic and eukaryotic cells

and their similarities and differences.

**UNIT II: Prokaryotes (15 Hours)**

Structure and function of prokaryotic cell- outer flagella, surface layers, cell wall, cytosol and other organelles, chromosome and extra chromosomal DNA.

**UNIT III: Eukaryotes (15 Hours)**

Structure and function of eukaryotic cell- cytosol,nucleus,chloroplast,organelles of Vesicular trafficking system, endoplasmic reticulum(rough and smooth), golgibodies, lysosomes and microbodies.

**UNIT IV: Eukaryotic cell cycle (15 Hours)**

Role of cell cycle and control of cell cycle, cell division- Mitosis and Meiosis.

**UNIT V: Microbial cell communication (15 Hours)**

Overview- types of cell signaling- signal molecules – signal amplification – receptor types-quorum sensing.

**UNIT VI: Self study for Enrichment**

State the cell theory of organisms, Difference between prokaryotic and eukaryotic cell, Cell cycle control mechanism, Role of signal transduction.

**References**

**Text Books**

- 1.Verma P.S. and Agarwal V.K. (2016) *Cell Biology (Cytology, Biomolecules, Molecular Biology)*, Paperback.S.Chand and Company Ltd.
- 2.Kumar P. and Mina U. (2018) *Life Sciences: Fundamentals and Practice, Part-I, 6th Edn.*Pathfinder Publication.
- 3.Hardin J. and Bertoni G. (2017) *Becker's World of the Cell. 9<sup>th</sup> Edn (Global Edition)*. Pearson Education Ltd.
- 4.Karp G., Iwasa J. and Masall W. (2015) *Karp's Cell and Molecular Biology – Concepts and Experiments. 8<sup>th</sup> Edn.* John Wiley and Sons.
- 5.Urry L.A. Cain M.L., Wasserman S.A., Minorsky P.V., Jackson R.B. and Reece J.B. (2014) *Campbell Biology in Focus*. Pearson Education.

**Reference Books**

- 1.Albert B., Hopkin K., Johnson A.D., Morgan D., Raff M., Roberts K. and Walter P. (2018) *Essential Cell Biology 5th Edn.*(paper back) W.W. Norton & Company.
- 2.Cooper G.M. and Hausman R.E. (2016) *The Cell – A Molecular Approach, 7<sup>th</sup> Edn.*Sinauer Associates Inc.
- 3.Mason K.A., Losos J.B. and Singer S.R. (2011) *Raven and Johnson's Biology. 9<sup>th</sup> Edn.* Mc Graw Hill publications.
- 4.Alberts B., Johnson B., Lewis J., Morgan D., Raff M., Roberts K. and Walter P. (2015) *Molecular biology of cell, 6<sup>th</sup> edn.*Garland Science, Taylor and Francis.
- 5.Challoner J. (2015) *The Cell: A visual tour of the building block of life.*The University of Chicago Press and Ivy Press Ltd.

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- 1.[https://repository.embuni.ac.ke/bitstream/handle/123456789/1246/CYTOLOGY%20CHAPTE R%201.pdf?sequence=1&isAllowed=y](https://repository.embuni.ac.ke/bitstream/handle/123456789/1246/CYTOLOGY%20CHAPTE%20R%201.pdf?sequence=1&isAllowed=y)
- 2.<https://biologydictionary.net/prokaryotic-cell/>
- 3.<https://opentextbc.ca/biology2openstax/chapter/eukaryotic-cells/#:~:text=Like%20a%20prokaryotic%20cell%2C%20a,that%20allow%20for%20compartmentalizing%20functions.>
- 4.<https://ncert.nic.in/textbook/pdf/kebo110.pdf>
- 5.<https://www.mdpi.com/2079-6382/9/11/779/pdf>



**Pedagogy**

Chalk and talk, Quiz, ,Assignments, Group Discussions, Demo and PPT

**Course designer:**

Dr.E.Priya

**CORE PRACTICAL – I**  
**ESSENTIALS OF MICROBIOLOGY, BIOLOGICAL MACROMOLECULES AND**  
**CLINICAL VIROLOGY PRACTICAL**

Semester I	Internal Marks: 40	External Marks : 60		
Course Code	Course Title	Category	Hrs./Week	Credits
22PMB1CC1P	Essentials of Microbiology, Biological Macromolecules and Clinical Virology practical	Core Practical	8	4

**Course objectives**

- To impart knowledge about bacterial morphology, phage identification and estimation of nucleic acids

**Prerequisites:** - Imparting practical skills of microbiology

**Course Outcome and Cognitive Level Mapping**

On the successful completion of the course, students will be able to

CO Number	CO Statement	Cognitive Level
CO1	Determine the sterilization methods	K4
CO2	Examine the bacterial morphology	K4
CO3	Evaluate bacteriophage	K5
CO4	Critique knowledge about buffer preparation	K5
CO5	Measure the Use of chromatography	K5

**Mapping of CO with PO and PSO**

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	2	3	3	3	2	2
CO2	3	2	1	3	3	3	2	2	3	2
CO3	3	3	3	3	3	3	2	2	2	2
CO4	3	2	3	2	3	3	1	3	3	1
CO5	3	3	3	2	2	3	2	3	3	2

# Syllabus

## I. Essentials of Microbiology

1. Safety measures to be followed in the laboratory
2. Study of compound microscope: use of monocular, binocular microscopes, use of oil immersion lens
3. Micrometry – measurement of cell dimensions
4. Study of instruments – autoclave, hot air oven, inoculation chamber (LAFU), Incubator, pH meter
5. Cleaning and sterilization of glassware and preparation of cleaning solutions
6. Enumeration of bacteria from environmental sample – Spread and Pour plate
7. Purification of bacteria by different streaking methods
8. Study of microbial behavior – motility of bacteria by hanging drop technique
9. Staining of bacteria - Monochrome staining, Preparation of Gram staining solutions, Gram staining, Negative staining, Structural staining – endospore, cell wall, capsule staining
10. Fungal slide culture.

## II. Biological macromolecules

1. Preparation of buffer (Tris, phosphate, acetate buffer)
2. Determination of (H<sup>+</sup>)ion concentration
3. Verification of Beer-Lambert's law using coloured solution
4. Preparation of standard graph for the following and estimating the concentration in amicrobial sample
  - i) Glucose -Anthrone method,
  - ii) Bovine serum albumin (Lowry's method) and
  - iii) Nucleic acid - DNA (diphenylamine method), RNA (Orcinol method).
5. Separation of amino acids by paper chromatography and identification of amino acid.
6. Separation of proteins by PAGE, SDS - PAGE - Demonstration.

## III. Clinical Virology

1. Animal tissue culture - Demo
2. Embryonated egg inoculation
3. Cell lines studies - Demo

## Reference Books

1. Saha R. (2022). *Microbiology Practical Manual*. CBS Publishers & Distributors.
2. Apurba S Sastry , Sandhya Bhat.(2021).*Essentials of Practical Microbiology*. Jaypee Brothers Medical Publishers.
3. Baveja C. P, Baveja V. (2021). *Text and Practical Microbiology for MLT*. Arya Publications.
4. Das S.(2020). *Microbiology Practical Manual*. CBS Publishers.
5. Bharti Arora, Arora D.R. (2020). *Practical Microbiology*. CBS Publishers &

Distributors.

6. Sinha K P.(2020). *Manual of Practical Biochemistry*. Scientific Book Company.
7. Rafi Mohammed.(2020). *Manual of Practical Biochemistry*. Orient Blackswan Pvt Ltd.
8. Soundravally Rajendiran , Pooja Dhiman.(2019). *Biochemistry Practical Manual*, Elsevier.
9. Amita Jain , Jyotsna Agarwal , Vimala Venkatesh.(2018). *Microbiology Practical Manual*. Elsevier.
10. Gunasekaran P.(2018). *Laboratory Manual In Microbiology*. New Age International Pvt. Ltd. Publisher.

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1. <https://microbiologyonline.org/file/7926d7789d8a2f7b2075109f68c3175e.pdf>
2. <https://ttk.elte.hu/dstore/document/893/book.pdf>
3. [https://webstor.srmist.edu.in/web\\_assets/downloads/2021/18BTC103J-lab-manual.pdf](https://webstor.srmist.edu.in/web_assets/downloads/2021/18BTC103J-lab-manual.pdf)
4. [https://profiles.uonbi.ac.ke/jamesmuthomi/files/acp101\\_microbiology\\_practical\\_exercises.pdf](https://profiles.uonbi.ac.ke/jamesmuthomi/files/acp101_microbiology_practical_exercises.pdf)
5. <https://www.slideshare.net/PatriciaCosta17/practical-handbook-of-microbiology>

**Course Designer:** Dr.P.F.Steffi

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18.**



**DEPARTMENT OF BIOTECHNOLOGY**

**BOARD OF STUDIES**

**MINUTES OF THE VIRTUAL MEETING HELD ON THURSDAY, 26<sup>th</sup> APRIL,  
2022 AT 11.00 AM  
VIA GOOGLE MEET**

**The following members attended the meeting:**

- |                         |                                  |
|-------------------------|----------------------------------|
| 1. Dr. A. Veera Ravi    | Subject Expert, Other University |
| 2. Dr. K. Ruckmani      | Subject Expert, Other University |
| 3. Dr. R. Thirumurugan  | University Nominee               |
| 4. Ms. S. Solaipriya    | Member Alumna                    |
| 5. Dr. R. Rameshwari    | Chairperson & Head               |
| 6. Ms. P. Ilamathy      | Member                           |
| 7. Dr. R. Uma Maheswari | Member                           |
| 8. Ms. P. Jenifer       | Member                           |
| 9. Dr. S. Abinaya       | Member                           |
| 10. Dr. G. Gomathi      | Member                           |
| 11. Dr. M. Keerthiga    | Member                           |

Leave of absence was granted to Dr. Umashankar Ponnusamy, Industrial Expert and Ms. R. Nevetha, Member

**The Agenda for the meeting was as follows:**

**1. ITEM NO. BoS/06/01**

To consider and approve the PSOs, the Programme structure and I Semester syllabus of B.Sc., Biotechnology for 2022 -2023 batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli – 18.

**2. ITEM NO. BoS/06/02**

To consider and approve the ratification of Second Allied Course I – Biochemistry (19UBT3AC3), revised as Biomolecules and Basics of Nanotechnology (21UBT3AC3) and Second Allied Course II practical paper – Lab in Biochemistry (19UBT3AC2P) revised as Biomolecules and Nanotechnology Practical (21UBT3AC2P) in the third semester syllabus for the batch 2021 – 2022 of B.Sc., Biotechnology and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy -18.

**3. ITEM NO. BoS/06/03**

To suggest panel of names to the Academic Council, Cauvery College for Women (Autonomous), Trichy -18. for Question paper setting and list of examiners for Practical Examination and Central Valuation.

**4. ITEM NO. BoS/06/04**

To consider and approve the Question paper pattern for Theory as well as Practical Papers and distribution of Continuous Internal Assessment (CIA) Marks and the components for CIA in the Practical examination and to approve the Maximum Marks and duration of exams for End Semester Examination (ESE) and CIA and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy -18.

**5. ITEM NO. BoS/06/05**

To thank the members of the Board of Studies for rendering support and insights for past three years.

**Minutes of sixth meeting of the BoS**

The minutes of the meeting is as follows:

**Resolution No. BoS/06/01**

Board of Studies members considered and approved PSOs, the Programme structure and I Semester syllabus of B.Sc., Biotechnology for 2022 -2023 batch and onwards and recommended to the Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli – 18 with the following changes:

## REVISION OF CORE COURSE – I: CELL BIOLOGY

- **Portion for Self-study is given in each Unit**

**Unit I** – Discovery of Cells

**Unit II** – Microfilaments

**Unit III** – Peroxisomes

**Unit IV** – Mitosis

**Unit V** - Red Blood Cells

- **Unit – I:**

Cell size and shape topics were reduced.

Cell cycle, cell division – Mitosis and Meiosis topics were merged to Unit IV.

**Unit – II:** Plasma Membrane – Fluid Mosaic Model and Sandwich Model Diffusion, facilitated diffusion and osmosis and Cell Motility-Flagella.

topics were included.

Ions and macromolecules across the membranes topics were reduced.

- **Unit III & IV are merged in Unit III**

Topics are reduced in Unit - IV: Photosynthesis and Protein Synthesis.

- **Unit IV & Unit V are newly introduced.**

- **Unit IV- Cell Division and Signalling**

Cell division in prokaryotes and eukaryotes: Cell cycle, mitosis, meiosis, crossing over; Apoptosis; Signal transduction - Cell to cell recognition and adhesion.

- **Unit V- Specialized cells**

Motile cells (amoeboid and Sperm cells), nerve Cells and nerve impulse conduction, muscle cells and muscle contraction, Egg cells and Red Blood Cells

## REVISION OF CORE PRACTICAL – I: CELL BIOLOGY PRACTICAL

### Experiments included in Cell biology practical

1. Laboratory rules, regulations and safety measures.
4. Measurement of Cell Size by Micrometry.
6. Eukaryotic Cell Observation – Onion.
14. Assessment of Cell Viability by trypan blue staining.

### Experiments reduced in Cell biology practical

12. Experiment on Tonicity
13. Grading the stages of chick embryo development (demo only).

## REVISION OF FIRST ALLIED COURSE I: GENERAL MICROBIOLOGY

➤ **Self-study topic in each Unit**

Unit I : Scope of Microbiology

Unit II : Types of Sterilization.

Unit III : Viroids & Prions

Unit IV: Flagella

Unit V: Corona

➤ **Unit I : History and Classification**

Bergey's manual of Determinative Bacteriology was included. Haeckel's three kingdom concept was reduced.

➤ **Unit II : Media Preparation and Sterilization**

Disinfection topic was reduced.

➤ **Unit III : Bacteria, Virus and Protozoa**

Two Units – “Bacteria” and “Protozoa & Virus” were combined. Morphology and anatomy of Protozoa with two examples was included.

➤ **Unit IV : Algae and Fungi**

The title of the unit “Diversity of Microbial World” was changed as “Algae and Fungi” while retaining the same content.

➤ **Unit V: Microbial Diseases**

New Unit – Microbial Diseases was introduced. General account on Microbial diseases with reference to Causative organism, Pathogenesis, Epidemiology, Diagnosis, Prevention & control of bacterial, fungal, viral & protozoan diseases with examples were included.

## **REVISION OF SECOND ALLIED COURSE I: BIOCHEMISTRY**

➤ **Self-study topic in each Unit**

Unit I : Stachyose

Unit II : Sphingolipids

Unit III : Importance of amino acids

Unit IV: protein folding and denaturation

Unit V: Anemia

➤ **Unit I : Carbohydrates**

Two examples for each carbohydrate is given & physical and chemical properties were included. Pathways of carbohydrates were reduced.

➤ **Unit II : Lipids**

One example for each type of lipid is given & physical and chemical properties were



included. Biosynthesis of fatty acids was reduced.

➤ **Unit III : Amino acids**

New Unit – Amino acids was introduced. Structure, Classification, Physico-chemical properties, functions and importance of amino acids was included.

➤ **Unit IV : Proteins**

Proteins & Enzyme units were combined. Properties of Proteins were included.

Protein folding & denaturation topics were included. Enzyme kinetics & factors affecting of enzyme activity were reduced

➤ **Unit V: Vitamins & Minerals**

Three examples of Vitamin deficiency diseases were given additionally.

**Resolution No. BoS/06/02**

Board of Studies members considered and approved the ratification of Second Allied Course I – Biochemistry (19UBT3AC3), revised as Biomolecules and Basics of Nanotechnology (21UBT3AC3) and Second Allied course II Practical paper – Lab in Biochemistry (19UBT3AC2P) revised as Biomolecules and Nanotechnology Practical (21UBT3AC2P) in the third semester syllabus for the Batch 2021 – 2022 of B.Sc., Biotechnology and recommended to the Academic Council, Cauvery College for Women (Autonomous), Trichy -18.

**Resolution No. BoS/06/03**

Board of Studies members suggested that the panel members of above 5 years of experience could be considered for Question paper setting and panel members with minimum 3-5 years of experience for practical Examination and Valuation.

**Resolution No. BoS/06/04**

Board of Studies members considered and approved the Question paper pattern for theory as well as practical papers and distribution of CIA marks and the components for Continuous Internal Assessment in the practical as well as theory papers, maximum marks and duration of exam for End Semester Examination and Continuous Internal Assessment and recommended to the Academic Council, Cauvery College for Women (Autonomous), Trichy - 18.

Panel members suggested the following changes:

Dr. A. Veera Ravi suggested the following:

- In PSO, terminologies related to DNA, RNA and proteins can be included and the areas of their application related to Omics field should be highlighted like genomics and proteomics.

- SWAYAM online course in V semester is not advisable as it would be difficult for the students to clear towards the end of their programme.
- SWAYAM courses can be added with mandatory two credits in the curriculum with acceptable norms.
- In the First Allied Course I, General Microbiology under Unit V, the number of diseases must be uniform for all categories. Aspergillosis and Amoebiasis can be included under fungal and protozoan diseases respectively.
- In Unit III of General Microbiology, instead of structure, size and morphology of viruses can be included. As well as, Morphology and Anatomy for protozoans can be included.
- In the First Allied Course II – Biochemistry, the content seems to be heavy so some portions can be reduced and syllabus can be made brief. The metabolic pathways part can be removed in Unit I and II.

Dr. K. Ruckmani suggested the following:

- In IV Semester, the title of SBE I Basics of Nanotechnology can be changed to Fundamentals of Nanotechnology.
- In SBE I - Fundamentals of Nanotechnology paper, the fundamentals of imaging techniques for nanoparticles and oncology based content can be included.
- In the Skill Based Elective papers, Biotechnology oriented employability skills must be incorporated. The SBE papers can be changed converted as practical papers as it will be more skill oriented.
- The Major Based Elective – I, Introduction to pharmacology paper can be changed to Human Anatomy, Physiology and Pharmacology in V semester.
- The SBE III - Plant Physiology paper can be replaced with Medical Laboratory Technology Practical.
- In the First Core course I - Cell Biology, abbreviations should be avoided and blackboard teaching should be included in the pedagogy section.
- In Unit II, the First Allied Course – I General Microbiology, disinfection can be removed under types of sterilization.

- In the Ratified Second Allied Course – I - Biomolecules and Basics of nanotechnology (21UBT3AC3) paper, unit III title can be changed as Introduction to Nanotechnology instead of Fundamentals of Nanotechnology.
- The panel of examiners for practical evaluation and question paper setting must have a minimum of 5 years of experience and those who are having below that should not be considered.

Dr. R. Thirumurugan suggested the following:

- For SBE courses, the optional papers should also be practical papers. The SBE II course can be changed as Fundamentals of Nanotechnology – II Practical and Plant Tissue Culture Practical.
- SBE III courses can be changed as practical papers with the titles Organic Farming Practical and Medical Lab Technology Practical.
- In ratified syllabus, the second allied course II - Biomolecules and Basics of Nanotechnology Practical (21UBT3AC2P) paper, preparation of normal solutions can be changed as normality solutions.
- The panel of examiners for practical evaluation and question paper setting must have a minimum of 5 years of experience for practical and minimum of 3 years of experience for Practical.

Ms. S. Solai Priya suggested the following:

- Green synthesis of nanoparticles method can be included in SBE I paper- Fundamentals of nanotechnology.
- Synthesis of metal nanoparticles like silver and gold nanoparticles can be included in SBE I paper - Fundamentals of nanotechnology.
- Can include advanced instrumentation based papers like next generation sequencing (NGS) and genomics approaches.

Finally, Dr. R. Rameshwari, Chairperson & Head, Department of Biotechnology thanked the members of the Board of Studies for rendering support and insights for past three years.

The Board of Studies meeting was resolved and concluded by recommending the syllabus of first Semester of B.Sc., Biotechnology (2022 – 2023 onwards) and the ratification

of the second allied course I – Biomolecules and Basics of Nanotechnology (21UBT3AC3) and second allied course II - Biomolecules and Basics of Nanotechnology Practical (21UBT3AC2P) for 2021 – 2022 and onwards batch. Further, the panel of examiners for question paper setting and practical examination along with the question paper pattern, internal and external components were approved and recommended to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**

**NATIONALLY ACCREDITED (III CYCLE) WITH “A” GRADE BY NAAC**

**ISO 9001:2015 CERTIFIED**

**TIRUCHIRAPPALLI – 620 018**



**DEPARTMENT OF BIOTECHNOLOGY**

**B.Sc., BIOTECHNOLOGY SYLLABUS**

**(For the candidates admitted from the academic year 2022 – 2023 onwards)**

**Vision:**

- To educate a broad range of basic lab skills applicable to biology and biotechnology.
- Make the students to know and understand broad range of basic biological concepts and can apply and analyses these in at least one specialty area.
- Make the students to generate hypothesis, design approaches to test them and interpret the data from those tests to reach valid conclusions.
- To develop the ability to place their own works in a broader scientific context.

**Mission:**

- To produce ambitious, creative graduates who are interested in continuing their education in biosciences.
- Make the students to read and critically evaluate the original scientific literature.
- To produce responsible biotechnology professional to fulfill the employment and research needs in the biotechnology industry.
- Enhance the student's ability to integrate their acquired computer and biosciences knowledge and skills to investigate and solve biological problem.
- To create opportunities for placement in leading industries through Internships.

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**  
**NATIONALLY ACREDITED (IICYCLE) WITH “A” GRADE BY NAAC**  
**ISO 9001:2015 Certified**  
**TIRUCHIRAPPALLI**

**PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)**

<b>PEOs</b>	<b>Statements</b>
<b>PEO1</b>	<p><b>LEARNING ENVIRONMENT</b></p> <p>To facilitate value-based holistic and comprehensive learning by integrating innovative learning practices to match the highest quality standards and train the students to be effective leaders in their chosen fields.</p>
<b>PEO2</b>	<p><b>ACADEMIC EXCELLENCE</b></p> <p>To provide a conducive environment to unleash their hidden talents and to nurture the spirit of critical thinking and encourage them to achieve their goal.</p>
<b>PEO3</b>	<p><b>EMPLOYABILITY</b></p> <p>To equip students with the required skills in order to adapt to the changing global scenario and gain access to versatile career opportunities in multidisciplinary domains.</p>
<b>PEO4</b>	<p><b>PROFESSIONAL ETHICS AND SOCIAL RESPONSIBILITY</b></p> <p>To develop a sense of social responsibility by formulating ethics and equity to transform students into committed professionals with a strong attitude towards the development of the nation.</p>
<b>PEO5</b>	<p><b>GREEN SUSTAINABILITY</b></p> <p>To understand the impact of professional solutions in societal and environmental contexts and demonstrate the knowledge for an overall sustainable development.</p>

**PROGRAMME OUTCOMES FOR B.Sc., (LIFE SCIENCE) PROGRAMMES**

<b>PO NO</b>	<b>Programme Outcome</b> <b>On completion of B.Sc., Programme, the students will be able to</b>
PO1	<b>Academic Excellence and Competence:</b> Elicit firm fundamental knowledge in theory as well as practical for coherent understanding of academic field to pursue multi and interdisciplinary science careers in future.
PO2	<b>Holistic and Social approach:</b> Create novel ideas related to the scientific research concepts through advanced technology and sensitivity towards sustainable environmental practices as well as social issues.
PO3	<b>Professional ethics and Teamwork:</b> Explore professional responsibility through projects, internships, field trip/industrial visits and mentorship programmes to transmit communication skills.
PO4	<b>Critical and Scientific thinking:</b> Equip training skills in Internships, Research Projects to do higher studies in multidisciplinary path with higher level of specialization to become professionals of high quality standards.
PO5	<b>Social Responsibility with ethical values:</b> Ensure ethical, social and holistic values in the minds of learners and attain gender parity for building a healthy nation.



**PROGRAMME SPECIFIC OUTCOMES FOR B.Sc., BIOTECHNOLOGY**

**PROGRAMME**

**B.Sc., BIOTECHNOLOGY CURRICULUM [2022 – 2023 Onwards]**

<b>PSO NO</b>	<b>Programme Outcome</b>	<b>POs Addressed</b>
	<b>On completion of B.Sc., Programme, the students will be able to</b>	
<b>PSO 1</b>	Acquire the knowledge of biological sciences with the implementation of technology on different living systems like plants, animals and microbes.	PO1, PO2
<b>PSO2</b>	Explain the fundamental concepts and develop skills in Immunology, Developmental biology, Nanobiotechnology, Genomics, Proteomics, Bioinformatics, Agriculture and Medicine	PO1, PO2
<b>PSO3</b>	Apply the technical aspects related to improvement of microbes, plants and live-stocks for the welfare of human and environment.	PO2, PO4
<b>PSO 4</b>	Impart hands-on techniques in various thrust areas of biotechnology to meet the emerging demands in industry, academia and research.	PO2, PO4
<b>PSO5</b>	Gaining knowledge to transform theoretical concept to practical products/process to move ahead in entrepreneurship and apply the laws concerning to IPR and bioethics	PO2, PO3, PO5

Cauvery College for Women (Autonomous), Trichy – 18

B.Sc., Biotechnology Programme Structure

(For the Candidates admitted from the Academic year 2022 – 2023 onwards)

Semester	Part	Course	Title	Course Code	Inst. Hrs./ week	Credits	Exam			Total
							Hrs.	Marks		
								Int.	Ext.	
I	I	Language Course-I (LC)	Ikkala Ilakkiyam	22ULT1	6	3	3	25	75	100
			Hindi Literature & Grammar – I	22ULH1						
			History of Popular Tales Literature and Sanskrit Story	22ULS1						
			Basic French – I	22ULF1						
	II	English Language Course-I(ELC)	Functional English for Effective Communication – I	22UE1	6	3	3	25	75	100
	III	Core Course – I(CC)	Cell Biology	22UBT1CC1	5	5	3	25	75	100
		Core Practical - I (CP)	Cell Biology Practical	22UBT1CC1P	3	3	3	40	60	100
		First Allied I	General Microbiology	22UBT1AC1	4	3	3	25	75	100
		First Allied II	Biochemistry	22UBT1AC2	4	3	3	25	75	100
	IV	UGC Jeevan Kaushal	Universal Human Values	22UGVE	2	2	3	25	75	100
					<b>30</b>	<b>22</b>				<b>700</b>
II	I	Language Course-II(LC)	Idaikkala Ilakkiyamun Pudinamum	22ULT2	5	3	3	25	75	100
			Hindi Literature & Grammar – II	22ULH2						
			Poetry, Textual Grammar and Alakara	22ULS2						
			Basic French – II	22ULF2						
	II	English Language Course-II(ELC)	Functional English for Effective Communication – II	22UE2	6	3	3	25	75	100
	III	Core Course – II (CC)	Molecular Biology & Genetics		5	5	3	25	75	100
		Core Practical - II (CP)	Molecular Biology & Genetics Practical		3	3	3	40	60	100
		Core Course III (CC)	Bioinstrumentation		3	3	3	25	75	100
		First Allied III	Microbiology & Biochemistry Practical		4	3	3	40	60	100
	IV	Ability Enhancement Compulsory Course (AECC)-I	Environmental Studies		2	2	3			100
		Ability Enhancement Compulsory Course (AECC)-II	Innovation and Entrepreneurship		2	1				100
	Extra Credit Course		SWAYAM		As per UGC Recommendation					
					<b>30</b>	<b>23</b>				<b>800</b>

III	I	Language Course-III (LC)	Kappiyamum Nadagamum	22ULT3	5	3	3	25	75	100
			Hindi Literature & Grammar – III	22ULH3						
			Prose, Textual Grammar and Vakyarachana	22ULS3						
			Intermediate French – I	22ULF3						
	II	English Language Course-II(ELC)	Learning Grammar Through Literature - I	22UE3	6	3	3	25	75	100
	III	Core Course– IV(CC)	rDNA Technology		6	5		25	75	100
			Core Practical - III(CP)	rDNA Technology Practical	3	3		40	60	100
			Second Allied I	Bioinformatics	4	3		25	75	100
			<b>Second Allied II</b>	Bioinformatics Practical	4	3		40	60	100
	IV	Generic Elective (GE)- I	Basics of Biotechnology		2	2	3	25	75	100
			Basic Tamil							
			Special Tamil							
		Extra Credit Course	SWAYAM		As per UGC Recommendation					
				<b>30</b>	<b>22</b>					<b>700</b>

**15 Days INTERNSHIP during Semester Holidays**

IV	I	Language Course - IV (LC)	Pandaiya Ilakkiam	22ULT4	6	3	3	25	75	100
			Hindi Literature & Functional Hindi	22ULH4						
			Drama, History of Drama Literature	22ULS4						
			Intermediate French – II	22ULF4						
	II	English Language Course - IV(ELC)	Learning Grammar Through Literature – II	22UE4	6	3	3	25	75	100
	III	Core Course – V(CC)	Immunology		6	5	3	25	75	100
			Core Practical - IV(CP)	Immunology Practical	4	3	3	40	60	100
			Second Allied III	Plant Physiology	4	3	3	25	75	100
		<b>Internship</b>				2	-	-	-	100
	IV	Generic Elective(GE)- II	Applied Biotechnology		2	2	3	25	75	100
			Basic Tamil							
			Special Tamil							
			Skill Enhancement Course (SEC) – I	Fundamentals of Nanotechnology Practical – I						
		Analytical Biology Practical								
	Extra Credit Course	SWAYAM		As per UGC Recommendation						
				<b>30</b>	<b>23</b>					<b>800</b>

V	III	Core Course – VI(CC)	Plant Biotechnology		5	4	3	25	75	100
		Core Course - VII(CC)	Animal Biotechnology		5	4	3	25	75	100
		Core Course – VIII(CC)	Biostatistics		6	5	3	25	75	100
		Core Practical – V(CP)	Plant & Animal Biotechnology Practical		3	3	3	40	60	100
		Discipline Specific Elective – I	Cancer Biology		5	4	3	25	75	100
	Human Anatomy, Physiology and Pharmacology									
	Pharmacognosy									
	IV	UGC Jeevan Kaushal	Professional Skills		2	1				100
		Skill Enhancement Course (SEC) –II	Fundamentals of Nanotechnology Practical – II		2	2	3	40	60	100
			Plant Tissue Culture Practical							
		Skill Enhancement Course (SEC) –III	Organic Farming Practical		2	2	3	40	60	100
	Medical Lab Technology Practical									
	Extra Credit Course	SWAYAM		As per UGC Recommendation						
					<b>30</b>	<b>25</b>				<b>800</b>

VI	III	Core Course – IX(CC)	Microbial Biotechnology		6	5	3	25	75	100
		Core Course – X(CC)	IPR, Biosafety and Bioethics		5	4	3	25	75	100
		Core Practical – VI(CP)	Microbial Biotechnology Practical		3	3	3	40	60	100
		Discipline Specific Elective – II	Developmental Biology		5	4	3	25	75	100
			Stem cell Biology							
			Agricultural Biotechnology							
		Discipline Specific Elective – III	Bioentrepreneurship		5	4	3	25	75	100
	Drug Discovery & Development									
	Introduction to Research Methodology									
	Project Work			5	3	-	-	-	100	
	V	Gender Studies	Gender Studies		1	1				100
Extension activity				0	1	0	-	-	-	
					<b>30</b>	<b>25</b>				<b>700</b>
					<b>180</b>	<b>140</b>				<b>4500</b>

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**  
**PROGRAMME STRUCTURE FOR SCIENCE DEPARTMENTS**

1	Course	No of Courses	Credits	Total Credits
I	Tamil/ Other Language	4	12	12
II	English	4	12	12
III	Core (Theory& Practical)	16	63	98
	Project Work	1	3	
	Internship	1	2	
	First Allied	3	9	
	Second Allied	3	9	
	Discipline Specific Elective	3	12	
IV	Generic Elective	2	4	16
	Skill Enhancement Course	3	6	
	Universal Human Values	1	2	
	Environmental Studies	1	2	
	Professional Skills	1	1	
	Entrepreneurial Development	1	1	
V	Gender Studies	1	1	02
	Extension Activities	-	1	
		4500		140

**The Internal and external marks for theory and practical papers are as follows:**

Subject	Internal Marks	External Marks
Theory	25	75
Practical	40	60

**For Theory:**

- The passing minimum for CIA shall be 40% out of 25 marks (i.e. 10 marks)
- The passing minimum for End Semester Examinations shall be 40% out of 75 marks (i.e. 30 marks)

**For Practical:**

- The passing minimum for CIA shall be 40% out of 40 marks (i.e. 16 marks)
- The passing minimum for End Semester Examinations shall be 40% out of 60 marks (i.e. 24 marks)

**Internal Component (Theory)**

Component	Marks
Assignment	05
Seminar	05
Two Centralized Tests (Mid Semester & Model Examinations)	05
Library	05
<b>Total</b>	<b>25</b>

**Internal Component (Practical)**

Component	Marks
Observation Note	05
Model Practical - I	10
Continuous Performance in Practical	10
Model Practical - II	15
<b>Total</b>	<b>40</b>

**QUESTION PAPER PATTERN FOR THEORY**  
(TOTAL MARKS:75)

**SECTION A (20\*1=20 MARKS)**

SUB DIVISIONS	UNIT I	UNIT II	UNIT III	UNIT IV	UNIT V
Choose the Best Answer	1	1	1	1	1
Fill in the Blanks	1	1	1	1	1
True or False	1	1	1	1	1
Answer in 1 or 2 Sentences	1	1	1	1	1
<b>Total</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>

**SECTION B (5\*5=25 marks)**

Answer ALL the questions.

One question from each unit with “either or” pattern.

**SECTION C (3\*10=30 marks)**

Answer Any THREE questions.

One question from each unit

**QUESTION PAPER PATTERN FOR PRACTICAL**  
(TOTAL MARKS: 60)

- MAJOR EXPERIMENT - 1 \* 20 = 20 MARKS`
- MINOR EXPERIMENT - 1 \* 10 = 10 MARKS
- SPOTTERS - 4 \* 5 = 20 MARKS
- RECORD - 10 MARKS

**CORE COURSE – I**  
**CELL BIOLOGY**  
**2022 - 2023 ONWARDS**

<b>Semester – I</b>	<b>CELL BIOLOGY</b>	<b>Hours/Week – 5</b>	
<b>Core Course – I</b>		<b>Credits – 5</b>	
<b>Course Code - 22UBT1CC1</b>		<b>Internal 25</b>	<b>External 75</b>

**Objectives**

- To study about the basic concepts of cell and its types, cellular organelles and their functions.
- To study about the specialized cells.
- To study about cell cycle and its regulations.
- To study about cell signaling pathways

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

<b>CO Number</b>	<b>CO Statement</b>	<b>Cognitive Level</b>
	On successful completion of the course, students will be able to	
CO1	Explain the structure, properties and types of prokaryotic and eukaryotic cells	K1, K2
CO2	Describe the structure and functions of cell organelles	K1, K2
CO3	Discuss the various types of cell division and cell signaling	K2
CO4	Demonstrate the role of specialized cells and their significance	K2, K3
CO5	Apply the basic knowledge of cell biology in diverse research areas	K2, K3

**Mapping of CO with PO and PSO**

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	3	1	2	2	1	3	1	1	3	1
CO2	3	2	2	2	1	3	1	1	2	1
CO3	3	3	2	2	1	3	3	2	2	1
CO4	3	3	2	2	1	3	3	2	3	1
CO5	3	3	3	3	1	3	3	3	3	2

“1” – Slight (Low) Correlation, “2” – Moderate (Medium) Correlation,  
“3” – Substantial (High) Correlation, “-” indicates there is no correlation.

**CORE COURSE – I**  
**CELL BIOLOGY**  
**2022 - 2023 ONWARDS**

**Unit I - Fundamentals of cell structure** **15 Hours**

Cell as basic unit of life: Basic properties of cells, cell theory, cell morphology, Ultrastructure - Prokaryotic and Eukaryotic cells.

**Unit II - Cellular membranes and matrices** **18 Hours**

Cell Membrane: Plasma Membrane – Fluid Mosaic Model and Sandwich Model; Chemical composition and fluidity of membranes; transport of nutrients - diffusion, facilitated diffusion and osmosis; Cell wall: structural organization; Cytoskeleton: Microtubules, and Intermediate filaments; Cell Motility-Flagella.

**Unit III - Endomembrane System** **18 Hours**

Ultrastructure and functions: Nucleus; Endoplasmic Reticulum - Rough and Smooth; Golgi Complex, Ribosomes - Types and functions; Mitochondria - Ultrastructure, Chemical Composition and functions; Chloroplast - Ultrastructure, Chemical Composition and functions; Microbodies: Types - Peroxisomes, Glyoxisomes and Lysosomes - Types, structure and function.

**Unit IV- Cell Division and Signalling** **12 Hours**

Cell division in prokaryotes and eukaryotes: Cell cycle, mitosis, meiosis, crossing over; Apoptosis; Signal transduction - Cell to cell recognition.

**Unit V- Specialized cells** **12 Hours**

Motile cells (amoeboid and Sperm cells), nerve Cells and nerve impulse conduction, muscle cells and muscle contraction, Egg cells.

**Unit VI – Self Study for Enrichment**

Discovery of Cells, Cytoskeleton - Microfilaments, Types of Microbodies, Cell adhesion and Red Blood Cells.

**Course Designers**

**Ms. P. ILAMATHY & Dr. S. ABINAYA**



## Text Books

- Veer Bala, R. (2021). *Cell Biology* (Latest edition). Med tech.
- Rastogi, S. C. (2020). *Cell and Molecular Biology*. New Age International Private Ltd.
- Alberts, B., Johnson, A., Lewis, J., Raff, M., Roberts, K., Karen, H., Dennis, B., & Walter, P. (2019). *Essential Cell Biology* (5<sup>th</sup> International Student Edition). Garland Science.
- De Robertis, E.D.D. & De Robertis, E.M.F. (2017). *Cell & Molecular Biology* (8<sup>th</sup> Edition). Waverly.
- Verma, P. S. & Agarwal, V. K. (2016). *Cell Biology*. S. Chand Publication.

## Reference Books

- Cooper, G.M. & Hausman, R.E. (2018 Reprint). *The Cell A Molecular Approach* (6<sup>th</sup> Edition). Ingram Publication.
- Griffith, R. (2017). *Cell biology (Meiosis & Mitosis)*. Larsen and Keller Education.
- Thomas, D. P., William, C. E., Jennifer, L. S. & Graham, J. (2017). *Cell Biology* (3rd Edition). Elsevier IE (short Disc).
- Alberts, B., Johnson, A., Lewis, J., Raff, M., Roberts, K., Karen, H., Dennis, B. & Walter, P. (2017). *Molecular Biology of Cell* (6th Edition). Garland Science, Taylor & Francis group.
- Hardin, J., Bertoni, G.P. & Kleinsmith, L.J. (2017). *Becker's World of the Cell*. Pearson Education.

## Web Links:

- <https://ocw.mit.edu/courses/7-06-cell-biology-spring-2007/>
- <https://sciencewiz.com/portals/cells/tour-inside-the-cell/a-tour-of-the-cell-more-advanced/>
- <http://naturedocumentaries.org/17217/virtual-tour-cell-xvivo-scientific-animation-2018/>
- <https://nptel.ac.in/courses/102103012>

## E Books:

- <https://open.umn.edu/opentextbooks/textbooks/244>
- [http://standing.weebly.com/uploads/2/3/3/5/23356120/8\\_-\\_unit\\_30c.pdf](http://standing.weebly.com/uploads/2/3/3/5/23356120/8_-_unit_30c.pdf)
- <https://www.infobooks.org/free-pdf-books/biology/cell-biology/>
- <http://www.freebookcentre.net/Biology/Cell-Biology-Books.html>;
- [https://tripurauniv.ac.in/Page/SubjectWiseOnline\\_EBooks\\_Cell\\_Molecular\\_Biology](https://tripurauniv.ac.in/Page/SubjectWiseOnline_EBooks_Cell_Molecular_Biology)

## Pedagogy

Chalk and Talk, PPT, Videos and Animations

**CORE PRACTICAL – I**  
**CELL BIOLOGY PRACTICAL**  
**2022 – 2023 ONWARDS**

<b>Semester – I</b>	<b>CELL BIOLOGY PRACTICAL</b>	<b>Hours/Week - 3</b>	
<b>Core Practical – I</b>		<b>Credits - 3</b>	
<b>Course Code - 22UBT1CC1P</b>		<b>Internal 40</b>	<b>External 60</b>

**Course Objectives**

- To perform experiments using microscopes and micrometry.
- To study about cells and their morphology by appropriate techniques.
- To gain knowledge in cell division and their stages.
- To perform experiments on cell counting and viability.

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

<b>CO Number</b>	<b>CO Statement</b>	<b>Cognitive Level</b>
	On the successful completion of the course, students will be able to	
CO 1	Define and describe about the basic instruments involved in Biology.	K1, K2
CO 2	Discuss and differentiate the morphology of various types of cells.	K2
CO 3	Classify and illustrate the different cell organelles.	K3
CO 4	Categorize the different types and stages of cell division.	K4
CO 5	Illustrate and conclude cell viability and counting.	K4

**Mapping of CO with PO and PSO**

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	3	3	3	3	2	3	2	3	3	1
CO2	3	3	3	3	2	3	2	3	3	1
CO3	3	2	3	3	2	3	2	3	3	1
CO4	3	2	3	3	1	3	2	2	3	1
CO5	3	3	3	3	1	3	2	2	3	2

**“1” – Slight (Low) Correlation, “2” – Moderate (Medium) Correlation,  
“3” – Substantial (High) Correlation, “-” indicates there is no correlation.**

**CORE PRACTICAL – I**  
**CELL BIOLOGY PRACTICAL**  
**2022– 2023 ONWARDS**

1. Laboratory rules, regulations and safety measures.
2. Demonstration of Principles and working mechanism of Microscope.
3. Principles and working mechanism of Microtome (Demo).
4. Measurement of Cell Size by Micrometry.
5. Prokaryotic Cell Observation – *E. coli*.
6. Eukaryotic Cell Observation – Yeast and Onion.
7. Morphological Characterization of various types of Plant tissue cells.
8. Separation of cell organelles by centrifugation method.
9. Barr body identification from Buccal Smear.
10. Cell Division - Mitotic stages.
11. Cell Division - Meiotic stages.
12. Cell Division - Binary fission of Yeast Cells.
13. Enumeration of Eukaryotic Cells (Yeast), Red Blood Cells and White Blood Cells.
14. Assessment of Cell Viability by trypan blue staining.
15. Experiment on Osmosis.

**Course Designers**

**Dr. R. UMA MAHESWARI & Dr. G. GOMATHI**

## Reference Books

- Gupta, R., Seema, M. & Ravi, T. (2018). *Cell Biology: Practical Manual*. Prestige Publishers.
- William, H. H. (2017). *Cell Biology: Laboratory Manual*, Pearson Education.
- Amit, G. & Bipin Kumar, S. (2019). *Practical Laboratory Manual – Cell Biology*. Lambert Academic Publishing.
- Thompson, D. A. (2011). *Cell and Molecular Biology Lab. Manual*. Create Space Independent Publishing Platform.
- Mary, L. L. (1993). *Cell Biology: Laboratory Manual*. Ron Jon Publishing Incorporated.

## E- Books

- [https://www.bjcancer.org/Sites\\_OldFiles/\\_Library/UserFiles/pdf/Cell\\_Biology\\_Laboratory\\_Manual.pdf](https://www.bjcancer.org/Sites_OldFiles/_Library/UserFiles/pdf/Cell_Biology_Laboratory_Manual.pdf)
- [http://www.ihcworld.com/\\_protocols/lab\\_protocols/cell-biology-lab-manual-heidcamp.htm](http://www.ihcworld.com/_protocols/lab_protocols/cell-biology-lab-manual-heidcamp.htm)
- [https://www.deanza.edu/faculty/heyerbruce/b6b\\_pdf/Bio6B-Manual\\_W19.pdf](https://www.deanza.edu/faculty/heyerbruce/b6b_pdf/Bio6B-Manual_W19.pdf)
- [https://www.researchgate.net/publication/330654692\\_Cell\\_Biology\\_Practical\\_Manual](https://www.researchgate.net/publication/330654692_Cell_Biology_Practical_Manual)
- <https://www.pdfdrive.com/cell-biology-protocols-d13735633.html>

## Pedagogy

Practical Observation and Demo

**FIRST ALLIED COURSE – I**  
**GENERAL MICROBIOLOGY**  
**2022 – 2023 onwards**

<b>Semester – I</b>	<b>GENERAL MICROBIOLOGY</b>	<b>Hours/Week - 4</b>	
<b>First Allied Course – I</b>		<b>Credits – 3</b>	
<b>Course Code - 22UBT1AC1</b>		<b>Internal 25</b>	<b>External 75</b>

**Course Objective**

- To create basic knowledge about the History and classification of Microorganisms.
- To study about the structure and characteristics of microorganisms like bacteria, algae, fungi, protozoa and virus.
- To study about the media composition and their types.
- To study about the microbial diseases, pathogenesis, diagnosis and preventive measures.

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

<b>CO Number</b>	<b>CO Statement</b>	<b>Cognitive Level</b>
	On successful completion of the course, students will be able to	
CO 1	Recall the history of Microbiology and classify the microbial groups.	K1, K2
CO 2	Apply the methods to prepare and sterilize media for microbial growth.	K3
CO 3	Explain and relate the structural organization of Bacteria, Virus and Protozoa	K2, K3
CO 4	Explain and distinct feature of the Algae and Fungi.	K2, K3
CO 5	Analyze, compare and distinguish the various microbial diseases, causative organism, pathogenesis, epidemiology, diagnosis and preventive measures	K4

**Mapping of CO with PO and PSO**

<b>Cos</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	3	2	3	1	1	3	2	1	2	1
CO2	3	3	3	3	1	3	3	2	3	2
CO3	3	2	2	2	1	3	1	2	3	1
CO4	3	2	2	2	1	3	1	2	3	1
CO5	3	3	3	2	1	3	3	2	3	3

“1”-Slight (Low) Correlation,  
“3”-Substantial (High) Correlation,

“2”- Moderate (Medium) Correlation,  
“-” - indicates no Correlation

**FIRST ALLIED COURSE – I**  
**GENERAL MICROBIOLOGY**  
**2022 – 2023 onwards**

**Unit I - History and Classification**

**12 Hours**

Historical development of Microbiology - Theories of Spontaneous generation – Biogenesis. General principles and nomenclature – Bergey's Manual of Determinative Bacteriology, Whittaker's five kingdom concept- Carl Woese's three domain classification. Cavalier – Smith's Eight kingdom classification.

**Unit II - Media Preparation and Sterilization**

**10 Hours**

Media Composition and their types based on physical state & ingredients. Microbial Growth-Factors influencing the growth of Microorganisms – Growth Curve.

**Unit III – Bacteria, Virus and Protozoa**

**12 Hours**

Structural organization of bacteria – Size, shape and arrangement of bacterial cells – Ultrastructure of a bacterial cell. Size & Morphology of Virus; Viroids. Lifecycle – Lytic & Lysogenic. Morphology & Anatomy of Protozoa - Amoeba & Paramecium.

**Unit IV – Algae and Fungi**

**13 Hours**

General characteristics of Algae (*Chlamydomonas sp.*) including occurrence, thallus organization, Ultra structure, pigments, eyespot, food reserves. Reproduction – Sexual and Asexual reproduction. Fungi (*Aspergillus sp.*) – General characteristics of fungi including habitat, distribution, nutritional requirements, Ultrastructure, thallus organization and aggregation.

**Unit V – Microbial Diseases**

**13 Hours**

General account on Microbial diseases - Causative Organism, Pathogenesis, Epidemiology, Diagnosis, Prevention & Control. Bacterial Diseases: Typhoid & Tuberculosis. Fungal diseases: Candidiasis & Aspergillosis. Viral Diseases: Hepatitis, AIDS. Protozoan Diseases: Malaria & Amoebiasis.

**Unit VI – Self Study for Enrichment**

Scope of Microbiology, Types of Sterilization, Size & Morphology of Virus – Prions, Ultra structure of flagella and Corona Virus.

**Course Designers**

**Ms. P. JENIFER & Dr. M. KEERTHIGA**

## **Text Books**

- Barry, C. (2020). *Talaro's Foundations in Microbiology* (11<sup>th</sup> Edition). Mc Graw Hill.
- Rajan, S. & Selvi Christy, R. (2020). *Essentials of Microbiology*. CBS Publishers Pvt. Ltd.
- Ananthanarayan, R. & Paniker, C.K.J. (2020). *Textbook of Microbiology* (11<sup>th</sup> Edition). Orient Blackswan Pvt. Ltd.
- Gerarad, J.T., Berdell, R.F. & Christine, L.C. (2018). *Microbiology - An Introduction* (11<sup>th</sup> Edition). Pearson.
- Robert, W. B. (2017). *Microbiology with Diseases by taxonomy* (4<sup>th</sup> Edition). Pearson.
- Dr. Baveja, C. P. (2017). *Text Book of Microbiology*. Anja Publications.

## **Reference Books**

- Apurba, S. S. & Sandhya, B. (2021). *Essentials of Medical Microbiology* (3<sup>rd</sup> Edition). Jaypee Brothers.
- Willey, J.M., Kathleen, M.S. & Dorothy, H.W. (2019). *Prescott's Microbiology*. Mc Graw Hill.
- Gerarad, J.T., Berdell, R.F. & Christine, L.C. (2018). *Microbiology: An Introduction* (13<sup>th</sup> Edition). Pearson.
- Madigam, M.T., Bender, K.S., Buckley, D.H., Sattley, W.M. & Stahl, D.A. (2017). *Brock Biology of Microorganism* (15<sup>th</sup> Edition). Pearson Education.
- Rathoure, A.K. (2017). *Essentials of Microbiology*. Brillion Publishing.

## **E-BOOKS**

- <https://www.pdfdrive.com/essentials-of-medical-microbiology-e33538815.html>
- <https://www.pdfdrive.com/medical-microbiology-e18737002.html>
- <https://www.pdfdrive.com/textbook-of-microbiology-and-immunology-e175896260.html>
- <https://www.pdfdrive.com/sherris-medical-microbiology-d193153850.html>
- <https://www.pdfdrive.com/oxford-handbook-of-infectious-diseases-and-microbiology-d158084200.html>
- <https://www.pdfdrive.com/microbiology-with-diseases-by-body-system-d185840565.html>

## **WEB LINKS**

- <https://nptel.ac.in/courses/102103015>
- <http://ecoursesonline.iasri.res.in/course/view.php?id=108>
- <https://www.digimat.in/nptel/courses/medical/microbiology/MB11.html>
- <https://www.iaritoppers.com/2019/06/fundamentals-of-microbiology-icar-ecourse-pdf-book-download.html>
- <https://microbiologysociety.org/why-microbiology-matters/what-is-microbiology/microbes-and-the-human-body/microbes-and-disease.html>

## **Pedagogy**

Chalk and talk, PPT, Group Discussion, Assignment, Demo, Quiz, Seminar



**FIRST ALLIED COURSE – II**  
**BIOCHEMISTRY**  
**2022 - 2023 ONWARDS**

<b>Semester – I</b>	<b>BIOCHEMISTRY</b>	<b>Hours/Week – 4</b>	
<b>First Allied Course – II</b>		<b>Credits – 3</b>	
<b>Course Code - 22UBT1AC2</b>		<b>Internal 25</b>	<b>External 75</b>

**Course Objectives**

- To study about the basics of biomolecules.
- To study about classification, structure and functional properties of carbohydrates, proteins, lipids, vitamins and minerals.
- To study about the impact of proteins and enzymes.
- To study about vitamin deficiency diseases.

**Course Outcomes**

**Course Outcome and Cognitive Level Mapping**

<b>CO Number</b>	<b>CO Statement</b>	<b>Cognitive Level</b>
	On the Successful completion of the course the student would be able to	
CO1	Explain about the chemistry and salient features of carbohydrates	K1, K2
CO2	In depth knowledge about the metabolism of lipids	K2
CO3	Understanding the importance and significance of amino acids	K2, K3
CO4	Explain about the relationship between different types of proteins	K3
CO5	Demonstrate and analyze the various vitamins and its deficiency diseases	K3, K4

**Mapping of CO with PO and PSO**

<b>COs</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
CO1	3	3	2	2	1	3	2	2	3	1
CO2	3	2	3	3	1	3	2	2	2	1
CO3	3	2	3	3	2	3	3	2	3	1
CO4	3	2	2	3	2	3	3	3	2	1
CO5	3	2	3	2	1	3	3	2	2	1

“1” – Slight (Low) Correlation,                      “2” – Moderate (Medium) Correlation,  
“3” – Substantial (High) Correlation,              “-” indicates there is no correlation.

## **FIRST ALLIED COURSE – II**

### **BIOCHEMISTRY**

**2022 - 2023 ONWARDS**

#### **Unit I - Carbohydrates**

**12 Hours**

Definition, structure, classification and functions of carbohydrates - Monosaccharides: Glucose and Fructose. Disaccharides: Sucrose and Maltose, Oligosaccharides: Raffin. Polysaccharides: Starch and Glycogen. Physical and chemical properties of carbohydrates.

#### **Unit II - Lipids**

**12 Hours**

Definition, classification and importance of lipids - Simple lipids: Triglycerides, Compound lipids: Phosphatides and Derived lipids: Cholesterol. Structure and functions of glycerol, phospholipids, glycolipids and lipoproteins. Physical and chemical properties of lipids.

#### **Unit III - Amino acids**

**12 Hours**

Introduction, structure and classification of amino acids - Essential amino acids, Semi - essential amino acids, Non-essential amino acids and carboxyl groups of amino acids. Physico-chemical properties of amino acids. Functions of amino acids.

#### **Unit IV- Proteins**

**12 Hours**

Definition and classification based on shape, composition, solubility and functions of proteins. Structure of proteins - Primary, secondary, tertiary and quaternary structure - protein folding. Structure, classification and properties of enzymes. Mechanism of enzyme activity. Enzyme inhibition - Competitive, non-competitive and uncompetitive inhibition.

#### **Unit V- Vitamins and Minerals**

**12 Hours**

Vitamins: Definition and Classification. Fat soluble vitamins - sources, structure and physiological functions; Water soluble vitamins - sources, structure and physiological functions. Vitamin deficiency diseases (Scurvy and Rickets). Minerals: Macro minerals and micro minerals - sources and functions.

#### **Unit VI – Self Study for Enrichment**

Oligosaccharides – Stachyose, Structure and functions of – sphingolipids, importance of amino acids, Protein – denaturation and Vitamin deficiency diseases - Anemia.

**Course Designer**  
**Ms. M. AZEERA**

## Text Books

- Singh, S. P., & Singh, A. N. (2021). *Textbook of Biochemistry*. CBS Publications.
- Gupta, S. N. (2020). *Concepts of Biochemistry*. Rastogi Publications.
- Sathyanarayana, U., and Chakrapani, U. (2020). *Biochemistry* (5<sup>th</sup> Edition). Elsevier India.
- Seema, P. U. (2020). *Textbook of Biochemistry* (1<sup>st</sup> Edition). Dreamtech Press.
- Padmaja H. A., Dr. Yogesh, K. & Dr. Rammohan R. (2019). *Biochemistry*. Nirali Prakashan Publications.
- Denise, R.F. (2017). *South Asian Edition of Lippincott Illustrated Reviews Biochemistry* (7<sup>th</sup> Edition). Wolters Kluwer Publications.

## Reference Books

- Manzoor, M. M. (2021). *Fundamentals of Biochemistry*. Lambert Academic Publishing (LAP).
- Voet, D. & Voet, J.G.(2021). *Voet's Biochemistry* (Adapted Edition 2021). Wiley India.
- Brailsford, R. T. (2020). *Principles of Biochemistry*. MJP Publisher.
- Jeremy M., Berg, Lubert, S., John, T., Gregory, G. (2019). *Biochemistry*. Freeman and Company publications.
- Appling D.R., Anthony-Cahill, S. J., Mathews, C. K. (2017). *Biochemistry: Concepts and Connections*. Pearson Education.
- Vikrant, V. (2021). *Biochemistry*. Discovery Publishing House Pvt Ltd.

## E-BOOKS

- <https://www.pdfdrive.com/lehniger-principles-of-biochemistry-d158404366.html>
- <https://www.pdfdrive.com/biochemistry-d196362531.html>
- <https://www.pdfdrive.com/biochemistry-genetics-molecular-biology-d18198970.html>
- <https://www.pdfdrive.com/biochemistry-biochemistry-e19576202.html>
- <https://www.pdfdrive.com/marks-basic-medical-biochemistry-a-clinical-approach-5th-edition-e158491166.html>

## WEB LINKS

- <http://ecoursesonline.iasri.res.in/course/view.php?id=422>
- <https://nptel.ac.in/courses/102105034/>
- <https://youtu.be/DhwAp6yQHQI>
- <https://sites.google.com/a/uasd.in/ecourse/biochemistry> <https://youtu.be/f7jRpniCsaw>
- <https://agrimoon.com/fundamentals-of-biochemistry-pdf-book/>

## PEDAGOGY

Blackboard, PPT, Videos, Animations, Group Discussion and Quiz.



**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**  
**DEPARTMENT OF BIOTECHNOLOGY**  
**B.Sc., BIOTECHNOLOGY PROGRAMME STRUCTURE**  
 (For the candidates admitted from the academic year 2021 -2022 onwards)

Semester	Part	Course	Title	Subject Code	Inst. Hour / Week	Credit	Exam Hours	Marks		Total
								Int	Ext	
I	I	Language Course-I (LC) –Tamil/Other Languages	Ikkala Ilakkiyam	19ULT1	6	3	3	25	75	100
			Story, Novel, Hindi, Literature & Grammar – I	19ULH1						
			History of Popular Tales, Literature and Sanskrit Story	19ULS1						
			Communication in French – I	19ULF1						
	II	English Language Course – I (ELC)	Functional Grammar for Effective Communication – I	19UE1	6	3	3	25	75	100
	III	Core Course-I (CC)	Cell Biology	19UBT1CC1	6	4	3	25	75	100
		Core Practical – I (CP)	Lab in Cell Biology	19UBT1CC1P	3	3	3	40	60	100
		First Allied Course– I (AC)	General Microbiology	19UBT1AC1	4	4	3	25	75	100
		First Allied Course– II (AP)	Lab in Microbiology	19UBT1AC1P	3	-	-	-	-	-
	IV	The Universal Human Values	The Universal Human Values	20UGVE	2	2	3	25	75	100
<b>Total</b>					<b>30</b>	<b>19</b>				<b>600</b>
II	I	Language Course– II (LC)–Tamil /Other Languages	Idaikkala Ilakkiyamum Pudnamum	19ULT2	6	3	3	25	75	100
			Prose, Drama, Hindi Literature – 2 & Grammar – II	19ULH2						
			Poetry, Textual Grammar and Alakara	19ULS2						
			Communication in French – II	19ULF2						
	II	English Language Course–II (ELC)	Functional Grammar for Effective Communication – II	19UE2	6	3	3	25	75	100
	III	Core Course–II (CC)	Molecular Biology	19UBT2CC2	6	4	3	25	75	100
		Core Practical – II (CP)	Lab in Molecular Biology	19UBT2CC2P	3	3	3	40	60	100
		First Allied Course– II (AP)	Lab in Microbiology	19UBT1AC1P	4	2	3	40	60	100
		First Allied Course– III(AC)	Bioinstrumentation	19UBT2AC2	3	3	3	25	75	100
	IV	Part –IV	Environmental Studies	21UGES	2	2	3	25	75	100
V	Extra Credit Course	Swayam Online Course	To be fixed later	-	-	As per UGC Recommendation				
<b>Total</b>					<b>30</b>	<b>20</b>				<b>700</b>

III	I	Language Course – III (LC)–Tamil/Other Languages	Kappiyamum Nadagamum	19ULT3	6	3	3	25	75	100	
			Medieval, Modern Poetry & History of Hindi Literature – 3	19ULH3							
			Prose, Textual Grammar and Vakyarachana	19ULS3							
			Communication in French – III	19ULF3							
	II	English Language Course-III(ELC)	Reading and Writing for Effective Communication – I	19UE3	6	3	3	25	75	100	
	III	Core Course – III (CC)		rDNA Technology	19UBT3CC3	6	4	3	25	75	100
		Core Practical – III (CP)		Lab in Rdna Technology	19UBT3CC3P	3	3	3	40	60	100
		Second Allied Course – I (AC)		Biomolecules & Basics of Nanotechnology	21UBT3AC3	4	4	3	25	75	100
		Second Allied Course-II (AP)		Biomolecules & Nanotechnology Practical	21UBT3AC2P	3	-	-	-	-	-
	IV	Non Major Elective I-for those who studied Tamil under Part-I a)Basic Tamil for other language students b)Special Tamil for those who studied Tamil upto +2 but optfor other languages in degree programme		Basics of Biotechnology	19UBT3NME1	2	2	3	25	75	100
				Basic Tamil	19ULC3BT1						
				Special Tamil	19ULC3ST1						
	V	Extra Credit Course	Swayam Online Course	To be fixed later	-	-	As per UGC Recommendation				
<b>Total</b>					<b>30</b>	<b>19</b>				<b>600</b>	
IV	I	Language Course –IV (LC) -Tamil/Other Languages	Pandaiya Ilakkiyam	19ULT4	6	3	3	25	75	100	
			Letter writing, General essays, Technical Terms, Proverbs, Idioms& Phrases, Hindi Literature – 4	19ULH4							
			Drama, History of Drama Literature	19ULS4							
			Communication in French – IV	19ULF4							
	II	English Language Course – IV(ELC)	Reading and Writing for Effective Communication – II	19UE4	6	3	3	25	75	100	
	III	Core Course – IV (CC)		Immunology	19UBT4CC4	5	4	3	25	75	100
		Core Practical – IV (CP)		Lab in Immunology	19UBT4CC4P	3	3	3	40	60	100
		Second Allied Course - II (AP)		Biomolecules & Nanotechnology Practical	21UBT3AC2P	3	2	3	40	60	100
Second Allied Course – III(AC)		Plant Anatomy and Physiology	19UBT4AC4	3	3	3	25	75	100		

	IV	Non Major Elective II- for those who studied Tamil under Part-I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree programme	Applied Biotechnology  Basic Tamil  Special Tamil	19UBT4NME2  19ULC4BT2  19ULC4ST2	2	2	3	25	75	100
		Skill Based Elective -I	A) Information in Omics and Applications	19UBT4SBE1A	2	2	3	25	75	100
			B) Bioinformatics	19UBT4SBE1B						
	V	Extra Credit Course	Swayam Online Course	To be fixed later	-	-	As per UGC recommendations			
	<b>Total</b>				<b>30</b>	<b>22</b>				<b>800</b>
V	III	Core Course – V (CC)	Plant Biotechnology	19UBT5CC5	5	5	3	25	75	100
		Core Course – VI (CC)	Animal Biotechnology	19UBT5CC6	5	5	3	25	75	100
		Core Course – VII (CC)	Biostatistics	19UBT5CC7	5	5	3	25	75	100
		Core Practical – V (CP)	Lab in Plant and Animal Biotechnology	19UBT5CC5P	4	4	3	40	60	100
		Major Based Elective – I	A) Pharmacognosy	19UBT5MBE1A	5	5	3	25	75	100
	B) Cancer Biology		19UBT5MBE1B							
	IV	Skill Based Elective – II	A) Molecular Diagnostics and Therapeutics	19UBT5SBE2A	2	2	3	25	75	100
			B) Lab in Bioinformatics	19UBT5SBE2BP				40	60	
		Skill Based Elective – III	A)DNA Fingerprinting	19UBT5SBE3A	2	2	3	25	75	100
			B) Lab in Plant Tissue Culture	19UBT5SBE3BP				40	60	
		UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100
	V	Extra Credit Course	Swayam Online Course	To be Fixed Later	-	-	As per UGC Recommendation			
		<b>Total</b>				<b>30</b>	<b>30</b>			
VI	III	Core Course – VIII (CC)	Microbial Biotechnology	19UBT6CC8	6	6	3	25	75	100
		Core Course – IX (CC)	IPR, Bioethics and Biosafety	19UBT6CC9	6	6	3	25	75	100
		Core Practical – VI (CP)	Lab in Microbial Biotechnology	19UBT6CC6P	5	4	3	40	60	100
		Major Based Elective – II	A) Environmental Biotechnology	19UBT6MBE2A	6	6	3	25	75	100
			B) Stem Cell Biology	19UBT6MBE2B						

	Major Based Elective – III	A) Bioentrepreneurship	19UBT6MBE3A							
		B) Drug Discovery and Development	19UBT6MBE3B	6	6	3	25	75	100	
V	Extension Activities	Extension Activities	19UGEA	-	1	-	-	-	-	
	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100	
	<b>Total</b>			<b>30</b>	<b>30</b>				<b>600</b>	
	<b>Grand Total</b>			<b>180</b>	<b>140</b>				<b>4100</b>	

**SECOND ALLIED COURSE – I**  
**BIOMOLECULES AND BASICS OF NANOTECHNOLOGY**

<b>Semester – III</b>	<b>BIOMOLECULES AND BASICS OF NANOTECHNOLOGY</b>	<b>Hours/Week – 4</b>	
<b>Second Allied Course – I</b>		<b>Credits – 4</b>	
<b>Course Code – 21UBT3AC2</b>		<b>Internal 25</b>	<b>External 75</b>

**Objectives**

- To make the students understand the basics of biomolecules.
- To study structural and functional properties of carbohydrates, proteins and lipids
- Acquire knowledge about fundamentals of nanotechnology.
- To study nanomaterial synthesis and characterization by various methods.

**Course Outcome**

On the Successful completion of the course the student would be able to

<b>CO No.</b>	<b>CO Statement</b>	<b>Knowledge Level</b>
CO1	Understand the structures and functions of biomolecules- Carbohydrate, proteins and Lipids	K1
CO2	Summarize the fundamentals of nanotechnology	K2
CO3	Illustrate the different classes of nanomaterials	K3
CO4	Apply their knowledge on various methods of synthesis and characterization of nanomaterials.	K3
CO5	Infer the application of nano capsules in agriculture	K4

**Mapping with Programme Outcomes**

<b>COs</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>
CO1	M	S	S	S
CO2	M	S	M	M
CO3	M	M	M	M
CO4	M	M	M	M
CO5	S	S	S	S

**S-Strong, M-Medium, L-Low**



**SECOND ALLIED COURSE – I**  
**BIOMOLECULES AND BASICS OF NANOTECHNOLOGY**

**Unit I – Carbohydrates and proteins** **12 Hours**

**Carbohydrates:** Definition, Classification and properties of carbohydrates. Structure and function of Monosaccharides, Disaccharides, Polysaccharides, Nano lignocellulosic material.

**Proteins:** Amino acids –Essential and Non - Essential Amino acids. Proteins - Classification of Proteins, Properties - solubility, Denaturation, Renaturation, Structural organization of Proteins - Primary, secondary, tertiary & quaternary structure.

**Unit II - Lipids and Nucleic acids** **12 Hours**

**Lipids:** Introduction to Lipids. Classification of lipids - Simple lipids, Compound lipids and Derived lipids. Structure and function of phospholipids, Triacylglycerols, Glycerophospholipids, Sphingolipids and Cholesterol.

**Nucleic acids:** Purines, Pyrimidines - Structure & function, Nucleosides, Nucleotides. Nucleic acids - DNA - Double helical structure and Biological importance, RNA - Structure, Types & *Biological Importance*<sup>#</sup>.

**Unit III- Introduction to Nanotechnology** **12 Hours**

Definition and historical development of nanomaterials. Different Classes of Nanomaterials- Classification based on dimensionality - Quantum dots, Carbon-based nano materials, Carbon nanotubes, Metal based nano materials, Metal oxide based nano materials, Nanocomposites and Nanopolymers, Biological nanomaterials.

**Unit IV - Synthesis of Nanomaterials** **12 Hours**

Physical methods: Ball milling and Electrodeposition techniques. Chemical methods: Metal nanocrystals by reduction and Solvothermal synthesis. Biological Methods: Synthesis, Mechanism of Microbial mediated nanomaterials-Bacteria, Fungi; Plant mediated nanomaterials. Advantages of Microbial and *Plant Mediated nanomaterials*<sup>#</sup>.

**Unit-V- Characterization and Applications of nanomaterials.** **12 Hours**

Characterization of Nanomaterials - UV-VIS, FTIR, DLS, Field emission scanning electron microscopy (FESEM). High resolution transmission electron microscope (HRTEM).

Applications of nanomaterials in Food, Agriculture, Medicine and Environmental protection.

**# Self Study Topics**

**Course Designer**

**Dr.R. UMA MAHESWARI**

### **Text Books**

- Thomas, V. & Balakrishna, K.M. (2021). *Nanotechnology: An Introduction to Synthesis, Properties and Applications of Nanomaterials*. Atlantic Publication.
- Pradeep, T. (2017). *A Textbook of Nanoscience and Nanotechnology*. McGraw Hill Education.
- Asim, K. D. & Mahua, D. (2020). *An Introduction to Nanomaterials and Nanoscience*. CBS.
- Naik, P. (2017). *Essentials of Biochemistry*. Jaypee Brothers Medical Publishers(P)Ltd.
- Sathyanarayana, U. & Chakrapani, U. (2019). *Biochemistry* (5<sup>th</sup> edition). Generic.
- Padmaja, H. A., Yogesh, K. & Rammohan Rao. (2019). *Biochemistry*. Nirali Prakashan.

### **Reference Books**

- Shah, M. A., & Shah, K. A. (2019). *Nanotechnology*. Wiley.
- Charles, P. P., Frank & Owens. J. (2020). *Introduction to Nanoscience and Nanotechnology An Indian Adaptation*. Wiley.
- Swapnil, Y. (2020). *Biomolecules and Cell Biology*. Mahaveer Publications.
- Appling D.R., Anthony-Cahill, S. J., Mathews, C. K. (2017). *Biochemistry: Concepts and Connections*. Pearson Education.
- Nelson, D. L., Cox, M. M.& Lehninger. (2017). *Principles of Biochemistry* (7th Edition). Pearson Education.
- Jeremy, M. B., Lubert, S., John, T. & Gregory, G. (2019). *Biochemistry*. Freeman and Company.

### **Web links**

- <https://nptel.ac.in/courses/102105034/>
- <https://youtu.be/DhwAp6yQHQI>
- <https://youtu.be/YWEiQIEUFak>
- <https://youtu.be/f7jRpniCsaw>
- <https://youtu.be/ZqoX2W1N6lO>

### **Pedagogy**

Chalk and Talk, Power point presentation, Group Discussion, Seminar, Video class, Quiz, Assignment.

**SECOND ALLIED COURSE – II**  
**LAB IN BIOMOLECULES AND NANOTECHNOLOGY**  
**2021 – 2022 Onwards**

<b>Semester – III</b>	<b>LAB IN BIOMOLECULES AND NANOTECHNOLOGY</b>	<b>Hours/Week – 3</b>	
<b>Second Allied Course – II</b>		<b>Credits – 2</b>	
<b>Course Code – 21UBT3AC2P</b>		<b>Internal 40</b>	<b>External 60</b>

**Objectives**

- To impart the students with hands on skills related to biochemical techniques.
- To enable the students to perform qualitative and quantitative analysis of biomolecules.
- To make the students separate plant pigments using chromatographic techniques.
- To gain knowledge of structure, properties, manufacturing of metal nanoparticles.

**Course Outcome**

On successful completion of the course, students will be able to

<b>Co Number</b>	<b>CO STATEMENT</b>	<b>Knowledge Level</b>
CO 1	Outline the qualitative analysis of Biomolecules.	K1
CO 2	Understand the methods for the estimation of Glucose.	K2
CO 3	Describe the process of separation of plant pigments by chromatographic techniques.	K3
CO 4	Demonstrate the synthesis, characterization and analysis of antibacterial activity of metal nanoparticles.	K3

**Mapping with Programme Outcomes**

<b>Cos</b>	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>
CO 1	S	S	S	S
CO 2	S	S	S	S
CO 3	S	S	S	S
CO 4	M	M	M	M

**S – Strong, M – Medium, L- Low**

**SECOND ALLIED COURSE – II**  
**LAB IN BIOMOLECULES AND NANOTECHNOLOGY**  
**2021 – 2022 Onwards**

1. Units and Measurements
2. Preparation of Molarity, Normality solutions and Buffers.
3. Determination of  $p^H$  and use of  $p^H$  meter.
4. Qualitative analysis of Carbohydrates
5. Qualitative analysis of proteins
6. Qualitative analysis of Lipids.
7. Estimation of Glucose by DNS method.
8. Experiment on plotting calibration curve with standards
9. Separation of plant pigments using Chromatographic techniques – TLC, Paper chromatography
10. Separation of Blood, plasma and Serum.
11. Synthesis of silver nanoparticles (AgNP) using plant extract
12. Synthesis of sol - gel Nanoparticles.
13. Biocompatibility of Nanoparticles – Hemolytic assay.
14. Characterization of nanoparticles – FTIR, UV-VIS, TEM, SEM, DLS. (Demo).
15. Antibacterial activity of metal nanoparticles.

**Course Designer**

**Dr. R. RAMESHWARI**

## Reference Books

- Koch, C.C. (2018). *Nanostructured Materials: Processing, Properties and Applications*. Imperial College Press.
- Ghuzang, G. C. (2014). *Nanostructures and Nanomaterials: Synthesis, properties and applications*. Imperial College Press.
- Sergeev, G.B. (2014). *Nanochemistry*. Elsevier.
- Rao, C.N.R. & Muller A Cheentham, A.K. (2013). *Chemistry of Nanomaterials*. Wiley VCH.
- Brechignac, C., Hody, P. & Lahamani, M. (2013). *Nanomaterials and Nanochemistry*. Springer Publications.
- Edelstein, A.S. & Cammarata, R.C. (2012). *Nanomaterials: Synthesis, properties and applications*. Taylor and Francis.

## E- Books

- <https://www.pdfdrive.com/introduction-to-nanomaterials-and-nanotechnology-e7096944.html>
- <https://www.pdfdrive.com/nanomaterials-and-nanotechnology-e25902292.html>
- <https://www.pdfdrive.com/introduction-to-nano-basics-to-nanoscience-and-nanotechnology-e176037191.html>
- <https://www.pdfdrive.com/nanotechnology-principles-and-practices-e36381054.html>
- <https://www.pdfdrive.com/handbook-of-research-on-nanoscience-nanotechnology-and-advanced-materials-e186744468.html>

## Web Links

- <https://www.youtube.com/watch?v=IFYs3XDu4fQ>
- <https://www.youtube.com/watch?v=GZWGWYWDyw>
- <https://www.youtube.com/watch?v=W11HYiJMvYg>
- <https://www.youtube.com/watch?v=wK7ue8Uesbw>
- <https://www.youtube.com/watch?v=fISqIOjoxRs>

## Pedagogy

Practical Observation and Demo

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY-620 018.**



**DEPARTMENT OF FOOD SERVICE MANAGEMENT AND DIETETICS**

**UG – B.Sc., NUTRITION AND DIETETICS**

**PG – M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS**

**AGENDA**

**1. ITEM NO.BOS/06/01**

To consider and approve the Programme Specific Outcomes(PSO), the Programme Structure and I Semester syllabus of B.Sc., Nutrition and Dietetics for 2022-2023 Batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**2. ITEM NO.BOS/06/02**

To consider and approve the Programme Specific Outcomes(PSO), the Programme Structure and I Semester syllabus of M.Sc., Food Service Management and Dietetics for 2022-2023 Batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

**3. ITEM NO.BOS/06/03**

To suggest panel of examiner names to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 for appointment of examiners.

**4. ITEM NO.BOS/06/04**

To discuss about the internal marks, external marks, components of internal marks, duration of examination and question paper pattern for each course.

**5. ITEM NO.BOS/06/05**

To thank the members of Board of Studies.

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY-620 018.**

**DEPARTMENT OF FOOD SERVICE MANAGEMENT AND DIETETICS**

**UG –B.Sc., NUTRITION AND DIETETICS**

**PG – M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS**

**Minutes of Board of Studies Meeting of Department of Food Service Management and Dietetics held on 06/05/2022 at 2 pm.**

**The following members attended the meeting**

Ms.B.Thanuja	Chairperson and Associate Professor
Dr.S.UmaMaheshwari	Subject Expert, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore
Dr.R.Parimalavalli	Subject Expert, Periyar University, Salem
Dr.R.Jagan Mohan	Special Invitee, The National Institute of Food Technology, Entrepreneurship and Management - Thanjavur (NIFTEM-T)
Dr.A.ThahiraBanu	University Nominee, Gandhigram Rural University, Dindigul
Dr.A.Sangeetha	Industrial Representative, Navadha Nutraceutical Product, Ariyalur.
Dr.N.Preetha	Alumna, Sri Ramachandra Institute of Higher Education and Research, Chennai
Ms.S.Fathima	Member
Ms.V.Ramya	Member
Ms.M.Vinothini	Member
Ms.S.Agalya	Member
Ms.E.Agalya	Member
MsT.R.Revathi	Member
Ms. K.S.Mithila	Member
Ms.C.Nivetha	Member



**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)**  
**Nationally Accredited (III Cycle) with A Grade by NAAC**  
**ISO 9001:2015 Certified**  
**Annamalainagar, Trichy-18**

**DEPARTMENT OF FOOD SERVICE MANAGEMENT AND DIETETICS**

**ACTION TAKEN REPORT OF FIFTH BOS MEET HELD ON 27/05/2021**

The Fifth BOS Meeting was held on 27/05/2021 through virtual mode (Google Meet). The Chairman of the BOS read the minutes of the meeting and the Resolution BOS/05/01 pertaining to VI Semester Syllabus of B.Sc Nutrition & Dietetics was confirmed and other Resolutions ITEM NO.BOS/05/02 to ITEM NO.BOS/05/05 were approved.

**Minutes of Sixth Meeting of the Board of Studies**

**The Minutes of the meeting is as follows:**

**1. RESOLUTION NO. BOS/06/01**

Considered and approved the Programme Specific Outcomes (PSO), the Programme Structure and I Semester syllabus of B.Sc., Nutrition and Dietetics for 2022-2023 Batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18, with the following changes

**Revision of syllabus of Core Course 19UND1CC1- Food Science**

- Portion for Self-study is given in each Unit  
Unit I: Solar cooking method.  
Unit II: Role of nuts and oilseeds in cookery.  
Unit III: Selection of fruits.  
Unit IV: Role of Egg in cookery  
Unit V: Uses of spices and condiments in Indian cookery.
- Topics are included in Unit I: Classification of Nutrients and recent methods of cooking and Unit V: Types of oils and functions
- Topics deleted in Unit II: Cereals storage and infestations, Pulses fermentation process, advantages and disadvantages and toxic constituents of pulses, Unit IV: Processing of milk, Unit V: Processing, refining of fats and oils, factors affecting smoking point, fat substitutes, absorption of fat during cooking.



### **Revision of syllabus of Allied Course 19UND1AC1- Food Microbiology**

- Portion for Self- study is given in each Unit  
Unit I: Morphology of microorganisms- bacteria.  
Unit II: Extrinsic factors - relative humidity, temperature and gaseous atmosphere.  
Unit III: Modern methods of purification – Reverse Osmosis, ultraviolet purification, role of activated carbon.  
Unit IV: Microbiology of non-perishable foods- sugar and sugar products  
Unit V: Hepatitis and amoebic dysentery.
- Topics deleted in Unit V: Beneficial effects of microorganisms- heat and alcoholic beverages, Hazards of microorganisms- poliomyelitis
- Units III, IV are relocated.

Recommended to add additional journals for reference .

### **Revision of syllabus of Core Practical- 19UND1CC1P -Food Science Practical**

- Experiments included - Identification of ingredients from various food groups, Weighing and measuring of raw and cooked food items, Cereals - Vermicelli upma, Millets - Ragi vermicelli upma, Vegetables- Green leafy kootu, Fish - fish gravy.
- Experiments Deleted - Milk : Cottage cheese

### **Revision of syllabus of Allied Practical- 19UND1AC1P - Food Microbiology and Food Chemistry- Practical**

This Allied Course has been changed as Food Microbiology – Practical and existing Food Chemistry Course will be offered in Semester IV.

- Experiments included- Instrumentation in microbiology laboratory and their function – Shaker, Water bath , Centrifuge, Calorimeter, Spectrophotometer.

## **2. RESOLUTION NO. BOS/06/02**

Considered and approved the Programme Specific Outcomes(PSO), the Programme Structure and I Semester syllabus of M.Sc., Food Service Management and Dietetics for 2022-2023 Batch and onwards and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 , with the following changes

### **Revision of syllabus of Core Course 19PFS1CC1- Advanced Food Science**

- Portion for Self- study is given in each Unit.  
Unit I: Nuts and Oilseeds- Classification, nutritional composition, uses in cookery.  
Unit II: Role of sugar in cookery.  
Unit III: Coagulation of egg protein.  
Unit IV: Spices and condiments- Types, role in cookery, volatile compounds.  
Unit V: Food additives- Types and role in food industry

- Topics are included in Unit V: Food additives
- Topics deleted in Unit I: Post harvest technology and Unit V: Packaging techniques
- Units II, III, IV, V are relocated.

Recommended to add detailed content to be listed in Food Additives of Unit V.c

### **Revision of syllabus of Core Course 19PFS1CC2- Human Nutrition and Public Health**

- Portion for Self- study is given in each Unit  
Unit I: Galactogogues  
Unit II: Eating disorders – Bulimia nervosa, Binge eating and Anorexia nervosa in adolescence  
Unit III: Vicious Cycle of malnutrition  
Unit IV: World Health Organization (WHO)  
Unit V: Problems of Nutrition Education Programmes
- Topics are included in Unit IV: POSHAN Abhiyaan and Unit V: Dietary surveys- Family diet survey, individual diet survey, quantitative diet survey and food balance sheet.
- Topics deleted in Unit I: Basic five food groups, Balanced diet
- Units I, II and V are relocated.

The following suggestions were recommended to add

In Unit IV a. Sustainable Development Goals

In Unit V b. Theories in Nutrition Education

### **Revision of syllabus of Core Course 19PFS1CC3- Biochemical Changes in Diseases**

- Portion for Self- study is given in each Unit.  
Unit I: General lab information  
Unit II: Disorders of Carbohydrate Metabolism- Diabetes Mellitus  
Unit III: Heavy Metal Poisons.  
Unit IV: Anemia  
Unit V: Types of jaundice
- Topics included are Unit I: Clinical Enzymology and Unit V: Tissue Protein
- Topics deleted in Unit I: Nutrigenomics

### **Revision of syllabus of Core Course 19PFS1CC4- Advanced Dietetics I**

- Portion for Self- study is given in each Unit.  
Unit I: Role of dietitian in the hospital and community.  
Unit II: Psychology of feeding the patient.  
Unit III: Women and HIV.  
Unit IV: Gall bladder disorders - Cholecystitis and Cholelithiasis.  
Unit V: Theories of obesity

- Topics included are Unit III: Diet in Febrile conditions, Diet care in HIV, Unit V: Diet in metabolic disorders- Diabetes mellitus and obesity
- Topics deleted in Unit IV: Diet in Food Allergy, Nutritional care in metabolic stress, Unit V: Nutritional care in Inborn Errors of Metabolism, Developmental Disabilities and Palliative Care.
- Unit III relocated to Unit IV.

### **Revision of syllabus of Core Practical – 19PFS1CC1P - Human Nutrition and Public Health-Practical**

In the previous programme structure the Core Practical offered was Human Nutrition and Public Health-Practical. During 2022 revision the Core Practical has been changed as Advanced Dietetics I- Practical. And the existing- Human Nutrition and Public Health-Practical is retained as related experience practical in Core Course - Human Nutrition and Public Health, in Semester I.

Experiments included - Diet in Febrile condition, Diet in Metabolic Disorders.

#### **3. ITEM NO.BOS/06/03**

Suggested and approved the panel of examiner names to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18 for appointment of examiners.

#### **4. ITEM NO.BOS/06/04**

Discussed and approved the internal marks, external marks, components of internal marks, duration of examination and question paper pattern for each course.

No change in question paper pattern for

- B.Sc., Nutrition & Dietetics
- M.Sc., Food Service Management & Dietetics

#### **5. ITEM NO.BOS/06/05**

Finally the members were thanked for their academic service as Board of Studies members for the period of three years. Ms.B.Thanuja, HOD expressed her gratitude for the valuable suggestions given by the external BOS members during the BOS meetings for the period 2019-2022 and thanked all the members of BOS.

# CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

NATIONALLY ACCREDITED (IICYCLE) WITH “A” GRADE BY NAAC

ISO 9001:2015 Certified

TIRUCHIRAPPALLI

## DEPARTMENT OF NUTRITION AND DIETETICS



B.Sc., NUTRITION AND DIETETICS

Syllabus

2022-2023 Onwards

**Cauvery College for Women (Autonomous)**  
**Department of Nutrition and Dietetics**

**VISION**

To strengthen and integrate academic excellence, ethical values and social responsibility to develop a healthy nation by imparting skill based knowledge, professional competency and entrepreneurial skills.

**MISSION**

- To have a breath of knowledge across the subject areas of Nutrition and Dietetics.
- To professionally enrich the students for successful career in Academia, Industry and Research.
- To promote and inculcate self-reliance, social relevance, sound value system and code of professional practice among students.

## PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

<b>PEOs</b>	<b>Statements</b>
<b>PEO1</b>	<b>LEARNING ENVIRONMENT</b> To facilitate value-based holistic and comprehensive learning by integrating innovative learning practices to match the highest quality standards and train the students to be effective leaders in their chosen fields.
<b>PEO2</b>	<b>ACADEMIC EXCELLENCE</b> To provide a conducive environment to unleash their hidden talents and to nurture the spirit of critical thinking and encourage them to achieve their goal.
<b>PEO3</b>	<b>EMPLOYABILITY</b> To equip students with the required skills in order to adapt to the changing global scenario and gain access to versatile career opportunities in multidisciplinary domains.
<b>PEO4</b>	<b>PROFESSIONAL ETHICS AND SOCIAL RESPONSIBILITY</b> To develop a sense of social responsibility by formulating ethics and equity to transform students into committed professionals with a strong attitude towards the development of the nation.
<b>PEO5</b>	<b>GREEN SUSTAINABILITY</b> To understand the impact of professional solutions in societal and environmental contexts and demonstrate the knowledge for an overall sustainable development.

## **PROGRAMME OUTCOMES FOR B.Sc., PROGRAMMES**

PO NO	<b>Programme Outcome</b> <b>On completion of B.Sc., Programme, the students will be able to</b>
<b>PO1</b>	<b>ACADEMIC EXCELLENCE AND COMPETENCE</b> Elicit firm fundamental knowledge in theory as well as practical for coherent understanding of academic field to pursue multi and interdisciplinary science careers in future.
<b>PO2</b>	<b>HOLISTIC AND SOCIAL APPROACH</b> Create novel ideas related to the scientific research concepts through advanced technology and sensitivity towards sustainable environmental practices as well as social issues.
<b>PO3</b>	<b>PROFESSIONAL ETHICS AND TEAM WORK</b> Explore professional responsibility through project strategies, internships, field trip/industrial visits and mentorship programmes to transmit communication skills.
<b>PO4</b>	<b>CRITICAL AND SCIENTIFIC THINKING</b> Equip training skills in internships, research Projects to do higher studies in multidisciplinary path with higher level of specialization to become professionals of high quality standards.
<b>PO5</b>	<b>SOCIAL RESPONSIBILITY WITH ETHICAL VALUES</b> Ensure ethical, social and moral values in the minds of learners and attain gender parity for building a healthy nation.

**PROGRAMME SPECIFIC OUTCOMES FOR B.Sc., NUTRITION AND DIETETICS**  
**PROGRAMME`**

**B.Sc., NUTRITION AND DIETETICS**

**[2022 – 2023 Onwards]**

<b>PSO NO</b>	<b>Programme Specific Outcomes` Students of B.Sc., Nutrition &amp; Dietetics will be able to</b>	<b>POs Addresse d</b>
<b>PSO1</b>	Apply the knowledge of food science, nutrition and dietetics to resolve the scientific issues and problems.	PO1
<b>PSO2</b>	Assess the nutritional status and recommend nutritional support and therapeutic care as sustainable approach for better health and prevention of diseases.	PO1, PO2
<b>PSO3</b>	Associate physiological, biochemical and microbiological parameters with health and diseases.	PO1
<b>PSO4</b>	Develop technical and human relation skills in relation to food services, demonstrate professional attributes required to manage the hospitality industry and to communicate effectively in the context of nutrition and dietetics.	PO3, PO4
<b>PSO5</b>	Demonstrate critical thinking skills and analytical abilities to identify and solve problems through internships and projects.	PO4, PO5



**UG Programme Structure (Science)**

**B.Sc NUTRITION AND DIETETICS**

(For the Candidates admitted from the Academic year 2022-2023 onwards)

Semester	Part	Course	Title	Course Code	Inst. Hrs./ week	Credits	Exam		Total		
							Hrs.	Marks			
								Int.		Ext.	
I	I	Language Course – I (LC) – Tamil * / Other Languages *	Ikkala Ilakkiyam	22ULT1	6	3	3	25	75	100	
			Basic French-I	22ULF1							
			Hindi Literature & Grammar-1	22ULH1							
			History of Popular Tales, Literature and Sanskrit Story	22ULS1							
	II	English Language Course-I (ELC)	Functional English for Effective Communication – I	22UE1	6	3	3	25	75	100	
	III	Core Course – I(CC)		Food Science	22UND1CC1	5	5	3	25	75	100
		Core Practical - I (CP)		Food Science-Practical	22UND1CC1P	3	3	3	40	60	100
		First Allied I		Food Microbiology	22UND1AC1	4	3	3	25	75	100
		First Allied II		Food Microbiology – Practical	22UND1AC1P	4	3	3	40	60	100
	IV	UGC Jeevan Kaushal		Universal Human Values	22UGVE	2	2	2	25	75	100
<b>TOTAL</b>					<b>30</b>	<b>22</b>				<b>700</b>	

II	I	Language Course – II (LC) – Tamil * / Other Languages *)	Idaikkala Illakiyamum Pudhinamum	22ULT2	5	3	3	25	75	100	
			Basic French-II	22ULF2							
			Hindi Literature & Grammar-II	22ULH2							
			Poetry, Textual Grammar and Alakara	22ULS2							
	II	English Language Course-II (ELC)	Functional English for Effective Communication – II	22UE2	6	3	3	25	75	100	
	III	Core Course – II (CC)		Nutrition Through Life Cycle		5	5	3	25	75	100
		Core Practical - II (CP)		Nutrition Through Life Cycle –Practical		3	3	3	40	60	100
		First Allied III		Human Physiology		4	3	3	25	75	100
		Core Course -III (CC)		Macro and Micro Nutrients		3	3	3	25	75	100
	IV	Ability Enhancement Compulsory Course (AECC)-I		Environmental Studies		2	2	3			100
		Ability Enhancement Compulsory Course (AECC)-II		Innovation and Entrepreneurship		2	1				100
		Extra Credit Course		SWAYAM ONLINE COURSE		As per UGC Recommendation					
				Total		<b>30</b>	<b>23</b>				<b>800</b>

III	I	Language Course – III (LC) – I * / Other Languages *)	Kaapiyamum, Nadagamum	22ULT3	5	3	3			100	
			Intermediate French-I	22ULF3							
			Hindi Literature & Grammar-III	22ULH3							
			Prose, Textual Grammar and Vakyarachana	22ULS3							
	II	English Language Course- III(ELC)	Learning Grammar Through Literature - I	22UE3	6	3	3			100	
	III	Core Course– IV(CC)		Diet Therapy I		6	5	3	25	75	100
		Core Practical - III(CP)		Diet Therapy I -Practical		3	3	3	40	60	100
		Second Allied I		Nutritional Biochemistry		4	3	3	25	75	100
		Second Allied II		Nutritional Biochemistry-Practical		4	3	3	40	60	100
	IV	Generic Elective – I		Basics in Nutrition		2	2	3	25	75	100
Basic Tamil											
Special Tamil											
	Extra Credit Course		SWAYAM ONLINE COURSE		As per UGC Recommendation						
					<b>30</b>	<b>22</b>				<b>700</b>	

### 15 Days INTERNSHIP during Semester Holidays

IV	I	Language Course – IV (LC) Tamil * / Other Languages*)	Pandaiya Ilakiyam	22ULT4	6	3	3			100	
			Intermediate French-II	22ULF4							
			Hindi Literature & Functional Hindi	22ULH4							
			Drama, History of Drama Literature	22ULS4							
	II	English Language Course - IV(ELC)	Learning Grammar Through Literature - II	22UE4	6	3	3			100	
	III	Core Course – V(CC)		Diet Therapy II		6	5	3	25	75	100
		Core Practical - IV(CP)		Diet Therapy II – Practical		4	3	3	40	60	100
		Second Allied III		Food Chemistry		4	3	3	25	75	100
		Internship		Internship		-	2	-	-	-	100
	IV	Generic Elective -II		Meal Planning for the Family		2	2	3	25	75	100
				Basic Tamil							
				Special Tamil							
	Skill Enhancement Course– I		A. Basics in Food Production -Practical		2	2	3	40	60	100	
			B. Culinary Skills - Practical								
		Extra Credit Course		SWAYAM ONLINE COURSE		As per UGC Recommendation					
	<b>TOTAL</b>				<b>30</b>	<b>23</b>				<b>800</b>	

V	III	Core Course – VI(CC)	Food Processing and Preservation		5	4	3	25	75	100
		Core Practical – V(CP)	Food Processing and Preservation -Practical		3	3	3	40	60	100
		Core Course - VII(CC)	Basics in Research Methodology		5	4	3	25	75	100
		Core Course – VIII(CC)	Community Nutrition		6	5	3	25	75	100
		Discipline Specific Elective – I	A. Food Standards and Quality Control							
	B. Food Product Development and Marketing			5	4	3	25	75	100	
	C. Front Office Management and Housekeeping									
	IV	UGC Jeevan Kaushal Life Skills	Professional Skills		2	1				100
		Skill Enhancement Course – II	A. Bakery Science-Practical		2	2	3	40	60	100
			B. Confectionary - Practical							
		Skill Enhancement Course – III	A. Nutrition Assessment Techniques -Practical							
	B. Basics of Computer Applications -Practical			2	2	3	40	60	100	
		Extra Credit Course	SWAYAM ONLINE COURSE		As per UGC Recommendation					
	<b>TOTAL</b>			<b>30</b>	<b>25</b>				<b>800</b>	

VI	III	Core Course – IX(CC)	Perspectives of Home Science		6	5	3	25	75	100
		Core Course – X(CC)	Food Service Management		5	4	3	25	75	100
		Core Practical – VI(CP)	Food Service Management-Practical		3	3	3	40	60	100
		Discipline Specific Elective – II	A. Functional Foods and Nutraceuticals		5	4	3	25	75	100
			B. Sports Nutrition							
			C. Diet Counseling							
	Discipline Specific Elective – III	A. Basics in Food Analysis		5	4	3	25	75	100	
		B. Food Biotechnology								
		C. Quantity Cookery								
		Project Work		5	3	-	-	100	100	
V	Gender Studies	Gender Studies		1	1				100	
	Extension activity			0	1	0	-	-	-	
	<b>TOTAL</b>			<b>30</b>	<b>25</b>				<b>700</b>	
	<b>GRAND TOTAL</b>			<b>180</b>	<b>140</b>				<b>4500</b>	

1	Course	No of Courses	Credits	Total Credits
I	Tamil/ Other Language	4	12	12
II	English	4	12	12
III	Core (Theory& Practical)	16	63	98
	Project Work	1	3	
	Internship	1	2	
	First Allied	3	9	
	Second Allied	3	9	
	Discipline Specific Elective (DSE)	3	12	
IV	Generic Elective (GE)	2	4	16
	Skill Enhancement Course (SEC)	3	6	
	Universal Human Values	1	2	
	Ability Enhancement Compulsory Course AECC-I-Environmental Studies	1	2	
	Professional Skills	1	1	
	Ability Enhancement Compulsory Course AECC-II-Innovation and Entrepreneurship	1	1	
V	Gender Studies	1	1	02
	Extension Activities	-	1	
		<b>4500</b>		<b>140</b>

The Internal and external marks for theory and practical papers are as follows:

<b>Subject</b>	<b>Internal Marks</b>	<b>External Marks</b>
Theory	25	75
Practical	40	60

**For Theory:**

- a) The passing minimum for CIA shall be 40% out of 25 marks (i.e. 10 marks)
- b) The passing minimum for End Semester Examinations shall be 40% out of 75 marks (i.e. 30 marks)

**For Practical:**

- a) The passing minimum for CIA shall be 40% out of 40 marks (i.e. 16 marks)
- b) The passing minimum for End Semester Examinations shall be 40% out of 60 marks  
(i.e. 24 marks)

**Internal Component (Theory)**

<b>Component</b>	<b>Marks</b>
Assignment	5
CIA 1 & CIA 2	10
Seminar	5
Library	5
TOTAL	25

**Internal Component (Practical)**

<b>Component</b>	<b>Marks</b>
Observation Note	5
Record Note	10
Continuous performance in practical	10
Model Test	15
TOTAL	40

## **Question Paper Pattern for different courses**

### **SECTION –A (20 Marks)**

20 Questions - One mark for each question

Choose the correct answer (5)

Fill in the blanks (5)

State True or False (5)

Answer in one or two sentences (5)

### **SECTION –B (25 Marks)**

5 Questions (Either or Choice) - Five marks for each question

### **SECTION –C (30 Marks)**

3 Questions to be answered (Three out of Five Questions) - Ten marks for each question

<b>SEMESTER I</b>	<b>INTERNAL MARKS: 25</b>		<b>EXTERNAL MARKS:75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hrs/Week</b>	<b>CREDITS</b>
22UND1CC1	FOOD SCIENCE	CORE	5	5

### Course Objectives

- To obtain knowledge on different food groups and their composition.
- To study the different methods of cooking.
- To understand the role of food groups in cookery.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO 1	Define and list the food groups and different cooking methods	K 1
CO 2	Explain structure and composition of food groups	K 2
CO 3	Illustrate the chemical reactions that occur during cooking and changes that occur during storage of fruits and vegetables	K 2
CO 4	Predict role of food groups in cookery	K 3
CO 5	Examine the quality of egg and factors affecting tenderness of meat	K 4

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	2	2	2	3	3	2	2	3
CO2	3	3	2	2	2	3	2	2	2	3
CO3	3	3	2	2	2	3	2	2	2	3
CO4	3	3	2	2	2	3	2	2	2	3
CO5	3	3	2	2	2	3	2	2	2	3

“1” – Slight (Low) Correlation → “2” – Moderate (Medium) Correlation →

“3” – Substantial (High) Correlation → “-” indicates there is no correlation.

## **SYLLABUS**

### **UNIT I**

**(16 Hours)**

**a. INTRODUCTION TO FOOD SCIENCE AND NUTRITIONAL CLASSIFICATION OF FOODS**

Definition of Food Science, Basic Five Food Groups, Food Pyramid, Nutritional classification of foods – Energy yielding, body building, protective and regulatory foods.

**b. CLASSIFICATION OF NUTRIENT**

Macro Nutrients - Carbohydrate, Protein and Fat and Micro Nutrients – Vitamins, Minerals and its Sources.

**c. COOKING METHODS**

Objectives, different types cooking methods- moist, dry heat methods, microwave cooking, combination of cooking methods and, Recent methods of cooking – Ohmic cooking and induction cooking - merits and demerits.

### **UNIT II**

**(20 Hours)**

**a. CEREALS AND CEREAL PRODUCTS**

Structure, composition, nutritive value and milling of wheat and parboiling of rice. Nutritional importance of millets - (maize, jowar, ragi, bajra), malting of cereals and role of cereals in cookery.

**b. PULSES**

Composition, nutritive value, factors affecting cooking quality of pulses, germination, role of pulses in cookery.

**c. NUTS AND OILSEEDS**

Composition, Nutritive value.

### **UNIT III**

**(14 Hours)**

**a. FRUITS**

Classification, nutritive value, changes during ripening of fruits, enzymatic browning and methods of prevention, storage techniques.

**b. VEGETABLES**

Classification and nutritive value, pigments- fat-soluble, water-soluble, selection of vegetables, cooking of vegetables-changes during cooking, nutrient loss, effect of cooking on the pigments.

### **UNIT IV**

**(22 Hours)**

**a. MILK AND MILK PRODUCTS**

Composition, nutritive value, types of milk products- fermented milk products (Butter milk, Yogurt) and non - fermented milk products (Skim milk, Evaporated milk, Sweetened condensed milk, Milk powder, Khoa, Ice cream).

**b. EGG**

Structure, composition and nutritive value, evaluation of quality of egg.

**c. MEAT**

Structure, composition, types of meat, cuts of meat, ageing and curing of meat, post mortem changes in meat, and tenderness of meat, meat cookery.



**d. POULTRY**

Composition, classification and nutritive value, poultry cookery.

**e. FISH**

Structure, composition, nutritive value, selection of fish, fish cookery.

**UNIT V**

**(18 Hours)**

**a. FATS AND OILS**

Composition, types of oils, functions, rancidity, hydrogenation, winterization, smoking point and role of fat or oil in cookery.

**b. SUGAR**

Nutritive value, sugar related products, stages of sugar cookery, crystallization, factors affecting crystallization.

**c. SPICES AND CONDIMENTS**

Uses of spices in Indian cookery and medicinal properties.

**UNIT VI**

**SELF STUDY FOR ENRICHMENT**

Solar cooking method- merits and demerits.

Role of Nuts and oilseeds in cookery.

Criteria of selection of fruits.

Role of milk in cookery.

Types of spices in Indian cookery.

### **Text Book**

1. Potter, Norman, N., (2007), *Food Science*, (5<sup>th</sup> ed.), CBS Publications and distributors, New Delhi.
2. Shakuntala Manay, N., (2013). *Foods: Facts and Principles*, (3<sup>rd</sup> ed.), New Age International Publishers, New Delhi.
3. Swaminathan, M., (2019). *Advanced Text Book on Food and Nutrition*, Volume (2<sup>nd</sup> ed.), Bangalore Printing and Publishing Co. Ltd, Bangalore.
4. Mahatb, S., Bamji., Kamala Krishnasamy, Brahman, G.N.V., (2020) *Textbook of Human Nutrition*, (3<sup>rd</sup> ed.), Oxford and IBH Publishing Co. P. Ltd., New Delhi.

### **Reference Book**

1. Sharma Jyoti, S., (2009). *Applied Nutrition and Food Science*. Akansha Publishing House, New Delhi.
2. Raheena Begum, M., (2015). *Textbook of Foods, Nutrition and Dietetics*. (3<sup>rd</sup> ed.), Sterling Publishers Pvt. Ltd, New Delhi.
3. Krause, M. V., Hunesher, M. A., (2013). *Food, Nutrition and Diet Therapy*. W. B. Saunders Company, Philadelphia, London.
4. Vickie, A., Vaclavik Elizabeth, W., Christian, (2014), *Essentials of Food Science*. (4<sup>th</sup> ed.), Springer Science and Business Media, New York.
5. Avantina Sharma, (2019). *Textbook of Food Science and Technology*. (3<sup>rd</sup> ed.), CBS Publishers and Distributors.

### **Web References:**

1. <https://www.scienceofcooking.com/>
2. [https://www.brainkart.com/article/Structure-of-cereal-grains\\_33949/](https://www.brainkart.com/article/Structure-of-cereal-grains_33949/)
3. <https://fruitsandveggies.org/stories/key-nutrients-that-protect/>
4. <https://pubmed.ncbi.nlm.nih.gov>
5. <https://journalofethnicfoods.biomedcentral.com>

### **Journals:**

1. Food Science and Nutrition, John Wiley and Sons Ltd publisher, United Kingdom.
2. Food and Nutrition Research, Co-Action Publishing, Sweden.
3. Journal of Food Science Education, Institute of Food Technologists publishing, United States.
4. Journal of the Science of Food and Agriculture, Wiley-Blackwell publishing, England.

### **Pedagogy**

Chalk and talk, PPT, Discussion, Assignment, Demo, Quiz, Seminar.

### **Course Designers**

MS. E. AGALYA

MS. C. NIVETHA

SEMESTER I	INTERNAL MARKS - 40		EXTERNAL MARKS - 60	
COURSE CODE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
22UND1CC1P	FOOD SCIENCE – PRACTICAL	CORE PRACTICAL	3	3

### Course Objectives

- To gain knowledge in food groups.
- To compare weighing and measuring of raw and cooked food items.
- To formulate recipes by applying different cooking techniques.

### Course Outcomes

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
CO 1	On the successful completion of the course, students will be able to Identify various food groups and cooking techniques	K 1
CO 2	Interpret weighing and measuring and compare weight of raw and cooked food items	K2
CO 3	Prepare recipes from five food groups	K3
CO 4	Relate cooking methods with different food groups	K3
CO 5	Determine role of food groups in cookery	K4

### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	2	2	2	3	3	2	2	3
CO2	3	3	2	2	2	3	2	2	2	3
CO3	3	3	2	2	2	3	2	2	2	3
CO4	3	3	2	2	2	3	2	2	2	3
CO5	3	3	2	2	2	3	2	2	2	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## **SYLLABUS**

1. Identification of ingredients from various food groups. **(3 hours)**
2. Weighing and measuring of raw and cooked food items. **(3 hours)**
3. **CEREAL BASED RECIPES:** Idli, Chapathi, Poori, Vermicelli upma, Kozhukattai, Aloo paratha, Rice. **(3 hours)**
4. **MILLET BASED RECIPES:** Ragi Vermicelli upma ,Sathumavu mix, Millet ball, Millet pongal, Millet payasam. **(3 hours)**
5. **PULSE BASED RECIPES:** Sundal, Bholi, Green gram payasam, Dhal makhani, Vadai, Sambar and Sprouts salad. **(6 hours)**
6. **FRUITS BASED RECIPES:** Fritters, Halwa, Salad, Milkshakes and Fresh juices. **(6 hours)**
7. **VEGETABLES BASED RECIPES:** Green leafy kootu, Avial, Stewed potato curry, Poriyal, Vegetable Salad, and Vegetable soup. **(6 hours)**
8. **MILK BASED RECIPES:** Paneer, Phirnee, Payasam, Ice cream and Basanthi. **(6 hours)**
9. **MEAT BASED RECIPES:** Deep fried Chicken, Mutton gravy. **(3 hours)**
10. **FISH BASED RECIPES:** Steamed fish, Fish fry, Fish gravy. **(3 hours)**
11. **EGG BASED RECIPES:** Boiled, Scrambled and Poached egg, Curry and Omelette. **(3 hours)**

## **Text Books**

1. Shakuntala Manay, N., (2013). *Foods: Facts and Principles*. (3<sup>rd</sup> ed.), New Age International Publishers. New Delhi.
2. Swaminathan, M., (2019). *Advanced Text Book on Food and Nutrition*. (2<sup>nd</sup> ed.), Bangalore Printing and Publishing Co. Ltd, Bangalore.

## **Reference Books**

1. Vickie, A., Vaclavik Elizabeth, W., Christian, (2014). *Essentials of Food Science*, (4<sup>th</sup> ed.), Springer Science and Business Media, New York.
2. Raheena Begum, M., (2015). *Textbook of Foods, Nutrition and Dietetics*, (3<sup>rd</sup> ed.), Sterling Publishers Pvt. Ltd, New Delhi.
3. Avantina Sharma, (2019). *Textbook of Food Science and Technology*. (3<sup>rd</sup> ed.), CBS Publishers and Distributors.

## **Pedagogy:**

E-content, Lecture, Power point presentation, Seminar, Assignment, Demonstration and Industrial visit

## **Web Links:**

1. <https://www.scienceofcooking.com/>
2. [https://www.nios.ac.in/media/documents/SecHmscicour/english/Home%20Science%20\(Eng\)%20Ch-4.pdf](https://www.nios.ac.in/media/documents/SecHmscicour/english/Home%20Science%20(Eng)%20Ch-4.pdf)
3. [https://www.youtube.com/watch?v=QO\\_V3h14Fyc&ab\\_channel=SciShow](https://www.youtube.com/watch?v=QO_V3h14Fyc&ab_channel=SciShow)
4. <https://everydaynourishingfoods.com/how-to-cook-fluffy-millet/>

## **Course Designers:**

- Ms. E. AGALYA
- Ms. C. NIVETHA

<b>SEMESTER I</b>	<b>INTERNAL MARK : 25</b>			<b>EXTERNAL MARK : 75</b>
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>HRS/WEEK</b>	<b>CREDITS</b>
<b>22UND1AC1</b>	<b>FOOD MICROBIOLOGY</b>	<b>ALLIED</b>	<b>4</b>	<b>3</b>

### Course Objectives

- To acquire knowledge in relevance to microbiology and its applications in everyday life
- To learn various technique in food preservation.
- To understand the role of microorganisms in food industry and their beneficial effects.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

Co Number	Co Statement	Cognitive Level
CO1	Describe fundamental principles pertaining to food microbiology	K1
CO2	Relate the preservation methods for the prevention of spoilage	K2
CO3	Examine microbial quality of food and water	K3
CO4	Interpret role of microbes in fermented food products	K3
CO5	Illustrate benefits and hazards of micro organism	K4

#### Mapping of Co with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	2	3	2	2	3	3	3	3	3
CO2	2	2	3	2	2	3	3	2	2	2
CO3	2	2	3	2	2	3	3	2	2	3
CO4	2	2	3	3	2	3	3	3	3	3
CO5	2	2	3	2	2	3	3	3	3	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## **SYLLABUS**

### **UNIT 1**

**(12 Hours)**

#### **a. INTRODUCTION TO MICROBIOLOGY**

Microscope – Types and uses, classification of microorganisms – Prokaryotes and Eukaryotes.

#### **b. MORPHOLOGY OF MICROORGANISMS**

Virus, Fungi, Protozoa and Algae.

### **UNIT II**

**(12 Hours)**

#### **a. GROWTH AND MULTIPLICATION**

Growth curve, batch culture and continuous culture, chemostat and turbidostat.

#### **b. FACTORS AFFECTING GROWTH**

Intrinsic factors -nutrient content, pH, redox potential, antimicrobial barrier and water activity  
Extrinsic factors - relative humidity, temperature and gaseous atmosphere.

### **UNIT III**

**(12 Hours)**

#### **a. MICROBIOLOGY OF WATER**

Bacteriological examinations, total count, test for E –Coli and Purification of water. Modern methods of purification – Reverse Osmosis, ultraviolet purification, activated carbon.

#### **b. CONTROL OF MICROORGANISMS**

Temperature – high, low, sterilization, irradiation.

Chemical agents – Disinfectant, benzoates, sorbates, propionates, acetates, nitrates, nitrites, sulphur dioxide, sulphites, pickling, addition of sugar or salt, drying.

### **UNIT IV**

**(12 Hours)**

#### **a. MICROBIOLOGY OF PERISHABLE FOODS**

Contamination, spoilage and preservation of vegetables and fruits, milk and milk products, meat and meat products, egg, poultry, baked products and canned products.

#### **b. MICROBIOLOGY OF NON - PERISHABLE FOODS**

Contamination, spoilage and preservation of cereal and cereal products, pulses and legumes, sugar and sugar products.

### **UNIT V**

**(12 Hours)**

#### **a. BENEFICIAL EFFECTS OF MICROORGANISMS**

Fermentation, Role of microorganisms in fermented foods - cheese, sauerkraut, and soy based foods, factors controlling fermentation in foods. Probiotics and Prebiotics,

#### **b. HAZARDS OF MICROORGANISMS**

Food poisoning, food borne diseases – Salmonellosis, Botulism, Hepatitis, Amoebic dysentery.

**UNIT VI**  
**SELF STUDY FOR ENRICHMENT**

Morphology of Bacteria

Difference between chemostat and turbitostat

Role of salt and sugar in control of microorganism.

List the microorganism responsible for spoilage in fruits and vegetables.

.Benefits of food preservation.



## **Text Books**

1. Frazier William, C. (2014). *Food Microbiology*. (5<sup>th</sup> ed) McGraw Hill Irwin Companies. New York
2. Adams. (2018) *Food Microbiology*. (2<sup>nd</sup> ed).New Age International Publishers. New Delhi.
3. Pelczar Jr Michael, J. (2014) *Microbiology*. McGraw Hill Education (India) Private Ltd, New Delhi.

## **Reference Books**

1. Sugandhar Babu R P. (2008) *Food Microbiology*. Adhyayan Publishers and distributors, New Delhi.,
2. Vijaya Ramesh k. (2007) *Food Microbiology*. (1<sup>st</sup> ed). New Age International Publishers. New Delhi.
3. Bohra and Parihar. (2012) *Food Microbiology*. Student edition, Jodhpur
4. Anathanarayan, (2013) *Textbook of Microbiology*. University Press (India) Pvt. Ltd, Hyderabad.

## **Web Links**

1. <http://airccse.org/journal/ijscai/papers/3214ijscai01>.
2. <https://www.biologydiscussion.com/microorganisms/microbes-microorganisms/microbes-in-the-food-industry-microorganisms-biology/82587>
3. <https://www.rapidmicrobiology.com/test-method/theory-and-practice-of-microbiological-water-testing>
4. <https://academic.oup.com/femsle/article/362/20/fnv151/543071>

## **Journals :**

1. Journal of Microbiology and Infectious Disease, Turkey .
2. Journal of Basic Microbiology, Wiley-Blackwell, Germany.
3. Journal of Microbiology, Microbiological Society Korea, South Korea.
4. Journal Applied Microbiology, Cardiff, U K.

## **Pedagogy:**

E-content, Lecture, Power point presentation, Seminar, Assignment

## **Course Designers**

- Ms. S. FATHIMA
- Ms. T.R. REVATHI

SEMESTER I	INTERNAL MARK : 40		EXTERNAL MARK : 60	
COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
22UND1AC1P	FOOD MICROBIOLOGY - PRACTICAL	ALLIED PRACTICAL	4	3

### Course Objective

- To acquire knowledge on cultivation of microorganisms.
- To isolate microorganisms from food products.
- To evaluate number of microorganism from food products.

### Course Outcome

#### Course Outcome and Cognitive Level Mapping

Co Number	Co Statement	Cognitive Level
CO1	Explain the instruments and their functions used for microbiological analysis	K1
CO2	Illustrate the preparation methods of culture media	K2
CO3	Summarize the culture media techniques	K2
CO4	Distinguish potability of water	K3
CO5	Evaluate microorganism responsible for spoilage in different in foods	K4

#### Mapping of Co with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	2	3	2	2	3	3	2	3	3
CO2	2	2	3	2	2	3	3	2	3	3
CO3	2	2	3	2	2	3	3	2	3	3
CO4	2	2	3	2	2	3	3	2	3	3
CO5	2	2	3	2	2	3	3	2	3	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## **SYLLABUS**

1. Instrumentation in microbiology laboratory and their function – Microscope, Shaker, Water bath **(6 Hours)**
2. Instrumentation in microbiology laboratory and their function – Autoclave, Hot air oven, Laminar air flow **(6 Hours)**
3. Instrumentation in microbiology laboratory and their function - Centrifuge, Calorimeter, Spectrophotometer **(6 Hours)**
4. Preparation of culture media. **(6 Hours)**
5. Prepare pure culture techniques using spread plate method **(6 Hours)**
6. Preparation of culture techniques using streak plate method **(6 Hours)**
7. Prepare pure culture techniques using pour plate method **(6 Hours)**
8. Staining techniques - Simple and Differential **(6 Hours)**
9. Microbiological analysis of water. **(6 Hours)**
10. Isolation of spoilage organisms from different food commodities. **(6 Hours)**

### **Text Book**

1. Vivek Kumar. (2011). *Laboratory manual of Microbiology*. Scientific Publishers (India)
2. Bharti Arora and D.R. Arora. (2007). *Practical Microbiology*. New Delhi CBS Publishers & Distributors.

### **Reference Book**

1. Casida, L.E, J.R, (2012). *Industrial Microbiology*. New Age Publications. New Delhi.
2. Michael J Waites, Neil L Morgan. (2001). *Industrial Microbiology: An Introduction*. Blackwell Science Ltd. UK.
3. Rao, A.S. (2001). *Introduction to Microbiology*. Hall of India Private Ltd. New Delhi.

### **Web Links**

1. <http://microbiologysociety.org>
2. <https://ttk.elte.hu>
3. <https://www.futurelearn.com>

### **Pedagogy:**

Demonstration, E-content, Lecture, Power point presentation

### **Course Designers**

- Ms. S. FATHIMA
- Ms. T.R. REVATHI

# CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

NATIONALLY ACCREDITED (III CYCLE) WITH “A” GRADE  
BY NAAC  
ISO 9001:2015 Certified  
TIRUCHIRAPPALLI

DEPARTMENT OF FOOD SERVICE MANAGEMENT  
AND DIETETICS



M.Sc., FOOD SERVICE MANAGEMENT  
AND DIETETICS  
Syllabus

2022-2023 Onwards

**Cauvery College for Women (Autonomous)**  
**Department of Food Service Management and Dietetics**

**VISION**

To strengthen and integrate academic excellence, ethical values and social responsibility to develop a healthy nation by imparting skill based knowledge, professional competency and entrepreneurial skills.

**MISSION**

- To have a breadth of knowledge across the subject areas of Nutrition and Dietetics.
- To professionally enrich the students for successful career in Academia, Industry and Research.
- To promote and inculcate self-reliance, social relevance, sound value system and code of professional practice among students.

## PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

<b>PEOs</b>	<b>Statements</b>
<b>PEO1</b>	<b>LEARNING ENVIRONMENT</b> To facilitate value-based holistic and comprehensive learning by integrating innovative learning practices to match the highest quality standards and train the students to be effective leaders in their chosen fields.
<b>PEO2</b>	<b>ACADEMIC EXCELLENCE</b> To provide a conducive environment to unleash their hidden talents and to nurture the spirit of critical thinking and encourage them to achieve their goal.
<b>PEO3</b>	<b>EMPLOYABILITY</b> To equip students with the required skills in order to adapt to the changing global scenario and gain access to versatile career opportunities in multidisciplinary domains.
<b>PEO4</b>	<b>PROFESSIONAL ETHICS AND SOCIAL RESPONSIBILITY</b> To develop a sense of social responsibility by formulating ethics and equity to transform students into committed professionals with a strong attitude towards the development of the nation.
<b>PEO5</b>	<b>GREEN SUSTAINABILITY</b> To understand the impact of professional solutions in societal and environmental contexts and demonstrate the knowledge for an overall sustainable development.

**PROGRAMME OUTCOMES FOR M.Sc., PROGRAMMES**

PO NO	<b>Programme Outcome</b> <b>On completion of M .Sc., Programme, the students will be able to</b>
PO1	<b>SCIENTIFIC MANAGEMENT AND CAREER OPPORTUNITIES</b> Master the scientific and applied aspects of the subject for employment opportunities.
PO2	<b>EXPLORE CREATIVITY AND INTELLIGENCE</b> Employ novel ideas with conceptual thinking to secure self-discipline and independence to foster scientific attitude by exploration of Science.
PO3	<b>TEAM BUILDING AND SCIENTIFIC TEMPERAMENT</b> Inculcate training, internships and team spirit with leadership skills through academic projects and transmit complex scientific and technical information and contribute to the scientific community.
PO4	<b>INNOVATIVE LEARNING AND TECHNOLOGICAL ADVANCEMENT</b> Perceive research in the specialized areas and to engage in life-long learning to keep pace with emerging trends in academics, research and technology.
PO5	<b>PERSONALITY DEVELOPMENT WITH SOCIAL RESPONSIBILITY</b> Achieve ethical, social and holistic values with social responsibility to develop a healthy life.



**PROGRAMME SPECIFIC OUTCOMES FOR M.Sc FOOD SERVICE MANAGEMENT AND  
DIETETICS PROGRAMME`**

**M.Sc FOOD SERVICE MANAGEMENT AND DIETETICS  
[2022 – 2023 Onwards]**

<b>PSO NO</b>	<b>Programme Specific Outcomes` Students of M.Sc., Food Service Management &amp; Dietetics will be able to</b>	<b>POs Addressed</b>
PSO1	Analyze scientific concepts in the area of Nutrition, Food Service Management and Dietetics.	PO1
PSO2	Apply critical thinking, technical skills and collaborative approach in food and nutrition, dietetics and managerial practices.	PO2, PO3
PSO3	Develop core competency skills through experimental work, internship and projects to support actions that promote social development	PO3, PO5
PSO4	Utilize local, national and global trends, emerging techniques and changes of legislation to enhance work performance.	PO4
PSO5	Establish entrepreneurial skills in designing innovative healthy food products and facility planning.	PO2, PO5

Cauvery College for Women (Autonomous), Trichy-18

PG Programme Structure

(FOOD SERVICE MANAGEMENT & DIETETICS)

(For the Candidates admitted from the Academic year 2022-2023 onwards)

SEM	COURSE	COURSE TITLE	COURSE CODE	INS. HRS / WEEK	CREDIT	EXAM HRS	MARKS		TOTAL
							INT	EXT	
<b>I</b>	Core Course – I (CC)	Advanced Food Science	22PFS1CC1	6	5	3	25	75	100
	Core Course – II (CC)	Human Nutrition and Public Health	22PFS1CC2	6	5	3	25	75	100
	Core Course – III (CC)	Advanced Dietetics I	22PFS1CC3	6	5	3	25	75	100
	Core Practical – I (CP)	Advanced Dietetics I – Practical	22PFS1CC1P	6	4	3	40	60	100
	Elective Course – I (EC)	A. Applied Physiology	22PFS1EC1A	6	4	3	25	75	100
		B. Nutrition for Fitness	22PFS1EC1B						
		C. Nutrition in Clinical Critical Care	22PFS1EC1C						
	<b>TOTAL</b>			<b>30</b>	<b>23</b>				<b>500</b>
<b>INTERNSHIP</b>									
<b>II</b>	Core Course – IV (CC)	Biochemistry and Metabolic Disorders		6	5	3	25	75	100
	Core Course – V (CC)	Food Service Management And Facility Planning		6	5	3	25	75	100
	Core Course – VI (CC)	Advanced Dietetics II		6	5	3	25	75	100
	Core Practical II (CP)	Advanced Dietetics II - Practical		6	4	3	40	60	100
	Internship	Internship		-	2	-	-	-	100
	Elective Course – II (EC)	A. Functional Foods, Nutraceuticals and Nutrigenomics		6	4	3	25	75	100
		B. Food Regulations and Quality Control							
		C. Food Packaging							
Extra Credit Course	SWAYAM ONLINE COURSE		As per UGC Recommendation						
	<b>TOTAL</b>			<b>30</b>	<b>25</b>				<b>600</b>

<b>III</b>	Core Course – VII (CC)	Principles of Home Science		6	5	3	-	100	100
	Core Course – VIII (CC)	Research Methods, Statistical Techniques and Computer Applications		6	5	3	25	75	100
	Core Practical – III (CP)	Research Methods, Statistical Techniques and Computer Applications - Practical		6	3	3	40	60	100
	Elective Course – III (EC)	A. Food Microbiology and Sanitation		6	4	3	25	75	100
		B. Waste Management in Food Industries							
		C. Child Development							
	Elective Course – IV (EC)	A. Food Product Development and Entrepreneurship		6	4	3	25	75	100
		B. Basic Food Analytical Techniques							
		D. Nutrition in Disaster Management and Emergencies							
	Extra Credit Course	SWAYAM ONLINE COURSE		As per UGC Recommendation					
	<b>TOTAL</b>		<b>30</b>	<b>21</b>					<b>500</b>
<b>IV</b>	Core Course – IX (CC)	Food Preservation and Processing		6	5	3	25	75	100
	Core Course – X (CC)	Quantity Food Production and Service		6	5	3	25	75	100
	Core Practical – IV (CP)	Quantity Food Production and Service -Practical		6	4	3	40	60	100
	Elective Course – V (EC)	A. Financial Management in Hospitality Industry		6	4	3	25	75	100
		B. Counselling Skills							
		C. Hospital Administration							
	Project Work			6	3	-	-	100	100
	<b>TOTAL</b>		<b>30</b>	<b>21</b>					<b>500</b>
	<b>GRAND TOTAL</b>		<b>120</b>	<b>90</b>					<b>2100</b>

	<b>Course</b>	<b>No. of Courses</b>	<b>Credits</b>
	Core Courses (Theory & Practical)	14	65
	Elective Courses	05	20
	Internship	01	02
	Project	01	03
	<b>TOTAL</b>	<b>21</b>	<b>90</b>

The Internal and external marks for theory and practical papers are as follows:

<b>Subject</b>	<b>Internal Marks</b>	<b>External Marks</b>
Theory	25	75
Practical	40	60

**For Theory:**

- The passing minimum for CIA shall be 40% out of 25 marks (i.e. 10 marks)
- The passing minimum for End Semester Examinations shall be 40% out of 75 marks (i.e. 30 marks)

**For Practical:**

- The passing minimum for CIA shall be 40% out of 40 marks (i.e. 16 marks)
- The passing minimum for End Semester Examinations shall be 40% out of 60 marks  
(i.e. 24 marks)

**Internal Component (Theory)**

<b>Component</b>	<b>Marks</b>
Assignment	5
CIA 1 & CIA 2	10
Seminar	5
Library	5
<b>TOTAL</b>	<b>25</b>

**Internal Component (Practical)**

<b>Component</b>	<b>Marks</b>
Observation Note	5
Record Note	10
Continuous performance in practical	10
Model Test	15
<b>TOTAL</b>	<b>40</b>

## **Question Paper Pattern for different courses**

### **SECTION –A (20 Marks)**

10 Questions - Two mark for each question

### **SECTION –B (25 Marks)**

5 Questions (Either or Choice) - Five marks for each question

### **SECTION –C (30 Marks)**

3 Questions to be answered (Three out of Five Questions) - Ten marks for each question

SEMESTER I	INTERNAL MARKS: 25		EXTERNAL MARKS: 75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22PFS1CC1	ADVANCED FOOD SCIENCE	CORE	6	5

### Course Objective

- To gain knowledge on nutritional composition and properties of food.
- To study the factors affecting the cooking quality of different foods.
- To develop skills to judge the quality of food.

### Pre requisites

- Basic knowledge about food groups and nutritional composition.
- Fundamentals of food chemistry.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Estimate the nutritional composition of food groups	K2
CO2	Relate properties of food with processing and preparation techniques	K3
CO3	Analyze the changes that take place during cookery and factors affecting cooking quality	K4
CO4	Evaluate role of subjective and objective methods on food quality evaluation	K5
CO5	Assess importance of food additives	K5

#### Mapping of CO with PO and PSO

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	2	3	3	2	2	2
CO2	3	3	3	2	2	3	3	2	2	2
CO3	3	3	3	2	2	3	3	2	2	2
CO4	3	3	3	2	2	3	3	2	2	2
CO5	3	3	3	2	2	3	3	2	2	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## **SYLLABUS**

### **UNIT I**

**(18 HOURS)**

#### **a. CEREALS**

Structure, nutritional composition- Rice, Wheat, Millets. Gluten formation, factors affecting gluten formation. Gelatinization, gelation, retrogradation, syneresis, dextrinisation. Role of cereals in cookery, problems encountered in cereal cookery. Starch – components, types of starches, modified starch.

#### **b. PULSES AND LEGUMES**

Nutritional composition, processing of pulses – soaking, germination, decortication, fermentation. Factors affecting cooking quality of pulses. Toxins in pulses.

#### **c. NUTS AND OILSEEDS**

Classification, nutritional composition, uses in cookery.

### **UNIT II**

**(18 HOURS)**

#### **a. MILK AND MILK PRODUCTS**

Nutritional composition, effect of physical and chemical factors on milk components, processing methods- clarification, pasteurization, homogenization. Types of milk, types of milk products- concentrated dairy products, dried dairy products, fermented milk products.

#### **b. SUGAR**

Types of sugar, physical and chemical properties of sugar, stages of sugar cookery, crystallization, factors affecting crystallization.

#### **c. FATS AND OILS**

Physical and chemical properties of fats and oils, hydrogenation, winterization, rancidity- types, prevention, flavor reversion, smoking point, thermal changes in fat, role in cookery. Absorption of fat, factors affecting absorption of fat, fat replacers.

### **UNIT III**

**(18 HOURS)**

#### **a. MEAT, POULTRY, FISH**

Meat-structure, types, nutritional composition, post-mortem changes, ageing, tenderization, cuts of meat, meat cookery, effect of cooking. Poultry - classification, nutritive value, selection and storage, methods of cooking. Fish- classification, nutritive value, selection and storage, methods of cooking.

#### **b. EGG**

Structure and nutritional composition, selection, storage, quality check, foam formation, factors affecting foam formation.

### **UNIT IV**

**(18 HOURS)**

#### **a. FRUITS**

Classification, composition, selection, storage, ripening, enzymatic browning and preventive measures.

#### **b. VEGETABLES**

Classification, composition, selection, storage, changes during cooking, loss of nutrients while cooking, changes in plant pigments while cooking.

#### **c. SPICES AND CONDIMENTS**

Types, role in cookery, volatile compounds.

### **UNIT V**

**(18 HOURS)**

#### **a. EVALUATION OF QUALITY OF FOODS**

Sensory characteristics of food –appearance, colour, flavor, odour, taste, mouth feel. Methods of sensory analysis- Difference test, Rating test, Sensitivity test, Descriptive profile method.

Requirements for conducting sensory tests. Objective methods- chemical methods, physio-chemical methods, microscopic examination, physical methods.

**b. COLLOIDAL SYSTEM**

Types of colloidal dispersion, properties of colloidal system, emulsion-types, stability of emulsion, emulsifiers.

**c. FOOD ADDITIVES**

Types - Preservatives, antioxidants, sequestrants, humectants, bleaching and maturing agents, starch modifiers, emulsifiers, stabilizers, gelling agents, thickeners and surface active agents, anti-caking agents, anti foaming agents, colouring agents, flavour enhancer, acids, bases and buffers, glazing agents.

**UNIT VI**

**SELF STUDY FOR ENRICHMENT**

Benefits of germination.

Role of sugar in cookery.

Coagulation of egg protein.

Uses of spices and condiments in Indian cookery.

Role of food additives in food industry

**PRACTICALS**

- 1. Starch cookery:** Microscopic examination of different starches, gelatinization of starch.
- 2. Pulse cookery:** Factors affecting the cooking quality of pulses.
- 3. Milk Cookery:** Effect of heat, acid, curdling of milk.
- 4. Sugar cookery:** Stages of sugar cookery
- 5. Fats and Oils:** Smoking temperature, factors affecting absorption of fat.
- 6. Meat, fish and poultry Cookery:** Effect of cooking methods on meat, fish, poultry.
- 7. Egg Cookery:** Testing the quality of egg. Coagulation of egg white and egg yolk.
- 8. Fruits:** Measures for the prevention of enzymatic browning.
- 9. Vegetables:** Effect of acid , alkali and heat on pigments in vegetables.
- 10. Sensory evaluation of food:** Preparation of score card and Sensory analysis.



### **Text Book**

1. Avantina Sharma., (2012), *Textbook of Food Science and Technology*, CBS Publishers and Distributors Pvt.Ltd.
2. Singh, S. K., (2019), *Essentials of Food Science*, Ishwar Books, New Delhi, India.
3. Mohini Sethi., (2019), *Food Science Experiments and Applications*, (2<sup>nd</sup> ed.), CBS Publishers and Distributors Pvt.Ltd.
4. S.M.Reddy., (2015), *Basic Food Science and Technology*, New Age International(P) Limited, Publishers, New Delhi, India .
5. B.Srilakshmi., (2018), *Food Science*(7<sup>th</sup>ed.). New Age International (P) Limited, Publishers, New Delhi, India. Edition VII.

### **Reference Books**

1. Norman N. Potter, (2007), *Food Science*, CBS Publishers and Distributors Pvt.Ltd. Edition V
2. H.K.Chopra., (2015), *Food Chemistry*, Narosa Publishing House Pvt.Ltd.

### **Web References**

1. <https://starch.eu/ingredients/>
2. <https://www.britannica.com/science/fat-processing>
3. <http://www.yourarticlelibrary.com/home-science/eggs/egg->
4. <https://www.who.int/news-room/fact-sheets/detail/food-additives>
5. [http://samples.ibpub.com/9781449694777/9781449603441\\_CH03.pdf](http://samples.ibpub.com/9781449694777/9781449603441_CH03.pdf)

### **Journals**

1. Food Chemistry, Elsevier Sci. Ltd, England.
2. Food Science and Technology, Soc Brasileira Ciencia Tecnologia Alimentos, Brazil.
3. Food Research International, Elsevier Science Bv, United States.
4. Journal of Food and Agriculture, Wiley-Blackwell, England.
5. Journal of Food Science and Technology, Scientific Publishers, India

### **Pedagogy**

Chalk and talk, PPT, e-content, Discussion, Assignment, Demo, Quiz, Seminar, Industrial visit.

### **Course Designers**

1. Ms. B.THANUJA
2. MS.S.AGALYA

SEMESTER I	INTERNAL MARKS: 25		EXTERNAL MARKS: 75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22PFS1CC2	HUMAN NUTRITION AND PUBLIC HEALTH	CORE	6	5

### Course Objective

- To understand the importance of meal planning.
- To comprehend the nutritional needs pertaining to different stages of life.
- To plan menu for various age groups.

### Pre requisites

- Principles of nutrition and application of meal planning guidelines throughout life cycle.
- Fundamentals of community nutrition.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Infer basic sciences relevant to nutrition and apply public health principles to current public health related issues	K2
CO2	Assess the nutritional status of the population making use of the different evidence- based scientific assessment methods and protocols	K3
CO3	Interpret the impact of Nutrition policies on the health of individual as well as population	K4
CO4	Compare and contrast the health and nutritional challenges encountered in different regions and understand the various strategies employed to address them	K5
CO5	Design Nutrition Education programs for a target population using appropriate aids	K6

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	-	3	2	3	3	3
CO2	2	3	3	1	-	2	2	3	3	3
CO3	2	3	2	3	-	-	2	3	3	3
CO4	3	3	3	3	-	2	2	3	3	2
CO5	3	3	3	3	2	3	3	3	3	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## **SYLLABUS**

### **UNIT I**

**(18 HOURS)**

#### **a. NUTRITION AND HEALTH**

Inter relationship between nutrition and health. Meaning of adequate nutrition, undernutrition, and malnutrition. Principles of meal planning, Recommended Dietary Allowances (RDA)-Indian Council of Medical Research (ICMR-2010), Factors affecting RDA. Recommended Dietary Allowances and diet plan for pregnancy, lactation, infant, children's, adolescents, adults and geriatrics.

#### **b. PREGNANCY AND LACTATION**

Stages of gestation, physiological changes, weight gain, complications, factors influencing the outcome of pregnancy. Physiology of lactation - Hormonal control and reflex action, Importance of colostrum, composition of breast milk, advantages of breastfeeding, Difference between breast milk and cow's milk.

### **UNIT II**

**(18 HOURS)**

#### **a. INFANCY, PRE-SCHOOL, SCHOOL-GOING CHILDREN AND ADOLESCENTS**

Growth and development of infants, preschool children, school- going children and adolescence. Artificial feeding, Breastfeeding vs. bottle feeding, Weaning and Supplementary foods, Feeding of premature infants. Factors influencing food habits of preschoolers.

#### **b. ADULT AND GERIATRICS**

Reference Man and Reference Woman, Symptoms in Menopausal and post-menopausal women. Socio-economic and psychological factors in geriatrics, Physiological changes in geriatrics, Feeding old age people. Dietary guidelines for adults and menopausal women.

### **UNIT III**

**(18 HOURS)**

#### **a. EPIDEMIOLOGY**

Definition, aim, components, measurement in Epidemiology - IMR, NMR, MMR and tools of measurement, approach, Relation of nutrition to national development - socio-economic, industrial and agricultural development.

#### **b. NUTRITIONAL PROBLEMS**

PEM, Vitamin A Deficiency Diseases, Anaemia, Iodine Deficiency Disorders and Fluorosis, Synergism between malnutrition and infection.

#### **c. MALNUTRITION**

Definition, Ecological factors leading to malnutrition - income, size of families, dietary pattern, occupation, customs food fads, fallacies, ignorance and other factors, Classification according to grades of malnutrition.

### **UNIT IV**

**(18 HOURS)**

#### **a. NUTRITION INTERVENTION PROGRAMMES IN INDIA**

School Lunch Programme (SLP), Chief Minister's Nutritious Noon Meal Program (CMNNMP), National Nutrition Mission- POSHAN Abhiyaan, Integrated Child Development Services (ICDS). National Nutritional Anaemia Prophylaxis Programme, National Prophylaxis Programme against Vitamin A Deficiency Diseases, Goitre Control Programme. National Nutrition policy- National food security, National nutrition policy- thrust areas and implementation at national level, Impact of National Nutrition policy, Sustainable Development Goals (WHO).

## **b. NATIONAL AGENCIES**

Indian Council of Medical Research (ICMR), National Institute of Nutrition (NIN), National Nutrition Monitoring Bureau (NNMB), Central Food Technological Research Institute (CFTRI), Defence Food Research Laboratory (DFRL), and National Institute of Public Cooperation and Child Development (NIPCCD).

## **c. INTERNATIONAL AGENCIES**

concerned with Food and Nutrition- Food and Agricultural Organization (FAO), World Health Organization (WHO), United Nations International Children's Emergency Fund (UNICEF), World Bank.

## **UNIT V**

**(18 HOURS)**

### **a. NUTRITIONAL ASSESSMENT**

Assessing the food and nutritional problems in the community, Methods available for individual and community, Anthropometric - Measurement of height, weight, head and chest circumferences, mid upper arm circumference, skin fold thickness, interpretation of measurements and comparison with standards (NCHS, ICMR), Biochemical assessment of nutritional deficiencies, Clinical assessment of nutritional disorders and Dietary surveys-Family diet survey, individual diet survey, Quantitative diet survey, and food balance sheet.

### **b. NUTRITION EDUCATION**

Meaning, nature and importance of Nutrition education to the community and lessons to be taught. Methods of education- use of audio-visual aids, Use of computers to impart nutrition education - PowerPoint presentation, E-learning, Organization of Nutrition education programmes: Nutrition intervention theories – Behavioural theory, Social Cognitive Theory, Health Belief Model and Meaningful learning model. Principles of planning, executing and evaluating nutrition education programmes.

## **UNIT VI**

### **SELF STUDY FOR ENRICHMENT**

Galactagogues

Eating disorders – Bulimia nervosa, Binge eating and Anorexia nervosa in adolescence.

Vicious Cycle of malnutrition.

Activities of World Health Organization (WHO),

Problems of nutrition education programme .

## **PRACTICALS**

1. Menu planning, nutritive value calculation and preparation of meals for pregnancy and lactation.
2. Menu planning, nutritive value calculation and preparation of meals for infancy, pre-school, school-going children, adolescents, adults and geriatrics.
3. Menu planning, nutritive value calculation and preparation of meals for PEM, Vitamin A, Iron and iodine deficiency.
4. Nutrition Education for pre- school and school going children.
5. Assessment of nutritional status.

## Text Books

1. Brown Judith, E.(2008) *Nutrition*. (3<sup>rd</sup> ed.) Thomson Wadsworth USA.
2. Park, K. (2008) *Essentials of Community Health Nursing* (5<sup>th</sup> ed.).M/s Banarsidas Bhanot Publishers.Jabalpur.
3. Josephine Martin and Charlotte Beckett Oakley, (2008). *Managing Child Nutrition Programs*. (2<sup>nd</sup> ed.) Jones & Bartlett Publishers.
4. Seema Sonkar and Doreas L. Essiamah, (2008) *Food and Nutrition Security challenges towards combating malnutrition*. Chandralok Prakashan. Kanpur.
5. Bamji M.S, PrahladRao N, Reddy. (2016) *Textbook of Human Nutrition*. (4<sup>th</sup> ed.). Oxford and PBH Publishing Co. Pvt. Ltd. New Delhi.

## Reference Books

1. Prakash Shetty,(2002). *Nutrition through the life cycle*. (1<sup>st</sup> ed.). Leatherhead publishing. Leather head International Ltd. UK.
2. Gibney, M.J.,Margetts, B.M.,Kearney, J.M.,Arab, L., (2004).*Public Health Nutrition*. (2<sup>nd</sup> ed.). UK. Blackwell Publishing Co.
3. Carolyn D. Berdanice., (2009), *Advanced Nutrition*, (2<sup>nd</sup> ed.). CRC Press.
4. M.Swaminathan., (2012), *Advanced Textbook on Food and Nutrition*. (2<sup>nd</sup> ed). Bangalore Printing and Publishing Co. Ltd., Bangalore,
5. Raheena Begum. M., (2015), *A textbook of Foods, Nutrition and Dietetics*.(3<sup>rd</sup> ed.). Sterling Publishers Pvt. Ltd., New Delhi.
6. Park K.,( 2021), *Park's Textbook of Preventive and Social*. (26<sup>th</sup> ed.). M/S Banarasidas, Bharat Publishers, Jabalpur, India.

## Web References

<https://www.who.int/>

<https://www.encyclopedia.com/food/encyclopedias-almanacs-transcripts-and-maps/assessment-nutritional-status>

<https://www.fao.org/about/en/>

<https://www.nin.res.in/downloads/NNMBREPORT2001-web.pdf>

<https://www.icmr.gov.in/>

## Journals

1. Society for Nutrition Education and Behavior, Elsevier Sci. Ltd, England
2. Journal of the Academy of Nutrition and Dietetics, Elsevier Science Inc publishing, United States.
3. Public Health Nutrition, Cambridge University, England
4. Food Research International, Elsevier Science Inc, United States.
5. Journal of Food and Agriculture, Wiley-Blackwell, England

## Pedagogy

Chalk and talk, PPT, Discussion, Assignment, Demo, Quiz, Seminar, Visit to ICDS

## Course Designers

1. Ms. M. VINOTHINI
2. Ms. K.S. MITHILA

SEMESTER I	INTERNAL MARKS: 25		EXTERNAL MARKS: 75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22PFS1CC3	ADVANCED DIETETICS I	CORE	6	5

### Course Objective

- To plan therapeutic diets.
- To analyze the underlying causes, pathophysiology and complications of diseases.
- To outline the focus of nutrition and dietetics in the prevention of diseases.

### Pre requisites

- Principles of menu planning.
- Basics of therapeutic nutrition.

### Course Outcomes

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	Identify role of dietitian in the hospitals and interpret the importance of computer in nutrition practice	K1
CO2	Describe the principles of dietary counseling for various diseases.	K2
CO3	Predict the nutritional requirements and menu plans for therapeutic conditions	K3
CO4	Diagnose symptoms, causes and complications of various diseases and apply dietary modifications of therapeutic conditions	K4
CO5	Evaluate special feeding methods and psychology of the patients	K5

### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	2	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	2	3	3	3	3	3
CO5	3	3	3	3	2	3	3	3	3	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## **Syllabus**

### **UNIT I**

**(18 HOURS)**

#### **a. DIETITIAN**

Definition and types of dietitians, role of dietitian in the hospital and community.

#### **b. COUNSELING**

Definition, counsellor and Client, techniques of counseling and classification of counseling.

#### **c. COMPUTERS IN NUTRITION PRACTICE**

General information – data input, data output, data analysis, data communication, clinical care – communication in patient care, Nutritional therapy.

### **UNIT II**

**(18 HOURS)**

#### **a. ROUTINE HOSPITAL DIETS**

Clear fluid diet, full fluid diet, soft diet, Regular diet

#### **b. FEEDING THE PATIENTS**

Assessment of patient needs.

#### **c. SPECIAL FEEDING METHODS**

Enteral nutrition and Parenteral nutrition.

#### **d. DRUG NUTRIENT INTERACTION**

Diet effects on drug disposition, Interactions of drugs and nutrients, Effect of drugs on food intake and absorption, Effect of nutrients on drug metabolism.

### **UNIT III**

**(18 HOURS)**

#### **a. DIET IN FEBRILE CONDITIONS**

Meaning, Pathogenesis, etiology, types, symptoms, treatment and dietary modification for febrile condition - acute, chronic and recurrent fevers- typhoid, influenza, rheumatic fever, tuberculosis, malaria and poliomyelitis.

#### **b. DIET CARE IN HIV**

Pathophysiology, stages of HIV infection, ART, opportunistic infections, women and HIV nutritional management.

### **UNIT IV**

**(18 HOURS)**

#### **a. DIET IN DISEASE OF GASTRO INTESTINAL TRACT**

Meaning, Pathogenesis, etiology, types, symptoms, treatment and dietary modification for gastro intestinal disorders – Gastritis, peptic ulcer, diarrhea, dysentery, constipation, malabsorption syndrome, and carcinoma of the stomach.

#### **b. DIET IN BILIARY TRACT DISORDERS**

Meaning, Pathogenesis, etiology, types, symptoms and clinical findings and dietary modification for Liver disorders - Fatty liver, Hepatitis and Cirrhosis, Gall bladder disorders - Cholecystitis and Cholelithiasis.

#### **c. DIET IN PANCREATIC DISORDERS**

Meaning, Pathogenesis, etiology, types, symptoms and clinical findings and dietary modification for Pancreatitis

### **UNIT V**

**(18 HOURS)**

#### **a. DIET IN METABOLIC DISORDERS- DIABETES MELLITUS**

Meaning, types, screening and diagnostic criteria, pathogenesis, etiology, symptoms, complications, Dietary management of Diabetes Mellitus – Food Exchange system, Glycemic Index, Glycemic Load, nutritive and non-nutritive sweeteners. Lifestyle recommendations, drugs and insulin.

**b. OBESITY**

Etiology, energy balance, clinical manifestation, complications, dietary and lifestyle modifications and surgical management

**UNIT VI**

**SELF STUDY FOR ENRICHMENT**

Professional ethics and obligations of dietitian

Psychology of feeding the patient.

Aetiology of HIV.

Types of jaundice.

Theories of Obesity.



### **Text Books**

1. Mahan, Kathleen, L., Krause's, (2004). *Food, Nutrition and Diet Therapy* (11<sup>th</sup> ed.), Pennsylvania; Saunders.
2. Antia, F . P., (2005). *Clinical Dietetics and Nutrition*, (5<sup>th</sup> ed.). Oxford University Press, New Delhi,
3. Prakash Lohar, S., (2007). *Endocrinology –Hormones and Human Health*, MJP publishers, Chennai.
4. Srilakshmi, B., (2009). *Dietetics*, (2<sup>nd</sup> ed.) New Age International Publications, New Delhi.
5. Shubhangini Joshi, A., (2014), *Nutrition and Dietetics*, (5<sup>th</sup> ed.). McGraw Hill, Education Private Limited, New Delhi.
6. Swaminathan, M., (2012). *Essentials of Food and Nutrition*, Ganesh and Company, Madras.  
Maity, S . P., *Pharmacology for Second Professional Students*, (6<sup>th</sup> ed.)Books & Allied Pvt. Ltd.

### **Reference Books**

1. Robinson, Corrine, H., (1982). *Normal and Therapeutic Nutrition*, (16<sup>th</sup> ed.). Macmillan McGraw Hill School Division, New York.
2. Udai Veer, (2007). *Elements of Food Science*, Anmol Publications Pvt Ltd, New Delhi.
3. Srilakshmi, B., (2008). *Nutrition Science*, (3<sup>rd</sup> ed.).New Age International Publications, New Delhi.
4. Indrani, T.K., (2008). *Nursing Manual of Nutrition and Therapeutic Diet*, (2<sup>nd</sup> ed.). Jaypee Brothers medical publishers (P) Ltd.
5. Mary Marian, (2008). *Clinical Nutrition for surgical patients*. Jones and Barletta Publishers.
6. Sangeetha Karnik, (2010). *Nutrition and Dietetics Therapy*, Biotech Pharma Publications, Hyderabad.

### **Web References**

- <https://gpadampur.files.wordpress.com/2015/08/caft-complete-vedpal.pdf>
- <https://sfsurgery.com/wp-content/uploads/2014/06/Pancreatitis.pdf>
- <https://my.clevelandclinic.org/health/treatments/21098-tube-feeding--enteral-nutrition>
- <https://my.clevelandclinic.org/health/diseases/7104-diabetes-mellitus-an-overview>
- <https://www.mayoclinic.org/diseases-conditions/cancer/symptoms-causes/syc-20370588>

### **Journals**

1. Food and Nutrition Bulletin, Sage Publications Inc, Japan.
2. Food and Nutrition Research, Co-Action Publishing, Sweden.
3. Food Digestion, Springer Verlag, Germany.
4. Nutrition and Cancer, Lawrence Erlbaum Associates Inc. United States
5. Nutritional Therapy and Metabolism, Wichtig Publishing, Italy.
6. Nutrition in Clinical Practice, Sage Publications Inc, United States

### **Pedagogy**

Lecture, assignment, PowerPoint presentation, quiz, seminar, visit to hospital dietary units

### **Course Designers**

1. Ms. S. AGALYA
2. Ms. E. AGALYA

<b>SEMESTER I</b>	<b>INTERNAL MARKS: 40</b>		<b>EXTERNAL MARKS: 60</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hrs / Week</b>	<b>CREDITS</b>
22PFS1CC1P	ADVANCED DIETETICS I- PRACTICAL	CORE PRACTICAL	6	4

### Course Objective

- To understand the modification of normal diet for therapeutic purpose.
- To acquire the skills of preparing diet for various disease conditions.
- To study the importance of dietitian in hospitals.

### Pre requisites

- Application of dietary principles.
- Planning and preparation of modified diet.

### Course Outcomes

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On the successful completion of the course, students will be able to	
CO1	List various routine hospital diets	K1
CO2	Describe nutrient composition of clear fluid, full fluid and soft diet	K2
CO3	Classify foods to be included and avoided in the treatment of diseases	K3
CO4	Determine importance of dietary principles in the management of diseases	K4
CO5	Evaluate the nutritive value and plan menu for therapeutic conditions	K5

### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	2	3	3	3	3	3
CO2	3	3	3	3	2	3	3	3	3	3
CO3	3	3	3	3	2	3	3	3	3	3
CO4	3	3	3	3	2	3	3	3	3	3
CO5	3	3	3	3	2	3	3	3	3	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –

“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## **Syllabus**

### **1. PLANNING AND PREPARATION OF ROUTINE HOSPITAL DIETS**

Clear liquid diet, Full liquid diet, soft diet and Blenderized, mechanically altered diet. (12 HOURS)

### **2. PLANNING AND PREPARING DIETS FOR FEBRILE CONDITIONS**

Acute, Intermittent and Chronic. (12 HOURS)

### **3. PLANNING AND PREPARING DIETS FOR GASTROINTESTINAL DISORDERS**

Peptic ulcer, Diarrhea and Constipation. (18 HOURS)

### **4. PLANNING AND PREPARING DIETS FOR LIVER DISORDERS**

Hepatitis and Cirrhosis. (15 HOURS)

### **5. PLANNING AND PREPARING DIETS FOR GALL BLADDER DISORDERS**

Cholecystitis and Cholelithiasis. (15 HOURS)

### **6. PLANNING AND PREPARING DIETS FOR METABOLIC DISORDERS**

Diabetes mellitus and Obesity. (18 HOURS)

## **Text Books**

1. Mahan, Kathleen, L., Krause's, (2004). *Food, Nutrition and Diet Therapy*, (11<sup>th</sup> ed.) Pennsylvania; Saunders.
2. Antia, F . P., (2005). *Clinical Dietetics and Nutrition*, (5<sup>th</sup> ed.) Oxford University Press, New Delhi.
3. Prakash Lohar, S., (2007). *Endocrinology –Hormones and Human Health*, MJP publishers, Chennai.
4. Srilakshmi, B., (2009). *Dietetics*, (2<sup>nd</sup> ed.). New Age International Publications, New Delhi.
5. Shubhangini Joshi, A., (2014), *Nutrition and Dietetics*, (5<sup>th</sup> ed.). McGraw Hill, Education Private Limited, New Delhi.
6. Gopalan, C., & etal., (2018). *Nutritive Value of Indian Foods*, National Institute of Nutrition Hyderabad.

## **Reference Books**

1. Joshi, Y. K., (2003). *Basics of Clinical Nutrition*, (2<sup>nd</sup> ed.). Jaypee Brothers, Medical Publishers, New Delhi.
2. Indrani, T.K., (2008). *Nursing Manual of Nutrition and Therapeutic Diet*, (2<sup>nd</sup> ed.). Jaypee Brothers medical publishers (P) Ltd.
3. Mary Marian, (2008). *Clinical Nutrition for surgical patients*, Jones and Barletta Publishers.

## **Web References**

- <https://sfsurgery.com/wp-content/uploads/2014/06/Pancreatitis.pdf>
- <https://my.clevelandclinic.org/health/treatments/21098-tube-feeding--enteral-nutrition>
- <https://my.clevelandclinic.org/health/diseases/7104-diabetes-mellitus-an-overview>

## **Journals**

1. Food and Nutrition Research, Co-Action Publishing, Sweden.
2. Food Digestion, Springer Verlag, Germany.
3. Nutritional Therapy and Metabolism, Wichtig Publishing, Italy.
4. Nutrition in Clinical Practice, Sage Publications Inc, United States

## **Pedagogy**

Lecture, Demonstration, Practical

## **Course Designers**

1. Ms. S. AGALYA
2. Ms. E. AGALYA

SEMESTER I	INTERNAL MARKS: 25		EXTERNAL MARKS:75	
COURSE CODE	COURSE TITLE	CATEGORY	Hrs / Week	CREDITS
22PFS1EC1A	APPLIED PHYSIOLOGY	ELECTIVE	6	4

### Course Objective

- To acquire core knowledge about Cellular adaptation.
- To understand about functioning abnormality of various human systems.
- To study about the symptoms and signs of abnormal physiological functions.

### Pre – requisites

- Exposure to human cell structure and function.
- Prior knowledge on human physiology

### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
	On Successful Completion of the course, students will be able to	
CO1	Illustrate adaptation of human body to maintain homeostasis	K2
CO2	Predict physiological abnormality in different system of human body.	K3
CO3	Ascertain disease conditions associated with organs present in human body.	K4
CO4	Evaluate disease prognosis of physiological functions	K5
CO5	Conceive severity of degeneration prevalent in endocrine and reproductive	K6

### Mapping of CO with PO and PSO

C	CO	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
	CO1	3	3	2	2	2	3	2	2	3	2
	CO2	3	3	2	2	2	3	2	2	3	2
	CO3	3	3	2	2	2	3	2	2	3	2
	CO4	3	3	2	2	2	3	2	2	3	2
	CO5	3	3	2	2	2	3	2	2	3	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## **SYLLABUS**

### **UNIT I**

**(18 Hours)**

#### **GENERAL PHYSIOLOGY OF CELL AND BODY FLUIDS**

- a. **Cell** – Action potential of cell, Cell adaptation – Atrophy, Hypertrophy, Hyperplasia, Dysplasia, Metaplasia, Cell Junction – Hereditary deafness, ichthyosis, Sclerosing Cholangitis, hereditary hypomagnesemia, synovial sarcoma, Transport of membranes-Abnormalities of sodium potassium pump, ion channel disease, Mechanism of homeostatic system – Negative feed back, Positive feed back. Cell death -Autophagy, apoptosis, necrosis.
- b. **Body fluids** – Variation in plasma protein level, Anemia, Abnormal haemoglobin abnormal leukocytes, autoimmune disease, allergy and immunological hypersensitivity, Abnormal thrombocytes, bleeding disorders, blood volume – hypervolemia, hypovolemia. Tissue fluid- Intracellular edema, Extracellular edema, Elephantiasis.

### **UNIT II**

**(18 Hours)**

#### **CARDIOVASCULAR AND RESPIRATORY SYSTEM**

- a. **Heart and Circulation** –Abnormal pulse-pulses deficit, pulsus alternans, anacrotic pulse, thread pulse, pulsus paradoxus, water hammer pulse, abnormal pulse in patent ductus arteriosus, abnormal pulse in aortic regurgitation, abnormal venous pulse, Arterial Blood Pressure- Hypertension, hypotension coronary artery disease, Stroke, varicose vein, thrombophlebitis, heart failure.
- b. **Respiratory System** –; Apnea hyperventilation, hypoventilation, hypoxia, oxygen toxicity, hypercapnia, asphyxia, dyspnea, bronchial asthma; Infectious Diseases of Lungs-tuberculosis, pneumonia.

### **UNIT III**

**(18 Hours)**

#### **NERVOUS SYSTEM AND SENSE ORGANS**

- a. **Nervous System** –. Diseases of spinal cord- Syringomyelia, tabes dorsalis, multiple sclerosis, disk prolapse, effects of motor neuron lesion, paralysis, thalamic lesion, thalamic syndrome. Disorders of basal ganglia - parkinson disease, Wilson disease, chorea, athetosis, choreoathetosis, Huntington chorea, hemiballisms, kernicterus. Frontal lobe syndrome, temporal lobe syndrome. Sleep Disorder, epilepsy.
- b. **Sense Organs** – Eye- Glaucoma, cataract, colour blindness. Conduction deafness and nerve deafness Abnormalities of taste sensation- Ageusia, hypogeusia, taste blindness, dysgeusia. Abnormalities of olfactory sensation – Anosmia, hyposmia, hypersomia

#### UNIT IV

(18 Hours)

#### DIGESTIVE SYSTEM AND EXCRETORY SYSTEM

- a. **Digestive system** - Disorders of Upper Gastro Intestinal Tract-Hyposalivation, hypersalivation, esophageal, achalasia, gastroesophageal reflux disease(GERD), gastritis, gastric atrophy. Disorders of Lower Gastro Intestinal Tract-peptic ulcer, Zollinger -Ellison syndrome, malabsorption, Crohn's disease, celiac disease, diarrhea, constipation, appendicitis, ulcerative colitis, dysphagia, gastric dumping syndrome, vomiting. Pancreatitis, jaundice, hepatitis, cirrhosis and gallstones.
- b. **Excretory system** – Osmotic diuresis, polyuria, hypersecretion of Anti Diuretic Hormone, Nephrogenic diabetes insipidus, Bartter's syndrome, renal failure, Abnormalities of micturition – Atonic bladder, Automatic bladder, uninhibited neurogenic bladder, nocturnal micturition.

#### UNIT V

(18 Hours)

- a. **Muscular and Skeletal System** - Disorders of Skeletal Muscle- Myopathy-Sprain and strain, Muscular Dystrophy. Diseases involving muscle tone, Tetany, Osteoporosis, Arthritis, Spondylitis, Osteomalacia, Rickets, fractures
- b. **Reproductive system** – Effects of extirpation of testis, hypergonadism in males, hypogonadism in males, enlargement of prostate gland, azoospermia, oligozoospermia, teratozoospermia, aspermia, oligospermia, hematospermia. Abnormal menstruation – menstrual symptoms, premenstrual syndrome, anovulatory cycle, amenorrhea, hypomenorrhea, menorrhagia, oligomenorrhea, polymenorrhea, dysmenorrhea and metrorrhagia

#### UNIT – VI

#### SELF STUDY FOR ENRICHMENT

Symptoms of Anemia

Types of Hypertension

Errors of refraction

Structure and functions of Liver, gall bladder, Pancreas

Phases of Menstrual cycle

### **Text books**

1. Wilson and Ross, (2014). *Anatomy and Physiology in Health and illness*: New Delhi Reed Elsevier India Private Limited
2. Sembulingam. K..(2016). *Essentials of Medical Physiology*: New Delhi Health Sciences Publisher.
3. Subramanyam, Sarada.(2018). *Text book of Human Physiology*: New Delhi S Chand & Company Ltd.

### **Reference books**

1. Waugh, Anne Ross and Wilson.(2018). *Anatomy and Physiology in Health and Illness*, (13<sup>th</sup> ed). New York Churchill, Livingston.
2. Muruges N.(2011). *Basic Anatomy and Physiology*: Madurai Sathya Publishers.
3. Indu Khurana.(2013). *Textbook of Human Physiology*, Elsevier.
4. Wilson and Ross.(2014). *Anatomy and Physiology in Health and Illness*: New Delhi, Reed Elsevier India Private Limited.
5. Sembulingam. K. (2016). *Essentials of Medical Physiology*: New Delhi Health Sciences Publisher.

### **Web Link:**

<https://ncdc.gov.in/https://www.cdc.gov/globalhealth/countries/india/default.htm>

<https://www.egyankosh.ac.in/handle/123456789/32973>

[https://www.google.co.in/books/edition/Applied\\_Physiology\\_Of\\_Exercise\\_Laborator/VWFEEAAAQB\\_AJ?hl=en&gbpv=1&dq=on+line+course+material+on+applied+physiolo](https://www.google.co.in/books/edition/Applied_Physiology_Of_Exercise_Laborator/VWFEEAAAQB_AJ?hl=en&gbpv=1&dq=on+line+course+material+on+applied+physiolo)

<https://www.sciencedirect.com/topics/medicine-and-dentistry/menstrual-irregularity>

<https://ce.napnap.org/system/files/14-Musck%20Stevenson.pdf>

### **Journals:**

1. Applied Physiology, Nutrition and Metabolism, National Research Council Canada.
2. Journal of Applied Physiology, American Physiological Society, United States.
3. European Journal of Applied Physiology, Springer, Germany.

**Pedagogy:** E-content, Lecture, Power point presentation, Seminar, Assignment.

### **Course Designers:**

- Ms. S.FATHIMA
- Ms. C.NIVETHA



<b>SEMESTER I</b>	<b>Internal Marks: 25</b>		<b>External Marks: 75</b>	
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CATEGORY</b>	<b>Hrs / Week</b>	<b>CREDITS</b>
<b>22PFS1EC1B</b>	<b>NUTRITION FOR FITNESS</b>	<b>ELECTIVE</b>	<b>6</b>	<b>4</b>

### Course Objective

- To enable students to understand the interaction between exercise and nutrient metabolism.
- To enlighten the students to understand the various physiological aspects for sportspersons.
- To help the students to understand the role of ergogenic aids to enhance sports performance.

### Pre requisites

- Basic knowledge on nutrition
- Fundamentals of physiological functions of human body

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Knowledge Level
CO1.	List different type of fitness activities	K1
CO2.	Explain the role of nutrition in fitness.	K2
CO3.	Apply the nutritional assessment techniques among individuals.	K3
CO4.	Determine the nutritional requirements for pre and post events of athletes.	K4
CO5.	Assess the ergogenic foods for sports individuals.	K5

#### Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	3	3	3	3	2	3	3	3
CO2	3	2	3	3	3	2	2	2	3	3
CO3	3	2	3	3	3	2	2	2	3	3
CO4	3	2	3	3	3	2	2	2	3	3
CO5	3	2	3	3	3	2	2	2	3	3

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation – “3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## **SYLLABUS**

### **UNIT I**

**(18 hours)**

#### **INTRODUCTION TO FITNESS**

##### **a. UNDERSTANDING FITNESS**

Definition of fitness, health and related terms, approaches for keeping fit, alternative forms of fitness- yoga, pilates, kickboxing, boot camps,

##### **b. IMPORTANCE OF PHYSICAL ACTIVITY**

Importance and benefits of physical activity, physical activity – frequency, intensity, time and type with example, physical activity pyramid.

### **UNIT II**

**(18 Hours)**

#### **EFFECT OF PHYSICAL FITNESS ON HEALTH STATUS**

##### **a. PHYSIOLOGICAL AND BIOCHEMICAL EFFECT OF EXERCISE**

Aerobic and anaerobic exercises, muscle contraction, weight and body composition of athletes, adaptation of muscle and body physiology to exercise.

##### **b. EFFECT OF PHYSICAL EXERCISE ON VARIOUS SYSTEMS**

Circulatory- Cardiovascular regulation and integration, muscular, skeletal and neural control, endocrines and exercise, respiratory systems.

### **UNIT III**

**(18 Hours)**

#### **COMPONENTS OF ASSESSMENT**

##### **a. ASSESSMENT OF FITNESS**

Anthropometry, assessment of Cardio Respiratory Vo<sub>2</sub> max, assessment of physical and functional capacity, hydration assessment and recommendation. Assessment of muscular fitness, muscle strength, endurance and flexibility exercise-Bench jumps, pushups, sit and reach test.

##### **b. NUTRITIONAL ASSESSMENT**

Measurement of body composition, Somato typing, dietary assessment, biochemical assessment, clinical assessment, body composition and sports performance.

### **UNIT IV**

**(18 Hours)**

#### **EFFECT OF FITNESS ON NUTRITION**

##### **a. IMPORTANCE OF NUTRITION**

Need and scope of nutrition in fitness, nutritional guidelines for health and fitness, goals of optimal nutrition for athletes, nutritional supplement.

## **b. NUTRITIONAL PROBLEMS**

Nutritional problems in physically active persons - mineral malnutrition, athletic triad, vitamin malnutrition, eating disorders, weight concerns. The female athlete triad, eating disorders, amenorrhea, osteoporosis, travelling athletes, diabetic athletes, GI stress and athletes, cramps and stitches.

## **UNIT V**

**(18 Hours)**

### **NUTRITIONAL GUIDELINES**

#### **a. NUTRITIONAL REQUIREMENTS**

Role of macronutrient on exercise and sports performance, Role of micronutrient on exercise and sports performance, sources of energy, Energy balance, Body mass and composition, Fuel needs for training and recovery, weight loss energy calculation.

#### **b. PRINCIPLES OF DIET PLANNING**

Principles of diet planning for different exercise/sports conditions, Pre game meals, Post Game meals, During meals, On-season and Off-season meals, Ergogenic aids-nutritional and non-nutritional ergogenic aids. Nutritional standards – dietary reference intake, probiotics, exercise and weight management.

## **UNIT VI**

### **SELF STUDY FOR ENRICHMENT**

Basics of Physical Activity Guidelines.

Effect of physical exercise on digestive system.

Methods of measuring energy expenditure during exercise.

Government and Non-Governmental organization for sports nutrition.

Role of Probiotics in Sports Nutrition.

### **Text Books**

1. Shubhangini Joshi, A.(2014). *Nutrition and Dietetics*. (5<sup>th</sup> ed.).McGraw Hill.Education Private Limited, New Delhi.
2. Srilakshmi, B. et.al., (2017), *Exercise physiology fitness and sports nutrition*. New Age International Publishers.

### **Reference Books**

1. Kathleen Mahan, L. (2008). *Krause's Food & Nutrition Therapy*. Sauder's Elsevier..Canada.
2. Jose Antonio, et al., *Essentials of Sports Nutrition and Supplements*: Humana Press.
3. Wener, W.K., et al. (2009). *Lifetime Physical Fitness and Wellness: A Personalized Program* Cengage Learning, United States.
4. Jerrold, S. (2012). *Empowering Health Decisions*. Jones & Bartlett Publishers. Burlington.
5. Asker Jeukendrup, Michael Gleeson, (2019). *Sport Nutrition*: Human Kinetics. United States.

### **Journals:**

1. Journal of the International Society of Sports, Nutrition Biomed Central Ltd, United States
2. American health & Fitness Journal, American College of Sports Medicine, 401 W. Michigan Street Indianapolis, IN 46202-3233

### **Web links:**

<http://www.sportsauthorityofindia.nic.in>

<https://www.hhs.gov/programs/prevention-and-wellness/nutrition-and-fitness/index.html>

<https://www.hopkinsmedicine.org/health/wellness-and-prevention/nutrition-and-fitness>

**Pedagogy:** E-content, Lecture, Power point presentation, Seminar, Assignment.

### **Course designers**

Ms. S. Fathima

Ms. T.R. Revathi

SEMESTER I	Internal Marks: 25		External Marks: 75	
COURSE CODE	COURSE	CATEGORY	Hrs/Week	CREDITS
22PFS1EC1C	NUTRITION IN CLINICAL CRITICAL CARE	ELECTIVE	6	4

### Objectives

- To understand the special nutritional requirements in critically ill.
- To know the nutritional support system for critically ill.
- To ensure the nutritional needs of the critically ill patient

### Pre requisites

- Fundamentals on nutrition and disease.
- Basic knowledge on nutritional assessment.

### Course Outcomes

#### Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Knowledge Level
CO 1	On the successful completion of the course, students will be able to Explain the nutritional assessment methods	K2
CO 2	Compute principles of nutritional care	K3
CO 3	Analyze nutritional status of critically ill patients	K4
CO 4	Assess importance of enteral and parenteral nutrition	K5
CO 5	Evaluate role of nutrients in critical care	K5

#### Mapping of CO with PO and PSO

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	2	3	3	3	2	2
CO2	3	3	3	3	2	3	3	3	2	2
CO3	3	3	3	3	2	3	3	3	2	2
CO4	3	3	3	3	2	3	3	3	2	2
CO5	3	3	3	3	2	3	3	3	2	2

“1” – Slight (Low) Correlation – “2” – Moderate (Medium) Correlation –  
“3” – Substantial (High) Correlation – “-” indicates there is no correlation.

## **SYLLABUS**

### **UNIT I**

**(18 Hours)**

#### **SCREENING AND NUTRITIONAL ASSESSMENT OF CRITICALLY ILL PATIENTS**

- a. **Screening:** Diagnosis of malnutrition, Nutrition screening, Methods for nutritional screening Malnutrition Universal Screening Tool, Nutritional Risk Screening, Mini Nutritional Assessment.
- b. **Assessment of Nutritional Status:** Anthropometric Assessment - Body Mass Index, Mid Arm Circumference, Triceps skin fold thickness; Biochemical assessment – Urea, Creatinine, liver function tests, plasma changes in minerals, plasma protein tests; Clinical assessment – temperature, Blood Pressure, Pulse Rate; Dietary assessment – 24-hour recall method, food frequency questionnaires.

### **UNIT II**

**(18 Hours)**

#### **NUTRITIONAL CARE FOR HOSPITALIZED PATIENTS**

- a. **Principles of nutrition care** – Nutrition care process, Progressive diets- Clear fluid diet, full fluid diet, soft and regular diet.
- b. **Surgical Conditions-** Hormonal response during surgery, levels of stress, starvation, sepsis, Infections, post operative diet.

### **UNIT III**

**(18 Hours)**

#### **NUTRITIONAL SUPPORT SYSTEM**

- a. **Enteral nutrition** – Types, routes, mode of feeding and importance, advantages and disadvantages of home-based feed, precautions while feeding and complications.
- b. **Parenteral nutrition** – Types, composition, importance of total parenteral nutrition, precautions while feeding and complications. Refeeding syndrome and clinical manifestations of refeeding syndrome.

### **UNIT IV**

**(18 Hours)**

#### **NUTRITIONAL SUPPORT IN BURN AND TRAUMA**

- a. **Burns** – Principles of nutrition management, Clinical effects of malnutrition and factors affecting nutritional requirements in burn patients.
- b. **Trauma** – Classification, Principles of nutrition management, Clinical effects of malnutrition and factors affecting nutritional requirements in trauma patients.

## **UNIT V**

**(18 Hours)**

### **NUTRITIONAL SUPPORT SPECIFIC CONDITIONS**

- a. **Renal failure** –types, metabolic aspects and nutritional requirement, effects of renal treatment on nutrition and nutritional therapy.
- b. **Hepatic failure** – Consequences of hepatic failure upon nutritional status and nutritional support.
- c. **Pulmonary diseases** – types, effects of pulmonary treatment on nutrition and nutritional support.
- d. **Cancer** -Types of cancer, overview of nutrition in cancer care, effects of cancer treatment on nutrition and nutritional support.

## **UNIT - VI**

### **SELF STUDY FOR ENRICHMENT**

Classification of Malnutrition.

Pre operative diet in surgical condition

Comparison of enteral and parenteral nutrition.

Classification of burns.

Types of hepatic failure.

### **Textbooks**

2. Luc Cynober A, Frederick Moore A., (2003), *Nutrition and Critical Care*, Karger Medical and Scientific Publishers
3. Khanna K, Gupta S, Seth R, Passi SJ, Mahna R, Puri S., (2013), *Textbook of Nutrition and Dietetics*, Phoenix Publishing House Pvt Ltd.
3. Frederick A. Moore, Edward Abraham., (2017), *Textbook of Critical Care*, Elsevier

### **Reference Book**

1. Verma P K., (2008), *Principles and Practice of Critical Care*, B. I Publications.
2. Pierre Singer., (2013), *Nutrition in Intensive Care Medicine: Beyond Physiology*, Karger Medical and Scientific Publishers.
3. Peter Faber, Mario Siervo., (2014), *Nutrition and Critical Care*, Cambridge University Press.
4. Rajkumar Rajendram, Victor R. Preedy, Vinood B. Patel., (2015), *Diet and Nutrition in Critical Care*, Springer New York.
5. Gail A. Cresc., (2016), *Nutrition Support for critically ill patient*, CRC Press.

### **Journals**

- Journal, Indian Academy of Clinical Medicine, Med IND, India.
- Journal of the American Academy of PAs, Wolters Kluwer, United States

### **Web References**

- <https://www.sldh.nsw.gov.au/rpa/neonatal%5Ccontent/pdf/guidelines/tpn.pdf>
- [https://www.clinicalnutritionjournal.com/article/S0261-5614\(20\)30194-1/fulltext](https://www.clinicalnutritionjournal.com/article/S0261-5614(20)30194-1/fulltext)
- [https://www.researchgate.net/publication/244829589\\_Basics\\_in\\_Clinical\\_Nutrition\\_Nutritional\\_support\\_in\\_trauma](https://www.researchgate.net/publication/244829589_Basics_in_Clinical_Nutrition_Nutritional_support_in_trauma)
- [https://nutritionguide.pcrm.org/nutritionguide/view/Nutrition\\_Guide\\_for\\_Clinicians/1342058/all/Burns](https://nutritionguide.pcrm.org/nutritionguide/view/Nutrition_Guide_for_Clinicians/1342058/all/Burns)
- <https://www.nutritioncaresystems.com/chronic-obstructive-pulmonary-disease/>
- <https://www.cancer.gov/about-cancer/treatment/side-effects/appetite-loss/nutrition-pdq>
- <https://www.hindawi.com/journals/jnme/2010/489823/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6831917/>

### **Pedagogy:**

E-content, Lecture, Power point presentation, Seminar, Assignment

### **Course Designers**

Ms. M. VINOTHINI

Ms. C. NIVETHA