

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

**Affiliated to Bharathidhasan University
Nationally Accredited (3rd Cycle) with 'A' grade by NAAC
Annamalainagar
Tiruchirapalli-620018**



Minutes of the Third Meeting of the Academic Council held Online

Date:15.06.2020

Time: 10.30 a.m.

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Affiliated to Bharathidasan University
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Tiruchirapalli-620018

THE MINUTES OF THE THIRD MEETING OF THE ACADEMIC COUNCIL

The Third meeting of the Academic Council was held online on 15th June 2020, Monday at 10.30 a.m. through Google Meet Conferencing Platform under the Chairmanship of Dr. V. Sujatha, Principal. The following members were present.

S.No	Members	Designation
1	Dr. V. Sujatha	Chairman of Academic Council and Principal
2	Dr. K. Karunakaran	Chief Executive Officer Hindusthan Educational Institutions Coimbatore
3	Dr. S. Senthilnathan	Director (FAC), UGC-HRDC, Department of Educational Technology, Bharathidasan University, Trichy
4	Dr. M. Sundararaman	Professor and Chair, Department of Marine Biotechnology, Bharathidasan University, Trichy.
5	Dr. D. I. George Amalarethinam	Bursar, Director (MCA), Associate Professor of Computer Science, Jamal Mohamed College (Autonomous), Trichy
6	Dr. S. Ramalakshmi	Vice Principal & Head, Department of Tamil
7	Dr V. Sinthu Janita	Member Secretary of Academic Council, Vice Principal & Head, Department of Computer Science
8	Dr. P. Urmila	Head, PG, Department of English
9	Dr. S. Jayashree Agarwal	Head, UG, Department of English
10	Dr. G. Kanaga	Dean of Alumni Relations
11	Dr. J. Tamil Selvi	Head, Department of Business Administration
12	Dr. N. Savithri	Dean of Arts & Head, Department of Commerce
13	Dr. S. Premalatha	Head, Department of Mathematics
14	Ms. G. Maheswari	Head, Department of Physics
15	Ms. P. Amirtham	Head, Department of Chemistry

16	Ms. R. Merlin Packiam	Head, Department of Computer Applications
17	Dr. M. Parveen	Head, Department of Information Technology
18	Dr. B. Tamilmaraiselvi	Head, Department of Microbiology
19	Dr. H. Abirami	Dean of Science & Head, Department of Biotechnology
20	Ms. B. Thanuja	Head, Department of Food Service Management and Dietetics
21	Ms. V. Ramya	Controller of Examinations, Department of Food Service Management and Dietetics
22	Dr. S. Shameem	Head in Charge & Associate Professor, Department of Commerce
23	Dr.G. Metilda Bhuvanewari	Head. Department of Social Work
24	Ms. N. Sivapriya	Deputy Controller of Examinations, Department of Computer Applications
25	Dr. R. Vijayalakshmi	Guest Lecturer, Hindi (Special Invitee)
26	Ms. M. Manjula	Guest Lecturer, French(Special Invitee)

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

Dr. J. A. Arul Chellakumar Professor & Director – CCCD
Department of Economics
Bharathidasan University
Tiruchirappalli – 620 024

Dr. M. Balamurugan Professor and Head,
Department of Computer Science,
Bharathidasan University, Trichy.

Dr. K.Suriyan Professor & Head,
Department of Sociology,
Centre for Study of Social Exclusion and Inclusive
Policy, Bharathidasan University.

Mr. J. Megalan David Senior Manager
Talent Acquisition
Omega Health Care
Tiruchirappalli

Mr. B. Varadan Guest Lecturer, Sanskrit (Special Invitee)

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**MINUTES OF THE THIRD MEETING OF THE ACADEMIC COUNCIL CONDUCTED
ONLINE**

DATE: 15.06.2020
MODE: G-MEET

TIME: 10.30 A.M.

MINUTES

WELCOME AND INTRODUCTORY REMARKS OF THE CHAIRMAN

The Chairman of the Academic Council Dr V Sujatha welcomed the gathering to the III meeting of the Academic Council held online

She briefed on the

- Vision
- Mission
- Objectives
- Graduate Attributes
- Accreditations
- Recognitions
- Activities under UGC Paramarsh
- Courses/ Value Added Courses Offered
- Faculty Details

She also highlighted on the achievements of the college during the period Dec 2019 to June 2020 about

- Results and Ranks of Non Autonomous stream
- Publications in Scopus and Web of Science
- Online Refresher Courses including ARPIT
- Faculty and Student participation in UGC NET
- Faculty and Student participation in SWAYAM- NPTEL
- Faculty as NPTEL reviewers
- MoUs
- Internship and Training Programmes
- Awards and Recognitions
- Overall Championships in Academics and Extracurricular Activities
- Achievement of Entrepreneur Development Cell
- CASA-Cauvery Alumnae Students Association
- Activities during COVID-19 Lockdown
- Faculty Development Programmes, Webinars & Competitions Organised

CONFIRMATION OF THE MINUTES OF THE LAST MEETING HELD ON 12.12.2019

The Member Secretary Dr Sinthu Janita Prakash read the minutes of the II Meeting of the Academic Council comprising 22 Resolutions - Resolution 02/01 to Resolution 02/22 of the II Meeting of the Academic Council in connection with extra credits from SWAYAM, Jeevan Kaushal Life Skills Courses, Foundational & Advanced Courses in Entrepreneurship, Certificate Courses, PG Competitive Exam Paper, Starting of new Programmes - Post Graduate Diploma in Data Science and Certificate Course in Intellectual Property Rights, Approval of amendment in the Programme Structure & II Semester syllabus, approval of III Semester syllabus and the results of the 2019-2020 batch End Semester Examinations held on Nov 2019 were confirmed

ITEM 03/01

To consider and approve to follow the same regulations of 2019 – 2020 with the following amendments for the students admitted in Undergraduate and Postgraduate Programmes during the year 2020 – 2021 and onwards and the same be approved

- A. The eligibility criteria for BBA is changed as a pass in 10+2 with Commerce and Accountancy. 20% of seats may be reserved for vocational stream.
- B. The eligibility criteria for BSc Chemistry is a pass in 10+2 with Chemistry as one of the core subjects and Mathematics
- C. Undergraduate Students can take extra credit courses from SWAYAM in Semesters II, III, IV & V and Postgraduate Students in Semesters II & III
- D. To include the credits earned from the Foundational course in Entrepreneurship and Advanced Course in Entrepreneurship as extra credits for Undergraduate Programme of Arts stream

*Considered and approved to follow the same regulations of 2019 – 2020 with the following amendments for the students admitted in Undergraduate and Postgraduate Programmes during the year 2020 – 2021 and onwards as given in **Annexure A***

- A. *The eligibility criteria for BBA is changed as a pass in 10+2 with Commerce and Accountancy. 20% of seats may be reserved for vocational stream*
- B. *The eligibility criteria for BSc Chemistry is a pass in 10+2 with Chemistry. (As per the G.O.(1D)No.133, dated 25.04.2018 of Higher Education Department) and it remains the same as 2019-2020.*
- C. *Undergraduate Students can take extra credit courses from SWAYAM in Semesters II, III, IV & V and Postgraduate Students in Semesters II & III*
- D. *To include the credits earned from the Foundational course in Entrepreneurship and Advanced Course in Entrepreneurship as extra credits for Undergraduate Programme of Arts stream*

Dr Sundararaman, University Nominee advised to give extra credit SWAYAM Courses to fast learners.

Dr K Karunakaran, the External Academic Expert gave the suggestion to incorporate SWAYAM courses inside the curriculum as per UGC norms.

Dr D I George Amalarethinam, the External Academic Expert suggested to change the eligibility for admission of BSc Chemistry as a pass in 10+2 with Chemistry and Mathematics as the core subjects. He also suggested to offer extra credit courses to the fast learners.

Dr Senthilnathan, the External Academic Expert appreciated the selection of extra credit courses and asked the HoDs to be in touch with the Course provider and also the National Coordinators to find out whether the same courses will be offered again in the next academic year.

Dr K Karunakaran, the External Academic Expert advised to revise the number of credits in accordance to the number of hours for the Wadhvani Foundation courses.

ITEM 03/02

To consider and include the credits earned from Advanced Course in Entrepreneurship as extra credits for Undergraduate Programme of Arts stream for 2019-2020 batch

Considered and approved to include the credits earned from Advanced Course in Entrepreneurship as extra credits for Undergraduate Programme of Arts stream for 2019-2020 batch

ITEM 03/03

To approve the ratification to change the number of questions in the online exam conducted for the Competitive Examination Course in Semester III of all Postgraduate Programmes for 2019-2020 batch and onwards

Approved the Ratification to change the number of questions from 150 to 100 in the online exam conducted for the Competitive Examination Course in Semester III of all Postgraduate Programmes for 2019-2020 batch and onwards

ITEM 03/04

To consider and approve the Physical & Mental Fitness activities as a component under Part V - Extension and Extra-Curricular Activities to implement the UGC recommended 'Fit India Campaign' for 2019-2020 batch and onwards

Considered and approved the Physical & Mental Fitness activities as a component under Part V - Extension and Extra-Curricular Activities to

implement the UGC recommended 'Fit India Campaign' for 2019-2020 batch and onwards as given in **Annexure B**

ITEM 03/05

To consider and approve the Unnat Bharat Abhiyan activities as a participating institute launched by MHRD as a component under Part V-Extension and Extra-Curricular Activities of 2019-2020 batch and onwards

*To consider and approve the Unnat Bharat Abhiyan activities as a participating institute launched by MHRD as a component under Part V-Extension and Extra-Curricular Activities of 2019-2020 batch and onwards as given in **Annexure C***

Dr Sundararaman, the University Nominee enquired about the basis of selection of villages under the Unnat Bharat Abhiyan Scheme.

Dr Senthilnathan, informed about the free training given by Mahathma Gandhi National Council for Rural Education, Hyderabad for the students taking part in such activities.

ITEM 03/06

To consider and approve the IV Semester Syllabi for 2019-2020 batch and onwards for

- A.** Part I Language –Tamil for all Undergraduate Programmes
- B.** Part III Core and Allied courses, Part IV Non Major Elective and Skill Based Elective Courses of B.A Tamil
- C.** Part IV Basic Tamil-2, Special Tamil-2 for all Undergraduate Programmes
- D.** M.A Tamil

It is resolved to follow the IV Semester Syllabi for 2019-20 batch and onwards 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 D** for

- A.** *Part I Language –Tamil for all Undergraduate Programmes*
- B.** *Part III Core and Allied courses, Part IV Non Major Elective and Skill Based Elective Courses of B.A Tamil*
- C.** *Part IV Basic Tamil-2, Special Tamil-2for all Undergraduate Programmes*
- D.** *M.A Tamil*

ITEM 03/07

To consider and approve the IV Semester Syllabi of Part I other languages for

- A. Hindi
- B. French
- C. Sanskrit

Of Undergraduate programmes for 2019-20 batch and onwards

*It is resolved to follow the IV semester syllabi of Hindi for 2019-20 batch and onwards as recommended by the Board of Studies in Other Languages-Hindi and moved by the Chairman **Dr S Vijayalakshmi** in the meeting and the same be approved as given in **Annexure E***

*It is resolved to follow the IV semester syllabi of French for 2019-20 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 the IV semester syllabi of Sanskrit for 2019-20 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 G***

ITEM 03/08

To consider and approve the modification in the Programme Structure of B.A English, change of title of Part II English of III & IV Semesters and the IV Semester Syllabi for

- A. Part II English paper for all UG programmes and to make amendments in the III semester part II English
- B. Part III Core and Allied courses, Part IV Non Major Elective and Skill Based Elective Courses of B.A English

Of Undergraduate programmes for 2019-20 batch and onwards

It is resolved to follow the IV Semester syllabi of

- A. *Part II English of all Undergraduate Programmes and Semester III Part II English was modified to include literature genres like Short Stories in Unit IV and V and therefore the title of the paper was changed from Writing for General and Specific Purposes -I to Reading and Writing for Effective Communication-I*
- B. *Part III Core and Allied courses, Part IV Non Major Elective and Skill Based Elective Courses of B.A English*

*for 2019-20 batch and onwards as recommended by the Board of Studies in UG-English and moved by the Chairman **Dr S Jayashree Agarwal** in the meeting and the same be approved as given in **Annexure H***

ITEM 03/09

To consider and approve the modifications in the Programme Structure and to approve the IV semester syllabi of M.A. English for 2019-20 batch and onwards

*It is resolved to follow the modifications in the Programme Structure and to approve the IV semester syllabi of M.A. English for 2019-20 batch and onwards as recommended by the Board of Studies in PG-English and moved by the Chairman **Dr P Urmila** in the meeting and the same be approved as given in **Annexure I***

***Dr Senthilnathan**, the External Academic Expert suggested to include Booker Prize Winners and Pulitzer Prize winners along with Nobel Laureates in the Elective Course IV Award Winning Authors. He also added for the Elective Course IV-Single Author Study, the students can be given the choice to choose an author instead of fixing the author as John Milton*

ITEM 03/10

To consider and approve

- A. The modifications in the Programme Structure and the IV Semester Syllabi of Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.A Social Work for 2019-20 batch and onwards
- B. The modifications in the Programme Structure and to approve the IV semester syllabi of M.A Social Work for 2019-20 batch and onwards
- C. The modification of syllabus of Elective Course I of MA Social Work of 2020-2021 batch and onwards.

Resolved to approve

- A. The modifications in the Programme Structure and the IV Semester Syllabi of Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.A Social Work For 2019-20 batch and onwards
- B. The modifications in the Programme Structure and to approve the IV semester syllabi of M.A Social Work For 2019-20 batch and onwards
- C. The modification of syllabus of Elective Course I Human Resource Development 20PSW1EC1A of MA Social Work of 2020-2021 batch and onwards.

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

ITEM 03/11

To consider and approve the modifications in the Programme Structure and the IV Semester Syllabi for Part III Core and Allied courses, Part IV Non Major Elective and Skill Based Elective Courses of B.B.A for 2019-20 batch and onwards

It is resolved to approve the modifications in the Programme Structure and the IV Semester Syllabi for Part III Core and Allied courses, Part IV Non Major Elective and Skill Based Elective Courses of B.B.A for 2019-20 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 K**

ITEM 03/12

To consider and approve the modifications in the Programme Structure and to approve the IV Semester Syllabi for 2019-20 batch and onwards for

- A. Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Com & B.Com(CA)
- B. M.Com

It is resolved to approve the modifications in the Programme Structure and to approve the IV Semester Syllabi of

- A. Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Com & B.Com(CA)*
- B. M.Com*

*for 2019-20 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 L***

ITEM 03/13

To consider and approve

- A. The modifications in the Programme Structure and to approve the IV Semester Syllabi for Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Sc Mathematics
- B. The modifications in the Programme Structure and to approve the IV Semester Syllabi for M.Sc Mathematics

For 2019-20 batch and onwards

Considered and approved

- A. *The modifications in the Programme Structure and to approve the IV Semester Syllabi for Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Sc Mathematics*
- B. *The modifications in the Programme Structure and to approve the IV Semester Syllabi for M.Sc Mathematics*

*For 2019-20 batch and onwards for 2019-20 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 M***

ITEM 03/14

To consider and approve

- A. *The modifications in the Programme Structure and to approve the IV Semester Syllabi of Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Sc Physics*
- B. *The modification in the Programme Structure and to approve the IV Semester Syllabi of M.Sc Physics*

For 2019-20 batch and onwards

It is resolved to approve

- A *The modifications in the Programme Structure and to approve the IV Semester Syllabi of Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Sc Physics*
- B *The modification in the Programme Structure and to approve the IV Semester Syllabi of M.Sc Physics*

*For 2019-20 batch and onwards as recommended by the Board of Studies in Physics and moved by the Chairman **Ms G Maheswari** in the meeting and the same be approved as given in **Annexure N***

ITEM 03/15

To consider and approve

- A. *The modifications in the Programme Structure and to approve the IV Semester Syllabi of Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Sc Chemistry*
- B. *The modification in the Programme Structure and to approve the IV Semester Syllabi of M.Sc Chemistry*

For 2019-20 batch and onwards

Considered and approved

A The modifications in the Programme Structure and to approve the IV Semester Syllabi of Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Sc Chemistry

*B The modification in the Programme Structure and to approve the IV Semester Syllabi of M.Sc Chemistry For 2019-20 batch and onwards as recommended by the Board of Studies in Chemistry and moved by the Chairman **Ms P. Pungayee @Amirtham** in the meeting and the same be approved as given in **Annexure O***

ITEM 03/16

To consider and approve

- A. The modification in the Programme Structure and the III Semester Syllabi and to approve the IV Semester Syllabi of Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Sc Computer Science
- B. The modification in the Programme Structure and the III Semester Syllabi and to approve the IV Semester Syllabi of M.Sc Computer Science

For 2019-20 batch and onwards

Considered and approved

- A. *The modification in the Programme Structure and the III Semester Syllabi- The Core Course III- Relational Database Management Systems was changed as Database Management Systems and the topic NoSQL was included in unit V. Core Practical III - MYSQL Lab was changed as SQL & PL/SQL Lab and the practical listing was reframed for Semester III. The IV Semester Syllabi of Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Sc Computer Science Program (2019 - 2020 batch and onwards) was approved.*
- B. *The modification in the Programme Structure and the III Semester Syllabi. The Core Course VII - Computer Science for Competitive Exam in Semester III is renamed as Computer Science for Competitive Examinations. The syllabus was modified for the following courses in III Semester Core Course III: Big Data Analytics, Elective Course III: Blockchain, Parallel Processing and Robotic Process Automation. The IV Semester Syllabi of M.Sc Computer Science was approved*

*For 2019-20 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 P.***

ITEM 03/17

To consider and approve

- A. The modification in the Programme Structure and the III Semester Syllabi and to approve the IV Semester Syllabi of Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of BCA for 2019-20 batch and onwards
- B. The first semester syllabus of PG Diploma in Data Science for 2020-2021 batch and onwards

Considered and approved the

- A. *The modification in the Programme Structure and the III Semester Syllabi and to approve the IV Semester Syllabi of Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of BCA for 2019-20 batch and onwards*
- B. *The first semester syllabus of PG Diploma in Data Science for 2020-2021 batch and onwards*

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

ITEM 03/18

To consider and approve the modification in the Programme Structure and the IV Semester Syllabi for Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Sc Information Technology for 2019-20 batch and onwards

Resolved to approve the modification in the Programme Structure and the IV Semester Syllabi for Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Sc Information Technology for 2019-20 batch and onwards 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 R**

ITEM 03/19

To consider and approve

- A. The modification in the Programme Structure and to approve the IV Semester Syllabi of Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Sc Microbiology

- B. The modification in the Programme Structure and to approve the IV Semester Syllabi of M.Sc Microbiology

For 2019-20 batch and onwards

Resolved to approve

- A. The modification in the Programme Structure and to approve the IV Semester Syllabi of Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Sc Microbiology
- B. The modification in the Programme Structure and to approve the IV Semester Syllabi of M.Sc Microbiology

For 2019-20 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 S**

ITEM 03/20

To consider and approve the modification in the Programme Structure and the IV Semester Syllabi for Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Sc Biotechnology for 2019-20 batch and onwards

Considered and approved the modification in the Programme Structure and the IV Semester Syllabi for Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Sc Biotechnology for 2019-20 batch and onwards as recommended by the Board of Studies in Biotechnology and moved by the Chairman **Dr H Abirami** in the meeting and the same be approved as given in **Annexure T**

ITEM 03/21

To consider and approve the

- A. The modification in the Programme Structure and the IV Semester Syllabi of Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Sc Nutrition & Dietetics
- B. The modifications in the Programme Structure and to approve the IV Semester Syllabi of M.Sc Food Service Management and Dietetics

For 2019-20 batch and onwards

Resolved to approve the

- A. The modification in the Programme Structure and the IV Semester Syllabi of Part III Core and Allied Courses, Part IV Non Major Elective and Skill Based Elective Courses of B.Sc Nutrition & Dietetics
- B. The modifications in the Programme Structure and to approve the IV Semester Syllabi of M.Sc Food Service Management and Dietetics

For 2019-20 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 U***

-sd-

Dr V Sujatha

(Chairman of the Academic Council & The Principal)

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Annexure of the Third Meeting of the Academic Council held Online

Date: 15.06.2020

Time: 10.30 a.m.

Annexure A

Under Graduate Programme Structure 2019-2020 Onwards

Part	Course	Semester(s)	No of Courses		No of Credits		Total
			Arts	Science	Arts	Science	
I	Language(T/H/F/S)	I – IV	4	4	12	12	12
II	English	I - IV	4	4	12	12	12
III	Core	I - VI	15	13-15	75	63-65	98
	Major Based Electives	V & VI	3	3	11	15-17	
	Allied I	I & II	2	3	6	9	
	Allied II	III & IV	2	3	6	9	
IV	Non Major Electives	III & IV	2	2	4	4	16
	Skill Based Electives	IV & V	3	3	6	6	
	Value Education	I	1	1	2	2	
	Environmental Studies	II	1	1	2	2	
	Soft Skills	V	1	1	2	2	
V	Gender Studies	VI	1	1	1	1	2
	Extension Activities	VI	-	-	1	1	
	Extra Credit Courses*						
						Total	140

***Extra Credit Courses** (Not to exceed a maximum of 10 credits)

Courses offered by SWAYAM in Semesters III, IV & V

Advanced Course in Entrepreneurship (Arts Stream)

Certificate courses from Industry (Science Stream)

Extra Credit Courses-UG Programmes (2019-2020) in the III Semester

S. No	Department	Name Of The Course	No of Weeks	No of Credits	Offered by
1	English	The Psychology Of Language	08	02	NPTEL
2	Social Work	Developing Soft Skills And Personality	08	02	NPTEL
3	Business Administration	Developing Soft Skills And Personality	08	02	NPTEL
4	Commerce	Body Language: Key To Professional Success	04	01	NPTEL
5	Mathematics	Introduction To R Software	08	02	NPTEL
6	Physics	Experimental Physics-I	12	03	NPTEL
7	Chemistry	Colloids And Surfaces	08	02	NPTEL
8	Computer Science	Google Cloud Computing Foundation	08	02	NPTEL
9	Computer Applications	Programming In C++	08	02	NPTEL
10	Information Technology	Knowledge Management	08	02	NPTE
11	Microbiology	Ecology And Environment	08	02	NPTEL
12	Biotechnology	Animal Physiology	12	03	NPTEL
13	Nutrition & Dietetics	Body Language: Key To Professional Success	04	01	NPTEL

Post Graduate Programme Structure 2019-2020 Onwards

Course	No of Papers		No of Credits	
	Arts	Science	Arts	Science
Core Course	14	10+4(Practical)	66-70	62-70
Elective Course	5	5	12 -20	15-24
Social Work#	3			
Project	1	1	4-5	3-5
Extra Credit Courses*				
Total			90	

Block Placement and Internship for Social Work

***Extra Credit Courses** (Not to exceed a maximum of 10 credits)

Courses offered by SWAYAM in Semesters III

Extra Credit Courses-PG Programmes (2019-2020) in the III Semester

S.No	Department	Name Of The Course	Number of Weeks	Number of Credits	Offered by
1	English	The Popular Gothic Novels	12	03	NPTEL
2	Social Work	Stress Management	04	01	NPTEL
3	Commerce	Leadership	04	01	NPTEL
4	Mathematics	Scientific Computing using MATLAB	12	03	NPTEL
5	Physics	Semiconductor Optoelectronics	12	03	NPTEL
6	Chemistry	Introduction to Polymer Science	08	02	NPTEL
7	Computer Science	Introduction to Research	08	02	NPTEL
8	Microbiology	Nanotechnology in Agriculture	08	02	NPTEL
9	FSM & D	Patent Drafting for Beginners	04	01	NPTEL

Under Graduate Programme Structure 2020-2021 Onwards

Part	Course	Semester(s)	No of Courses		No of Credits		Total
			Arts	Science	Arts	Science	
I	Language(T/H/F/S)	I – IV	4	4	12	12	12
II	English	I - IV	4	4	12	12	12
III	Core	I - VI	15	13-15	75	63-65	98
	Major Based Electives	V & VI	3	3	11	15-17	
	Allied I	I & II	2	3	6	9	
	Allied II	III & IV	2	3	6	9	
IV	Non Major Electives	III & IV	2	2	4	4	16
	Skill Based Electives	IV & V	3	3	6	6	
	UGC Jeevan Kaushal Life Skills -Universal Human Values	I	1	1	2	2	
	Environmental Studies	II	1	1	2	2	
	UGC Jeevan Kaushal Life Skills-Communication Skills	V	1	1	2	2	
V	Gender Studies	VI	1	1	1	1	
	Extension Activities	VI	-	-	1	1	
	Extra Credit Courses*						
Total						140	

***Extra Credit Courses** (Not to exceed a maximum of 10 credits)

Courses offered by SWAYAM in Semesters II, III, IV & V

Courses from Jeevan Kaushal Life Skills Programme

Foundation Course in Entrepreneurship & Advanced Course in Entrepreneurship (Arts Stream)

Certificate courses from Industry (Science Stream)

Post Graduate Programme Structure 2019-2020 Onwards

Course	No of Papers		No of Credits	
	Arts	Science	Arts	Science
Core Course	14	10+4(Practical)	66-70	62-70
Elective Course	5	5	12 -20	15-24
Social Work#	3			
Project	1	1	4-5	3-5
Extra Credit Courses*				
Total			90	

Block Placement and Internship for Social Work

***Extra Credit Courses** (Not to exceed a maximum of 10 credits)

Courses offered by SWAYAM in Semesters II & III

WADHWANI FOUNDATION COURSES

- Foundational Course in Entrepreneurship
- Advanced Course in Entrepreneurship
- A batch will have a maximum of 30 students
- Can take Advanced Course only after completing Foundational Course

Name of the course	Classroom hours	Total Credits
Foundational	38	2
Advanced	30	2

Apart from the regular classroom hours, both the courses have outside classroom hours

Annexure B

Implementation of Fit India Campaign in HEI

- Fitness Hour
- Fitness Clubs
- Monthly Theme Based Fitness Campaigns
- Sports Competitions

Star Rating of Institutions

- i. Incorporation of "Fitness Hour" in daily routine
- ii. Formation of Fitness Clubs
- iii. Preparing and using play fields/ other spaces for at least two outdoor games
- iv. Participation in monthly fitness campaigns
- v. Annual Sports Competitions

University Activity Monitoring Portal of UGC (<https://ugc.ac.in/uamp>)

Star Rating of the Institution (0-5)

5% weightage in NIRF

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Annexure C

Unnat Bharat Abhiyan

- Flagship program of the **Ministry of Human Resource Development**
- It aims to link the Higher Educational Institutions with a set of at least 5 villages, so that these institutions can contribute to the economic and social betterment of these villages
- The Cauvery College for Women (Autonomous) is a participating Institute of UNNAT BHARAT ABHIYAN with the AISHE Code of 35783
- Adopted 5 Villages in the Trichirappalli District namely Nachikurichy, Kulumani, Marudhandakurichi, Malliampathu and Mekkudi
- Conducted Village survey and Household survey and submitted plan of action for adopted villages and uploaded the same in the UBA website
- Received Rs.50,000 as a seed money to carry out basic activities of UBA
- 5 project proposals under the Category of Technological Development were submitted. 1 proposal approved. Others are under various stages of approval

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ANNEXURE - D

காவேரி மகளிர் கல்லூரி (தன்னாட்சி), திருச்சி - 18

தமிழாய்வுத்துறை - இளங்கலைத் தமிழிலக்கியம்

(2020 - 2021 ஆம் கல்வியாண்டு முதல் சேர்க்கை பெறும் மாணவியருக்கு)

Sem	Part	Course	Title	Course Code	Ins. Hrs / Week	Credit	Exam	Marks		Total
							Hours	Internal	Hours	
I	I	Language Course – I (LC)	Bamini	19ULT1	6	3	3	25	75	100
			Hindi	19ULH1						
			French	19ULF1						
			Sanskrit	19ULS1						
	II	Language Course – I (ELC)	English	19UE1	6	3	3	25	75	100
	III	Core Course – I (CC)	நன்னூல் - எழுத்ததிகாரம் (காண்டிகையுரை)	19UTA1CC1	6	5	3	25	75	100
		Core Course – II (CC)	இக்கால இலக்கியம்	19UTA1CC2	6	5	3	25	75	100
		Allied Course – I (AC)	தமிழ் இலக்கிய வரலாறு	19UTA1AC1	4	3	3	25	75	100
	IV	UGC Jeevan Kaushal Life Skills	ருளைநசளயடர் அயடு ஏயடரநள (உலகளாவிய மனித மதிப்புகள்)	20UGVE	2	2	3	25	75	100
	TOTAL					30	21			

தமிழாய்வுத்துறை

PROGRAMME EDUCATIONAL OBJECTIVES

- பழங்கால இலக்கியங்கள், இலக்கணங்கள் குறித்த அறிவைப் பெற்றுப் புத்திலக்கியம் படைக்கும் திறன் பெறுவர்.
- தமிழ் பயிற்றுவிக்கும் திறன் பெறுவர்.
- தமிழை அடிப்படையாகக் கொண்டு நடத்தப்படும் பல்வகையான போட்டித் தேர்வுகளுக்குத் தயாராகும் அறிவுத்திறன் பெறுவர்.

PROGRAMME OBJECTIVES

O1 - தமிழரின் வரலாறு, நாகரீகம், பண்பாடு, கலைகள், சமூகம், சமயம், தத்துவம், அறம், அறிவியலறிவு, தமிழ்மொழி அமைப்பு குறித்த அறிவினைப் பெறுதல்.

மு2 - இலக்கிய உத்திகள், வடிவம், தன்மை மற்றும் இலக்கணக் கோட்பாடுகள் குறித்துத் திறனாய்ந்தறிந்து புத்திலக்கியம் படைக்கும் திறன்பெறுதல்.

மு3 - தமிழ்மொழி குறித்த ஆழ்ந்த அறிவுடன் ஊடகங்களில் பணியாற்றும் திறன் பெறுவர்.

மு4 - தமிழைப் பாடமாக உடைய போட்டித் தேர்வுகளுக்குத் தயாராகுதல்.

காவேரி மகளிர் கல்லூரி (தன்னாட்சி), திருச்சி- 18
ஊடகவியல் பாடத்திட்டம்
(2019 - 2020 ஆம் கல்வியாண்டு முதல் சேர்க்கை பெறும் மாணவியருக்கு)
தமிழாய்வுத்துறை
பகுதி ஐ தமிழ்

Sem	Part	Course	Title	Course Code	Ins. Hrs / Week	Credit	Exam	Marks		Total
							Hours	Internal	External	
I	I	Language Course – I	இக்கால இலக்கியம்	19ULT1	6	3	3	25	75	100
II		Language Course – II	இடைக்கால இலக்கியமும் புதினமும்	19ULT2	6	3	3	25	75	100
III		Language Course – III	காப்பியமும் நாடகமும்	19ULT3	6	3	3	25	75	100
IV		Language Course – IV	பண்டைய இலக்கியம்	19ULT4	6	3	3	25	75	100

பாடக் குறியீடு	பகுதி ஐ தமிழ் - பண்டைய இலக்கியம்	Category	L	T	P	Credit
19ULT4		I	86	4	-	3

நோக்கம்

1. தமிழரின் வாழ்வியல் விழுமியங்களை உணர்த்துதல்
2. மொழித்திறன் வளர்த்தல்.

COURSE OUTCOMES

பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	சங்கத் தமிழர்களின் அகப்புற மாண்புகளைக் கண்டறிதல்	K1
CO2	சங்ககால மக்களின் வாழ்வியலை விளக்குதல்	K2
CO3	மக்களை நெறிப்படுத்தும் அறக்கருத்துகளைக் கணித்தல்	K3
CO4	தமிழின் செம்மொழிப் பண்புகளை ஆராய்ந்தறிதல்	K4

பாடத்திட்டம்

அலகு: 1 (20 மணி)

1. நற்றிணை:

1. “நின்ற சொல்லர் நீடுதோன்று இனியர்” – பா.எண்-1
2. “சிறு வெள்ளாங்குருகே! சிறு வெள்ளாங்குருகே!” – பா.எண்-70

2. குறுந்தொகை

1. “முளிதயிர் பிசைந்த” – பா.எண்-167
2. “யாரும் இல்லை:தானே கள்வன்” – பா.எண்-25
3. “சேயாறு செல்லேம் ஆயின் இடர்இன்று” – பா.எண்-400

3. கலித்தொகை:

1. “சுடர்த் தொடி கேளாய்” – பா.எண்-51

4. அகநானூறு:

1. “நல்நுதல் பசப்பும், ஆள்வினைதரீஇயர்” – பா.எண்-77

5. புறநானூறு:

1. “காய்நெல் அறுத்துக் கவளம் கொளினே” – பா.எண்-184
2. “யாண்டுபல வாக நரையில் ஆகுதல்” – பா.எண்-191
3. “யாதும் ஊரே யாவரும் கேளிர்” – பா.எண்-192
4. “செய்குவம் கொல்லோ நல்வினை” – பா.எண்-214
5. “பொன்னும் துகிரும் முத்தும் மன்னிய” – பா.எண்-218

அலகு: 2 (20 மணி)

பட்டினப்பாலை முழுவதும் - 301 அடிகள்

அலகு: 3 (20 மணி)

1. திருக்குறள்:

1. புறங்கூறாமை – அறம் - அதிகாரம் 19
2. பெரியாரைத் துணைக்கோடல் - பொருள் - அதிகாரம் 45
3. பிரிவு ஆற்றாமை - இன்பம் - அதிகாரம் 116

2. திரிகடுகம்:

1. “பிறர்தன்னைப் பேணுங்கால் நாணலும்” – பா.எண்-6
2. “வெல்வது வேண்டி வெகுண்டுரைக்கும்” – பா.எண்-28
3. “நுண்மொழி நோக்கிப் பொருள் கொளலும்” – பா.எண்-32

3. இன்னா நாற்பது:

1. “கொடுங்கோல் மறமன்னர்கீழ் வாழ்தல்இன்னா” – பா.எண்-3
2. “உண்ணாது வைக்கும் பெரும்பொருள் வைப்பின்னர்” – பா.எண்-16
3. பெரியாரோடு யாத்த தொடர் விடுதல் இன்னா – பா.எண்-26

4.நாலடியார்:

166, 172, 183, 202, 215 – ஆகிய பாடல்கள்.

அலகு: 4 (15 மணி)

உரைநடை – பாரதியின் அறிவியல் பார்வை, டாக்டர் வா.செ.குழந்தைசாமி.

அலகு: 5 (15 மணி)

செம்மொழிப் பண்புகள், பொதுக்கட்டுரை, இலக்கிய வரலாறு – சங்க இலக்கியம், சங்க மருவிய இலக்கியம், உரைநடை

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

காவேரி மகளிர் கல்லூரி (தன்னாட்சி), திருச்சி - 18

தமிழாய்வுத்துறை - இளங்கலைத் தமிழிலக்கியம்

(2019 - 2020 ஆம் கல்வியாண்டு முதல் சேர்க்கை பெறும் மாணவியருக்கு)

நான்காம் பருவம்

Sem	Part	Course		Ins. Hrs / Week	Credit	Exam	Marks		Total	
						Hours	Internal	External		
IV	I	Language Course – IV (LC)	Tamil / Other Languages	6	3	3	25	75	100	
	II	Language Course – IV (ELC)	English	6	3	3	25	75	100	
	III		Core Course – VII (CC)	நம்பியகப்பொருள்	5	5	3	25	75	100
			Core Course – VIII (CC)	காப்பியங்கள்	5	5	3	25	75	100
			Allied Course – IV (AC)	இலக்கியத் திறனாய்வு	4	3	3	25	75	100
			Non Major Elective II – for those who studied Tamil under Part I	மகளிர் உரிமைகளும் சட்டங்களும்	2	2	3	25	75	100
			a) Basic Tamil for other language studies b) Special Tamil for those who studied Tamil upto 10 th +2 but opt for other languages in degree programme							
	IV	Skill Based Elective I	பயன்முறைத் தமிழ் I	2	2	3	25	75	100	
	TOTAL				30	23				700

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
19UTA4CC7	நம்பியகப்பொருள்	III	71	4	-	5

நோக்கம்

1. அகப்பொருள் இலக்கணம் கற்பித்தல்
2. பழந்தமிழரின் அக வாழ்க்கை நெறிகளைப் பயிற்றுவித்தல்
3. பழந்தமிழ் அகமரபு பெற்ற மாற்றங்களைக் கற்பித்தல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	தமிழரின் அகவாழ்வு நெறிகளைக் கண்டறிதல்	K1
CO2	அகநூல்களில் உள்ள அகத்திணைக் கூறுகளை விளக்குதல்	K2
CO3	அகத்திணைத் துறைகளைப் பகுத்தாய்தல்	K3
CO4	தமிழ் அக மரபினை ஆராய்ந்தறிதல்	K4

பாடத்திட்டம்

அலகு 1 : (10 மணி)

பாயிரம், சிறப்புப் பாயிரம்

அலகு 2 : (20 மணி)

அகத்திணை இயல்

அலகு 3 : (20 மணி)

களவியல்,

அலகு 4 : (25 மணி)

கற்பியல் வரைவியல்

அலகு 5 : (15 மணி)

ஒழிபியல்

பாட நூல்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	கோவிந்தராச முதலியார் (உ.ஆ.)	நம்பியகப்பொருள்	கழக வெளியீடு, சென்னை.	ஜூலை 2002

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	வ.சுப. மாணிக்கம்	தமிழ்க்காதல்	மெய்யப்பன் பதிப்பகம், சிதம்பரம்.	2004

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
19UTA4CC8	காப்பியங்கள்	III	71	4	-	5

நோக்கம்

1. தமிழ்க்காப்பியங்கள் பற்றிய விவரங்களை அறிதல்
2. காப்பியப் பின்னணி, வளர்ச்சி ஆகியவற்றை மாணவருக்கு உணர்த்துதல்
3. சமயவிழுமியங்களைக் காப்பியத்தின்வழி எடுத்துரைத்தல்.

COURSE OUTCOMES

,ப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	காப்பியத் தோற்றத்திற்கான பின்புலத்தை வரையறை செய்தல்	K1
CO2	சமயக்கூறுகள் காப்பியங்களில் பொதிந்துள்ள தன்மையை எடுத்துரைத்தல்	K2
CO3	காப்பியங்களுக்குரிய இலக்கணக்கூறுகள் பொதிந்துள்ளமையைக் கணித்தல்	K3
CO4	காப்பிய காலச் சமூகத்தை மதிப்பிடல்	K4

பாடத்திட்டம்

அலகு 1 : (15 மணி)

சிலப்பதிகாரம் - புகார் காண்டம் முழுவதும்

அலகு 2 : (20 மணி)

மணிமேகலை – விழாவறை காதை, ஊர்அலர் உரைத்த காதை, மலர்வனம் புக்க காதை, பீடிகை கண்டு பிறப்புணர்ந்த காதை

சீவக சிந்தாமணி - சுரமஞ்சரியார் இலம்பகம் (1 முதல் 86 வரையிலான பாடல்கள்)

அலகு 3 : (15 மணி)

திருவிளையாடற் புராணம் - விறகு விற்ற படலம்

பெரியபுராணம் - சாக்கிய நாயனார் புராணம்

அலகு 4 : (20 மணி)

கம்பராமாயணம் - கைகேயி சூழ்வினைப் படலம்

வில்லிபாரதம் - நாடு கரந்துறை சருக்கம்

அலகு 5 : (20 மணி)

சீறாப்புராணம் - நதி கடந்த படலம்

இயேசு காவியம் - மலைப்பொழிவு

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	நா. மாணிக்கவாசகன்	சிலப்பதிகாரம்	உமா பதிப்பகம், சென்னை - 1	1998
2	என். எம். வேங்கடசாமி (உ.ஆ.)	மணிமேகலை	கழக வெளியீடு, சென்னை	1985
3	திரு. புலவர். அரசு (உ.ஆ.)	சீவக சிந்தாமணி	கழக வெளியீடு, சென்னை	1967
4	புலவர் அ. மாணிக்கனார் (உ.ஆ.)	பெரியபுராணம்	தமிழ் நிலையம், சென்னை - 17	1995
5	வ.த. இராமசுப்பிரமணியன்	கம்பராமாயணம்	திருமகள் நிலையம், சென்னை	1998
6	எம். நாராயண வேலுப்பிள்ளை, துரை ராஜாராம், வ.த. ராமசுப்பிரமணியன் (உ.ஆ.)	வில்லிபாரதம்	பூம்புகார் பதிப்பகம், சென்னை	2013
7	பி. ரா. நடராசன் (உ.ஆ.)	திருவிளையாடற் புராணம்	சாரதா பதிப்பகம், சென்னை	2015
8	கண்ணதாசன்	இயேசு காவியம்	பழனியப்பா பதிப்பகம், சென்னை	1962
9	கி. வா. ஜகன்னாதன்	தமிழ்க்காப்பியங்கள்	அமுத நிலையம், சென்னை	2008

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
19UTA4AC4	இலக்கியத் திறனாய்வு	III	56	4	-	3

நோக்கம்

1. இலக்கியம் குறித்து அறிந்து கொள்ளுதல்.
2. இலக்கியங்களின் செழுமையும், சீர்மையும் உணர்தல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	இலக்கியங்களின் அழகியல் கோட்பாடுகளை வரையறுத்து அறிதல்	K1
CO2	இலக்கியங்களில் இடம்பெறும் வாழ்வியல் விழுமியங்களை எடுத்துரைத்தல்	K2
CO3	சிறுகதை, கவிதை போன்றவற்றின் தன்மைகளை வகைப்படுத்துதல்	K3
CO4	புதினம், நாடகம் ஆகியவற்றின் அடிப்படைக் கூறுகளை ஆராய்ந்தறிதல்	K4
CO5	இலக்கிய மரபுகளைப் பகுத்தாய்தல்	K4

பாடத்திட்டம்

அலகு 1 : (15 மணி)

இலக்கியம் - விளக்கங்கள் - இலக்கிய மதிப்பீடு, திறனாய்வு – திறனாய்வின் வகை - திறனாய்வின் பணி - திறனாய்வு இலக்கியம்.

அலகு 2 : (15 மணி)

இலக்கியமும் வாழ்க்கையும் - அனுபவம் - இலக்கியத்தில் அறிவியல் கொள்கை - அழகியல் அல்லது முருகியல் கொள்கை.

அலகு 3 : (10 மணி)

இலக்கிய உணர்ச்சிகள் - கருத்து - கற்பனை - வடிவம் - பயன் - இலக்கிய நடை - இலக்கிய மரபுகள்.

அலகு 4 : (10 மணி)

சிறுகதை - அமைப்பு - பாத்திரப்படைப்பு - கதைப்பின்னல் - கவிதை -கவிதையின் தோற்றம் - கவிதையின் பழமை - கலையின் பயன் - கலையின் தோற்றம்.

அலகு 5 : (10 மணி)

நாடகம் - புதினம் - வகைகள் - இலக்கிய இயக்கங்கள் - இலக்கியத்தின் அடிப்படைக் கூறுபாடுகள்

பாட நூல்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	டாக்டர் ச. பாலசந்திரன்	இலக்கியத் திறனாய்வு	நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை	2006

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	தா.ஏ. ஞானமூர்த்தி	இலக்கியத் திறனாய்வு	ஐந்திணை பதிப்பகம், சென்னை	1996
2	மு. வரதராசன்	இலக்கியத்திறன்	பாரி நிலையம், சென்னை	2015
3	வு.ஞ. நடராசன்	திறனாய்வுக் கலை	நேற யபந வைநசயெவழையெட டைஅவைநனஇ னுநடாலை	2009
4	சாமி சிதம்பரனார்	இலக்கியம் என்றால் என்ன?	மணிவாசகர் பதிப்பகம், சென்னை	2000

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
19ULC4BT2	அடிப்படைத்தமிழ் தாள் - ஐஐ	III	28	2	-	2

நோக்கம்

1. தமிழ் இலக்கண, இலக்கியம் பற்றிய அடிப்படைகளை அறியச் செய்தல்.

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	தமிழின் அடிப்படை இலக்கணம் அறிதல்	K1
CO2	அன்றாட வாழ்வில் பயன்படுத்தும் பொருட்கள் பற்றிய சொற்களை விவரித்தல்	K2
CO3	தமிழ்ச்செம்மொழி நூல்களின் செம்மொழித் தகுதியை இனங்காணல்	K3
CO4	கடிதம் மற்றும் கட்டுரை எழுதத் தயார் செய்தல்	K3

பாடத்திட்டம்

அலகு: 1 (6 மணி)

இருதிணை (உயர்திணை, அ.றிணை) - மூவிடம் (தன்மை, முன்னிலை, படர்க்கை) - ஐம்பால் - எண் (ஒருமை, பன்மை) - பொருளுணர்ந்து பேசுதல், எழுதுதல்.

அலகு: 2 (6 மணி)

அன்றாட வாழ்வில் அனைவரும் பயன்படுத்தும் பொருட்கள் பற்றிய சொற்களை எழுதுதல் - இவை தொடர்பான ஆங்கிலச் சொற்களுக்கிரியத் தமிழில் சொற்களை அறிதல்.

அலகு: 3 (6 மணி)

செம்மொழி - செம்மொழி நூல்கள் (41) - பெயர் எழுதுதல் - செம்மொழித் தகுதி - தமிழின் சிறப்பு ஆகியன மட்டும்.

அலகு: 4 (6 மணி)

கடிதம் எழுதுதல் (முகவரி, உடலமைப்பு, கையொப்பம், ஊர், நாள், உறைமேல் முகவரி - அமைப்பு அறிதல்)

அலகு: 5 (6 மணி)

நாடு, மொழி, கல்வி, நட்பு, கல்லூரி, அங்காடி, விளையாட்டு, தலைவர்கள் - போன்ற தலைப்புகளில் கட்டுரைகளை பிழையின்றி வாசிக்கவும், எழுதவும் கற்றல்.

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
19ULC4ST2	சிறப்புத்தமிழ் தாள் - ஐஐ	III	28	2	-	2

Nehf;fk;

- மாற்றுமொழி பயிலும் மாணவிகள் தமிழில் பிழையின்றி எழுதவும், பயிலவும் கற்றுக்கொள்ளும் அடிப்படையில் பாடத்திட்டம் அமைந்துள்ளது.

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	காப்பியங்களில் இடம்பெறும் வாழ்வியல் கூறுகளைக் கண்டறிதல்	K1
CO2	சங்க இலக்கியத்தின் நயங்களை விளக்குதல்	K2
CO3	மணிமேகலை உணர்த்தும் மனிதநேயப் பண்புகளை மதிப்பிடுதல்	K3
CO4	நீதி இலக்கியங்களில் இடம்பெறும் நற்சிந்தனைகளைப் பகுத்தாய்தல்	K4
CO5	தமிழ் இலக்கியங்கள் காட்டும் பண்பாட்டுச் சிந்தனைகளை விவரித்தல்	K5

பாடத்திட்டம்

அலகு: 1 (6 மணி)

- குறுந்தொகை – 1. நறுமணக்கூந்தல் - பா. எண். 2
2. நிலத்தினும் நீரினும் - பா. எண். - 3
- புறநானூறு – 1. யாதும் ஊரே
2. படைப்புப் பல படைத்து

அலகு: 2 (6 மணி)

திருக்குறள் - 1. வாய்மை 2. கல்வி

அலகு: 3 (6 மணி)

சிலப்பதிகாரம் - அடைக்கலக் காதை

அலகு: 4 (6 மணி)

கம்பராமாயணம் - குகப்படலம் - 10 பாடல்கள்

அலகு: 5 (6 மணி)

- உலகநீதி – 5 பாடல்கள்
- முதுரை - 5 பாடல்கள்

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	ஞா. மாணிக்கவாசகன் (உ.ஆ.)	சிலப்பதிகாரம்	உமா பதிப்பகம், சென்னை	ஜீலை 2016
2	துரை. தண்டபாணி (உ.ஆ.)	மணிமேகலை	உமா பதிப்பகம், சென்னை	டிச. 2001
3	மணக்குடவர் (உ.ஆ.)	திருக்குறள்	சாரதா பதிப்பகம், சென்னை	2002
4	ஞா. மாணிக்கவாசகன் (உ.ஆ.)	புறநானூறு	உமா பதிப்பகம், சென்னை	2011

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
19UTA4SBE1A	பயன்முறைத்தமிழ் ஐ	IV	28	2	-	2

நோக்கம்

1. மொழியைப் பிழையின்றி எழுதப் பயிற்றுவித்தல்
2. தமிழ்ச்சொல் வகைகளை அறிதல்

COURSE OUTCOMES

,ப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	ஊழ் ஞவயவநஅநவெ	முழுநடைநடைநடை நடைநடை
CO1	எழுத்துக்களில் வலிமிகும், மிகாமைக்குரிய மாற்றத்தைக் கண்டறிதல்	மு1
CO2	ரகர, றகர, லகர, ளகர, ழகர, னகர, ணகர, நகர வேறுபாடுகளை விளக்குதல்	மு2
CO3	வாக்கியச் சொற்றொடர்கள் மற்றும் கலைச்சொற்கள் குறித்து வகைப்படுத்தல்	மு3
CO4	வாக்கிய அமைப்பு மற்றும் வழக்களை ஆராய்ந்தறிதல்	மு4
CO5	உரைநடையில் பத்தியமைப்பு, நிறுத்தற்குறியினைப் பயன்படுத்துதல்	மு4

பாடத்திட்டம்

அலகு 1 : (6 மணி)

வலி மிகுதல் - மிகாமைக்குரிய விதிகள் - எளிய சந்தி விதிகள்

அலகு 2 : (6 மணி)

எழுத்து மாற்றத்தால் ஏற்படும் பொருள் மாற்றம் - ரகர, நகர வேறுபாடுகள், லகர, ளகர, ழகர, னகர, ணகர, நகர வேறுபாடுகள்

அலகு 3 : (6 மணி)

தமிழ்ச்சொல் வகைகள் - தமிழில் வழங்கும் வடமொழிச் சொற்கள் - கலைச் சொற்கள் - சொற்றொடர்ப் பிரிப்புத் தவறுகள்

அலகு 4 : (6 மணி)

வாக்கிய வகைகள் - வாக்கியம் அமைக்கும் முறை - வாக்கிய வழக்கள் - வாக்கியங்களை மாற்றி அமைத்தல்

அலகு 5 : (6 மணி)

பத்தியமைப்பு - நிறுத்தற்குறிகளும் தவறுகளும் - மொழிநடை - உரைநடையில் கவனிக்க வேண்டியவை

பாட நூல்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	அ.கி. பரந்தாமனார்	நல்ல தமிழ் எழுத வேண்டுமா	அல்லி நிலையம், சென்னை - 7	1988

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	முனைவர் துரை. குணசேகரன்	தமிழ்ச்சொற்பிறப்பியல், வளர்ச்சி வரலாறு	பாவை பிரிண்டர்ஸ், சென்னை - 14	2016
2	ஆறுமுக நாவலர்	தமிழ் இலக்கணம்	முல்லை நிலையம், சென்னை - 17	1993
3	எம்.ஏ.நு.மான்	அடிப்படைத் தமிழ் இலக்கணம்	முதல் இந்தியப் பதிப்பு, திருச்சி	1997

கற்பித்தல் முறைகள்

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

காவேரி மகளிர் கல்லூரி (தன்னாட்சி), திருச்சி - 18

தமிழாய்வுத்துறை - முதுகலைத் தமிழிலக்கியம்

(2019 - 2020 ஆம் கல்வியாண்டு முதல் சேர்க்கை பெறும் மாணவியருக்கு)

நான்காம் பருவம்

Sem	Course	Title	Course Code	Ins. Hrs / Week	Credit	Exam	Marks		Total
						Hours	Internal	External	
IV	Core Course – XIII (CC)	தொல்காப்பியம் - பொருளதிகாரம் - ஐஐ - பின் நான்கு இயல்கள் (பேராசிரியர் உரை)	19PTA4CC13	5	5	3	25	75	100
	Core Course – XIV (CC)	திராவிட மொழிகளின் ஒப்பிலக்கணம்	19PTA4CC14	5	5	3	25	75	100
	Elective Course – IV (EC)	ஐஏ. அ) மக்கள் தகவல் தொடர்பியல் (முச) ஐஏ. ஆ) பண்பாட்டு மானுடவியல்	19PTA4EC4A	5	4	3	25	75	100
			19PTA4EC4B						
	Elective Course – V (EC)	ஏ. அ) பெண்ணியம் (முச) ஏ. ஆ) அகராதியியல்	19PTA4EC5A	5	4	3	25	75	100
			19PTA4EC5B						
			திட்டக்கட்டுரை	19PTA4PW	10	4	3	25	75
TOTAL				30	22				500

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
19PTA4CC13	தொல்காப்பியம் - பொருளதிகாரம் ஐஐ - இறுதி நான்கு இயல்கள் (பேராசிரியர் உரை)	III	71	4	-	5

நோக்கம்

- மாணவர்களுக்கு இலக்கிய உத்திகளான மெய்ப்பாடுகள், உவமை குறித்தும் யாப்பு நெறி குறித்தும் கற்பித்தல்.

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	தொன்மையான தமிழ் மரபியல் கூறுகளைக் கணித்தல்	K3
CO2	இலக்கியங்களில் இடம்பெறும் மெய்ப்பாட்டு உத்திகளை ஆராய்ந்தறிதல்	K4
CO3	இலக்கியங்களில் உவமைப் பயன்பாட்டை மதிப்பிடல்	K5
CO4	தமிழ்ச் செய்யுள் அமைப்பினைத் திறனாய்தல்	K6

பாடத்திட்டம்

அலகு 1 : (15 மணி)

மெய்ப்பாட்டியல்

அலகு 2 : (15 மணி)

உவமவியல்

அலகு 3 : (15 மணி)

செய்யுளியல் (நூற்பா 1 -119)

அலகு 4 : (15 மணி)

செய்யுளியல் (நூற்பா 120 -235)

அலகு 5 : (15 மணி)

மரபியல்

பாட நூல்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	பேராசிரியர் உரை	தொல்காப்பியம் - பொருளதிகாரம்	கழக வெளியீடு, சென்னை	1951

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	சோ.ந. கந்தசாமி	தமிழ் யாப்பியலின் தோற்றமும் வளர்ச்சியும் தொகுதி 1,2	தமிழ்ப்பல்கலைக்கழக வெளியீடு, தஞ்சாவூர்	1989

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
19PTA4CC14	திராவிட மொழிகளின் ஒப்பிலக்கணம்	III	71	4	-	5

நோக்கம்

1. மொழிக் குடும்பங்கள் பற்றிக் கற்பித்தல்
2. மொழிகளுக்கு இடையிலான உறவுகளை எடுத்துரைத்தல்
3. திராவிட மொழிகள் ஒரே குடும்பத்தைச் சேர்ந்தவை என்பதைக் கற்பித்தல்

COURSE OUTCOMES

,ப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	மொழிக் குடும்பங்களைக் கணித்தல்	K3
CO2	திராவிட மொழிகளுக்கு இடையிலான உறவை ஆராய்ந்தறிதல்	K4
CO3	திராவிட மொழி இலக்கணங்களை மதிப்பிடல்	K5
CO4	திராவிட மொழிக்கோட்பாட்டை உருவாக்குதல்	K6

பாடத்திட்டம்

அலகு 1 : (20 மணி)

மொழியும் மொழியியலும் - ஒப்பியல் ஆய்வுமுறை - மொழிக் குடும்பங்கள் - திராவிட மொழிக் குடும்பம் - டாக்டர் கால்டுவெல் - திராவிட மொழிக் குடும்ப ஒப்பிலக்கணம் ஆய்வு - தென் திராவிட மொழிகள் - வட திராவிட மொழிகள் - நடு திராவிட மொழிகள்

அலகு 2 : (20 மணி)

ஒலியும் பிறப்பும் - உயிரொலிகளின் இயையும் திரிபும் - ஒலி மாற்றங்கள் - மெய்யொலிகளின் இயையும் திரிபும் - மெய்யொலி மாற்றங்கள்

அலகு 3 : (20 மணி)

பெயர்ச் சொற்கள் - திணை, பால், எண் உணர்த்தும் முறை - வேற்றுமைகள் - மூவிடப்பெயர்கள் - எண்ணுப் பெயர்கள்

அலகு 4 : (15 மணி)

வினைச் சொற்களின் அமைப்பும் சிறப்பும் - வினை வகைகள் - காலம் காட்டும் முறைகள்

அலகு 5 : (15 மணி)

எச்சங்களும் முற்றுகளும் - திராவிட மொழிகளின் தொடரமைப்பு

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	புலவர் கா. கோவிந்தன், க. ரத்தினம் (தமிழாக்கம்)	டாக்டர் கால்டுவெல்லின் திராவிட மொழிகளின் ஒப்பிலக்கணம் (1,2,3,4 பாகங்கள் முழுமையும்)	பாரி நிலையம், சென்னை	2004
2	ஜான் சாமுவேல்	திராவிட மொழிகளின் ஒப்பாய்வு (ஓர் அறிமுகம்)	பாரி நிலையம், சென்னை	2008
3	மு. வரதராசன்	மொழி நூல்	பாரி நிலையம், சென்னை	2011

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
19PTA4EC4A	மக்கள் தகவல் தொடர்பியல்	III	71	4	-	4

Nehf;fk;

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	Knowledge Level
CO1	தகவல் தொடர்பின் முக்கியத்துவத்தினைக் கண்டறிதல்	K1
CO2	தகவல் பரிமாற்றத்திற்கு பயன்படும் தகவல் தொடர்பு சாதனங்களின் வரலாறு குறித்து விவரித்தல்	K2
CO3	தகவல் தொடர்பு சாதனங்களின் அமைப்பு மற்றும் அவை செயல்படும் விதத்தினை ஆராய்ந்தறிதல்	K3
CO4	சமூக வளர்ச்சிக்குத் தகவல் தொடர்பு சாதனங்களின் பங்களிப்பினை இணைத்தறிதல்	K4

பாடத்திட்டம்

அலகு 1 : (15 மணி)

தொடர்பியல் - விளக்கம் - தகவல் தொடர்பியலின் இலக்கணம் - வகைகள் - 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 - தொலைக்காட்சியின் நிறைகள், குறைகள்

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 - 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, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
19PTA4EC5A	பெண்ணியம்	III	71	4	-	4

நோக்கம்

1. பெண்கள் தம்முடைய அடிப்படை உரிமைகளை உணர்தல்
2. பெண்களை அடிமைப்படுத்தும் மரபு ரீதியான கட்டுப்பாடுகள், ஆண் மதிப்பீடுகள் மாற்றம் காணுதல்
3. ஆண் பெண் இருபாலரும் இணைந்து செயலாற்றும் விழிப்புணர்வை மாணவியர் பெறச் செய்தல்.

COURSE OUTCOMES

,ப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	பெண்ணியச் சிந்தனைகள், பெண் விடுதலை இயக்கங்கள் குறித்து கணித்தல்	K3
CO2	பெண்ணியக் கோட்பாடுகள், வகைகள், இந்தியப் பெண்ணியச் சிந்தனைகளைப் பகுத்தாய்தல்	K4
CO3	பெண்களுக்கான சட்டங்கள், அரசுத்திட்டங்கள் குறித்து விவரித்தல்	K5
CO4	பெண் எழுத்தாளர்களின் படைப்புகள் குறித்து விவாதித்து, புதிய படைப்புகள் படைக்கும் திறன் பெறுதல்	K6

பாடத்திட்டம்

அலகு 1 : (10 மணி)

பெண்ணியம் விளக்கம் - மேலை நாடுகளில் பெண்ணியம் - பெண்களுக்கு வாக்குரிமை - பெண் விடுதலை இயக்கம்

அலகு 2 : (20 மணி)

பெண்ணியக் கோட்பாடுகள் - பெண்ணடிமையின் காரணங்கள் - பெண்கள் முன்னேற்ற வழிகள் மிதவாதப் பெண்ணியம் - மார்க்சியப் பெண்ணியம் - சோஷலிசப் பெண்ணியம் - தீவிரவாதப் பெண்ணியம் - ஆன்மீகப் பெண்ணியம் - கலாச்சாரப் பெண்ணியம் - கிறித்துவப் பெண்ணியம் - இந்தியப் பெண்ணியம் - பெரியார் பெண்ணியம்.

அலகு 3: (15 மணி)

பெண்ணியம் - இந்தியாவில் தோற்றமும் வளர்ச்சியும் - காலந்தோறும் பெண்மை - பெண்களும் சட்டங்களும் - பெண்களும் அரசுத் திட்டங்களும் - மகளிர் அமைப்புகள்

அலகு 4 : (15 மணி)

தமிழிலக்கிய நோக்கில் பெண்கள் மரபு - இலக்கியத்தில் பெண்கள் - பாரதி படைப்புகளில் பெண்ணியம் - பெண் சிறுகதை ஆசிரியர்கள் - பெண் நாவலாசிரியர் - பெண் புதுக்கவிஞர்கள் - மகளிர் இதழ்கள்

அலகு 5 : (15 மணி)

இலக்கியமும் மகளிர் மேம்பாடும் - பெண்ணியப் படைப்புகளில் விமர்சனப் பார்வை – பின் நவீனத்துவப் பார்வையில் பெண்ணியம்

பாட நூல்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	இரா. பிரேமா	பெண்ணியம்	தமிழ்ப் புத்தகாலயம், சென்னை	2000

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	ச. முத்துச்சிதம்பரம்	பெண்ணியம் தோற்றமும் வளர்ச்சியும்	முத்துப் பதிப்பகம், தூத்துக்குடி	2005
2	இரா. பிரேமா	பெண் மரபிலும் இலக்கியத்திலும்	தமிழ்ப் புத்தகாலயம், சென்னை	2001
3	ராஜம்கிருஷ்ணன்	காலந்தோறும் பெண்	தாகம், சென்னை	2011
4	பேராசிரியர் சி. என். குமாரசாமி	பெண்ணிய நோக்கில் பாரதி	நாம் தமிழர் பதிப்பகம், சென்னை	2001

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

ANNEXURE - E**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS),****TIRUCHIRAPPALLI-620 018****CBCS SYLLABUS****PART-I HINDI (U.G.COURSES)****(Applicable to the candidates to be admitted from the academic year 2019-2020 onwards)**

Sem	Part	Course	Course Title	Course Code	Inst. Hours	Credit	Exam Hours	Marks		Total
								CIA	ESE	
I	I	Language Course-I	Story, Novel, Hindi Literature-I & Grammar -I	19ULH1	6	3	3	25	75	100
II		Language Course-II	Prose,Dramma, Hindi Literature-2 & Grammar-II	19ULH2	6	3	3	25	75	100
III		Language Course-III	Medieval, Modern Poetry & History of Hindi Literature-3	19ULH3	6	3	3	25	75	100
IV		Language Course-IV	Letter Writing, Precise writing, General Essays, Technical Terms, Proverbs, Amplifications, Idioms & Phrases	19ULH4	6	3	3	25	75	100

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TIRUCHIRAPPALLI-620 018

UG Part-I Hindi

PROGRAMME EDUCATIONAL OBJECTIVES

- The students to attain the knowledge of Modern Hindi Literature.
- Knowing the usage of Hindi Language skill for their day-to-day life.
- Encourage the students to attend the competitive exams in which Hindi is part of syllabus.

PROGRAMME OBJECTIVES

PO 1 : The Students to know about Functional Hindi usage in relevant fields.

PO 2 : To enhance the students' competencies in Hindi precise writing.

PO 3 : To be more comfortable with usage of Hindi Language skill for day- to-day life.

PO 4 : To Know about that various traits of Hindi Literature.

Sub. Code 19ULH4	FUNCTIONAL HINDI & HISTORY OF HINDI LITERATURE (ADHUNIK KAL)	Category	L	T	P	Credit
		I	86	4	-	3

PREAMBLE:

- To enable the students to understand the various forms of General Essays.
- To improve their knowledge in Hindi language, historical events, culture and to create awareness about the problems of individual life as well as the society.
- To impart working knowledge of Hindi through relevant exercises such as translation, Idioms and Phrases.

CO	CO Statement	Knowledge
CO1	Apply, construct, Choose, Complete, practice, Technical terms meanings, and Idioms and Phrases (Selected)	K3
CO2	Define, Choose, construct, Complete, practice the Precise writing in Hindi	K1
CO3	Define, Classify, Choose, construct, Complete, practice the formal letter writing in Hindi.	K2
CO4	plan, construct, develop, illustrate, the various topics in the Essay collection of Hindi Nibandh	K4
CO5	Define, find, list, label the various aspects of the History of Hindi literature in the Period of Adhunikkal.	K3

SYLLABUS

- UNIT-1 - Technical Terms:**
1. Designations & Name of posts, (Selected 28)
 2. Name of Ministries, (20)
 3. Name of Departments, (Selected 27)
 4. Name of the Office (Selected 25)

- UNIT-2 :**
1. Precise Writing
 2. Proverbs, Amplification, Idioms & Phrases (each 5)

- UNIT-3 - Letter Writing :**
1. Format, Types,
 2. Business Letters - Job Application, Request Letter, Complaint Letter, Order
 3. Official Letters – Official, Demi Official, Reminder, Circular

UNIT -4 General Essays :

1. Kutir Udyog,
2. Paryavaran
3. Vigyan Aur Manav
4. Janasankya : Vikas Evan VyakthikSwasthya

UNIT-5 Aadhunikkal:

1. Paristhithiyan, visheshathayen, pravruithiyan
2. Bharathendhu Harishchandra,
3. Mahaveer Prasad Diwedhi
4. Krishna Sobathy

Teaching Methodology:

Lecture, Chart, Black Board, Group Discussion, Debate, Audio-Video teaching

Mapping with programme outcomes:

Cos	PO1	PO2	PO3	PO4
CO1	S	M	M	S
CO2	M	S	M	M
CO3	S	M	S	M
CO4	M	S	S	M

S-Strong M-Medium L-Low

Text & Reference Books:

Sl.No.	Books Name	Author's Name	Publisher's Name & Address	Publishing Year
1.	Vyavaharik Hindi	RamKishore Sharma	LokBharathiPrakashan, Alahabad	2005
2.	Hindi Vyakaran Evan Rachana	Dr. Gayathri Devi vaishya, MilapchandJain, Lalith Kishore	Ajmera Prakashan, Jaipur.	2011
3.	Hindi Sahithya ka Subodh Ithihas	Babu Gulab Rai	Lakshmi Narayan Agarwal, Agra- 3	2006
4.	RajabashaBodhini	--	D.B.H.P.Sabha, Chennai-17	2008

ANNEXURE - F

DEPARTMENT OF FRENCH

PROGRAMME EDUCATIONAL OBJECTIVES

Our programme will produce graduates:

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

Programme outcome:

PO1	To use varied and appropriate vocabulary as well as circumlocution when required to discuss a variety of topics.
PO2	To demonstrate good knowledge of the fundamental grammatical structures of French.
PO3	To demonstrate good knowledge of the history, culture and gastronomy of France.
PO4	Express themselves clearly enough in both oral & written French which will ensure the students better job opportunities.

Cauvery College for Women, Annamalai Nagar , Tiruchirappalli – 620006
UG Programme – Part – 1 French – Course Structure under CBCS
(Applicable to the candidates admitted from the academic year 2019– 2020 onwards)

UG –French

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

UG –FRENCH
II YEAR – IV SEMESTER

Course Code	Paper IV –	Category	L	T	P	Credits
19ULF4	Communication in French IV	1	86	4	-	3

Preamble- To acquire basic skills in verbal and written French which will serve to improve job perspectives

PAPER IV - COMMUNICATION IN FRENCH IV

CO	CO Statement	Knowledge level
CO1	The students would be able to give their opinion using the conditionnel present tense.and to talk about an anecdote.	K1
CO2	The students would be able to describe the character of a person and their habitual life style.They would learn a little on the law of France.	K2
CO3	Discuss about their success and failure. Learning the sports played in France.	K3
CO4	The students will be able to discuss their habitual activities and their conditions in life. Writing or giving opinions on their daily life.	K4

Mapping with programme outcomes:

Cos	PO1	PO2	PO3	PO4
CO1	S	M	M	S
CO2	M	S	M	M
CO3	S	M	S	M
CO4	M	S	S	M

S-Strong M-Medium L-Low

Preamble- To acquire basic skills in verbal and written French which will serve to improve job perspectives

SYLLABUS

Unité-1 : Vous plaisantez !

1. **Ouverture**-Proposer quelque chose-Réagir à une proposition
2. **Grammaire**-Le conditionnel présent-expression de l'hypothèse-demandes polies- suggestions et conseils
3. **Civilisation**-L'Art au début du XXe siècle

Unité :2- On s'entend bien !

1. **Ouverture**-Exprimer l'incompréhension-S'explique-Exprimer l'accord et le désaccord
-Se réconcilierSe dire au revoir
2. **Grammaire**-Les constructions du discours rapporté-Les constructions « faire+verbe » et « laisser+verbe »
3. **Civilisation**-Habitudes et interdits en France et dans le monde

Unité :3 –A vos risques et périls !

1. **Ouverture**-Donner des directives -Exprimer la volonté et l'obligation-Exprimer l'inquiétude et la peur-Rassurer
2. **Grammaire**-Le subjonctif présent-La construction passive pour mettre en valeur-
L'objet direct de l'action
3. **Civilisation**-Les Français et le sport -Les jeunes issus de l'immigration

Unité :4– La vie est dure

1. **Ouverture**-Prendre contact avec quelqu'un-Avoir un entretien d'embauche-Exprimer l'appartenance-Exprimer la confiance ou la méfiance
2. **Grammaire** : Les pronoms possessifs - Les adjectifs et les pronoms indéfinis
3. **Civilisation** : Les Français et les tâches ménagères - La colocation

Unité :5- Que choisir ?- Je sais faire

1. **Ouverture** :Choisir quelque chose - Exprimer une opinion sur une personne
Se débrouiller dans une banque
2. **Grammaire** :Les pronoms démonstratifs - Les constructions comparatives Les formes de l'appréciation : trop / pas assez - Les constructions - « verbe+verbe » -L'opposition des idées
3. **Civilisation** :Comportements et habitudes en matière d'argent , Le Sécurité sociale - Les systèmes d'assurances

Teaching Methodology

Blackboard, Assignments, Quiz, Group Discussion, Just a minute.

Prescribed Text Book: Echo II(Méthode de français) Edition – CLE International

Authors: J. Girardet et J. Pécheur

Publishers & distributors : GOYAL

86, UB Jawahar Nagar (Kamala Nagar), Delhi-7

Tel : 2385296, 9650597000

www.govalsaab.com goyal@govalsaab.com

Reference Book: ALTER ego 2 (Hachette-Français Langue ``Etrangère)

Reflets 2- Guy Capelle, Noelle Gidon

Syllabus prepared by : Mrs.M.Manjula

ANNEXURE - G**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TIRUCHIRAPPALLI-620 018****CBCS SYLLABUS****PART-I SANSKRIT (U.G.COURSES)****(Applicable to the candidates to be admitted from the academic year 2019-2020 onwards)**

Sem	Part	Course	Course Title	Course Code	Inst. Hours	Credit	Exam Hours	Marks		Total
								CIA	ESE	
I	I	Language Course-I	History of Popular Tales Literature and Sanskrit Story	19ULS1	6	3	3	25	75	100
II		Language Course-II	Poetry/Textual Grammer and Alakara	19ULS2	6	3	3	25	75	100
III		Language Course-III	Prose, Textual Grammer and Vakyarachana	19ULS3	6	3	3	25	75	100
IV		Language Course-IV	Drama, History of Drama Literature	19ULS4	6	3	3	25	75	100

YEAR	SEMESTER	TITLE OF THE COURSE	L	T	P	CREDIT
II	IV	DRAMA, HISTORY OF DRAMA LITERATURE	86	4	-	3

COURSE OBJECTIVE:

To introduce Sanskrit drama literature and provide training in morpho-phonemic rules.

COURSE OUTCOMES:

The successful completion of the course will equip the students to

CO Number	CO Statement	Knowledge Level
CO1.	Distinguish the style of Ancient Method of Drama(Village Drama)	K1
CO2.	Relate the use of language the Dramas parting to the Cultural Values.	K2
CO3.	Evaluate the Works and Characters of Basa's Drama	K2
CO4.	Compare the course from the plays of Kalidasa and others.	K3
CO5.	Apply and relate the knowledge and understanding acquired over variability of languages.	K3

SYLLABUS

UNIT I

(20Hrs)

Madhyama Vyayoga – First Half.

UNIT II

(20hrs)

Madhyama Vyayoga – Second Half.

UNIT III

(20hrs)

Origin and development of Sanskrit drama – Types of Sanskrit plays and characteristics of Sanskrit drama.

UNIT IV

(15hrs)

Plays of Bhasa, Kalidasa, Visakadatha, Harsha, Bavabuthi murari, Battanarayana.

UNIT V

(15hrs)

Authorship of the Thirteen Plays – The Works of Bhasa – Plot Hero and Sentiment – Bharathavakiyam – Deviations.

TEXT BOOKS:

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	Bhasa	Madhyama Vyayoga	R.S.Vadhyar & Sons Kerala	2012
2.	Anathachariya	History of Sanskrit Literature	R.S.Vadhyar & Sons Kerala	2012

REFERENCE BOOKS:

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	Vedhavyasa	Mahabharatham	Bharathiya Vidhya Bhawan	-

ANNEXURE - H
PG DEPARTMENT OF ENGLISH
(2020-2021)

B.A PROGRAMME OUTCOMES

PO 1	Apply the Acquired LSRW Skills, Vocabulary, Grammar and to be Well-versed in Language and Literature and also to Develop a Critical and Analytical Cognizance.
PO 2	Demonstrate a broad Awareness of Texts with their Language, Historical, Theoretical, Cultural and Social Contexts pertaining to Diverse Ethnic Cultures and Explain the Vital Role of Artistic Expressions in Literary works in Relation with the Society.
PO 3	Classify the different Genres of Literature and the various approaches to understand Literature with an insight from the Classical to Postmodern Age.
PO 4	Acquire In-depth Knowledge of Literature with a global perspective to Differentiate, Analyze, Synthesize and Correlate Ideas.
PO 5	Prepare for Competitive Exams; Enhance Communicative Skills; equip learners to secure job opportunities.

PROGRAM STRUCTURE

SEM	PART	COURSE	TITLE	SUB. CODE	HRS/	CREDITS	EXAM	MARKS		TOTAL
					WEEK			HRS	INT	
I	I	Language Course – I	Ikkalallakya - I	19ULT1	6	3	3	25	75	100
		(LC) – Tamil */ Other Languages**#	Story, Novel, Hindi Literature - I & 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)	Prose	19UEN1CC1	6	5	3	25	75	100
		Core Course – II (CC)	Short Stories	19UEN1CC2	5	5	3	25	75	100
		Allied Course – I (AC)	Social History of England	19UEN1AC1	5	3	3	25	75	100
	IV	Value Education	Value Education	19UGVE	2	2	3	25	75	100
		Total			30	21				600

SEM	PART	COURSE	TITLE	SUB.CODE	HRS/	CREDITS	EXAM HRS	MARKS		TOTAL
					WEEK			INT	EXT	
II	I	Language Course – II	IdaikalallakiyammPudhinamum	19ULT2	6	3	3	25	75	100
			Textual Grammar and Prose, Drama, Hindi Literature –II &Grammar –II Poetry	19ULH2						
			Alankara	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 III (CC)	Poetry - I	19UEN2CC3	6	5	3	25	75	100
		Core Course IV (CC)	Fiction	19UEN2CC4	6	5	3	25	75	100
		Allied Course II (AC)	Literary Forms	19UEN2AC2	4	3	3	25	75	100
	IV	Environmental Studies	Environmental Studies	19UGES	2	2	3	25	75	100
TOTAL					30	21				600

SEM	PART	COURSE TITLE	TITLE	SUB.CODE	HRS/ WEE	CRED ITS	EXAM HRS	MARKS		TOTAL
					K			INT	EXT	
III	I	Language Course – III	Kapiyamum Nadagamum Medieval, Modern Poetry	19ULT3	6	3	3	25	75	100
			History of Hindi Literature-III	19ULH3						
			Prose, Textual Grammar & Vakyarachana	19ULS3						
			Communication in French -III	19ULF3						
	II	English Language Course –III	Reading and Writing for Effective Communication	19UE3	6	3	3	25	75	100
	III	Core Course V (CC)	One Act Plays	19UEN3CC 5	6	5	3	25	75	100
				19UEN3CC 6	6	5	3	25	75	100
				19UN3AC3	4	3	3	25	75	100
	IV	Non Major Elective I – for those who studied Tamil under Part I	Presentation Skills in English	19UEN3						
NME1										
19ULC3BT1										
19ULC3ST1				2	2	3	25	75	100	

	Swayam Online Course	The Psychology of Language			As per UGC Norms				
	TOTAL			30	21				600

SEM	PART	COURSE TITLE	SUB.COD E	HRS/ WEE K	CRED ITS	EXAM HRS	MARKS		TOTAL		
							INT	EXT			
I		Language Course – IV	Pandaiyallakiyam	19ULT4	6	3	3	25	75	100	
			Letter Writing, General Essays, Technical Terms, Proverbs, Idioms And Phrases, Hindi Literature-IV	19ULH4							
			Drama, History Of Drama Literature	19ULS4							
			Communication In French –Iv	19ULF4							
II		English Language Course –IV	Reading and Writing for Effective Communication I	19UE4	6	3	3	25	75	100	
III		Core Course VII (CC)	Drama	19UEN4C7	5	5	3	25	75	100	
		Core Course VIII (CC)	Introduction of Language and Linguistics	19UEN4C8	5	5	3	25	75	100	
		Allied Course IV (AC)	History of English Literature-II	19UEN4AC4	4	3	3	25	75	100	
		Non Major Elective II – for those who studied Tamil under Part I	Communication Skills in English	19UEN4NME2							
IV	IV	a) Basic Tamil for other	(or)	19ULC4BT2	2	2	3	25	75	100	

	language students								
	b) Special Tamil for those who studied Tamil up to 10 th +2 but opt for other languages in degree programme								
	Communication Skills	Soft Skills	19ULC4ST 2						
		Basic Tamil							
		Special Tamil							
V	Skill Based Elective – I	Writing for Media	19UEN4SB E1A						
		Business English	19UEN4SB E1B	2	2				100
	Swayam Online Course	As per UGC Recommendation							
	TOTAL			30	23				700

SEM	PART	COURSE	TITLE	SUB.CODE	HRS/	CREDITS	EXAM HRS	MARKS		TOTAL
					WEEK			INT	EXT	
V	III	Core Course IX (CC)	Shakespeare	19UEN5CC9	5	5	3	25	75	100
		Core Course X (CC)	Principles of Literary Criticism	19UEN5CC10	6	5	3	25	75	100
		Core Course XI (CC)	American Literature	19UEN5CC11	5	5	3	25	75	100
		Core Course XII (CC)	Women's Writings in English	19UEN5CC12	5	5	3	25	75	100
		Major Based Elective - I	Translation :Theory and Practice	19UEN5MBE1A	5	3	3	25	75	100
	IV	Skill Based Elective – II	Functional English	19UEN5SBE2A	2	2	3	25	75	100
			Or	Or						
		Skill Based Elective – III	Mastering English Literature	19UEN5SBE2B	2	2	3	25	75	100
			Academic Writing	19UEN5SBE3A						
			Or	Or						
Public Speaking	19UEN5SBE3B									
TOTAL					30	29				700

SEM	PART	COURSE	TITLE	SUB.CODE	HRS/	CREDITS	EXAM HRS	MARKS		TOTAL
					WEEK			INT	EXT	
VI	III	Core Course XIII (CC)	English Language Teaching	19UEN6CC13	6	5	3	25	75	100
		Core Course XIV (CC)	Indian Writing in English	19UEN6CC14	6	5	3	25	75	100
		Core Course XV (CC)	Commonwealth Literature	19UEN6CC15	6	5	3	25	75	100
		Common Wealth Literature								
		Major Based Elective – II	Journalism	19UEN6MBE2A	6	3	3	25	75	100
			Or	Or						
			Mass Communication	19UEN6MBE2B						
		Major Based Elective – III	Developing Language Skills	19UEN6MBE3A	5	3	3	25	75	100
			Or	Or						
			Phonetics	19UEN6MBE3B						
Extension Activities		19UGEA	-	1	-	-	-	-		
IV	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100	
	TOTL			30	25				600	
	GRAND TOTAL			180	140		975	2925	3900	

FOURTH SEMESTER SYLLABI

Part II : ENGLISH LANGUAGE COURSE IV–

Reading and Writing for Effective Communication-II

S.No	Subject Code	Title	Category	L	T	P	Credits
1	19UE4	Reading and Writing for Effective Communication II	English Language Course – IV	78	12	-	3

Credit: 5

Objective:

1. To enhance and inculcate reading and writing
2. Adopt to different purposes of writing.
3. Develop effectiveness in English communication

Preamble:

The course is structured to develop writing skills for graduating learners

Prerequisite:

An intermediate knowledge in English Vocabulary and Descriptive Writing.

Syllabus

UNIT I: READING AND WRITING (15 Hrs)

- Vocabulary-Synonyms,Antonyms,Homophones,Homonyms
- Words Often Confused
- Spotting the Errors

UNIT II: READING AND WRITING(10 Hrs)

- Reading Comprehension
- Reconstruction of Paragraphs

UNIT III: WRITING(15Hrs)

- Writing a Proposal, Writing Reports-Expanding a Statement
- Minutes, Agenda & Precis Writing:

UNIT IV: POEMS:READING AND WRITING(18Hrs)

- All the World's a Stage- William Shakespeare
- In the Bazaars of Hyderabad- Sarojini Naidu

UNIT V: AUTOBIOGRAPHIES: READING AND WRITING (20 Hrs)

- The Story of My Experiments with Truth- Mahatma Gandhi

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Recite and recall vocabulary, phrases and different sentence structures	K1
CO2	Explain written expression based on the situation and genres	K2
CO3	Model and construct written passages based on a given scenario.	K3
CO4	Analyze and classify the appropriate use of grammar through literature	K4
CO5	List and infer to reproduce after a extensive acquisition of vocabulary	K4

MAPPING WITH PROGRAMME OUTCOME

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	M	L	L	M
CO2	S	M	L	L	S
CO3	S	L	L	M	S
CO4	S	L	L	M	S
CO5	S	M	L	S	S

S-Strong M-Medium L-Low

Text Book

Sl.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Saradha,M	The Complete Guide to Functional Writing in English	Sterling Publishers, New Delhi	2005
2	Sarojini Naidu	The Bird of Time: Songs of love, Death and the Spring	London	1912
3	Mahadev Deasi	An Autobiography(The Story of My Experiments with Truth)	Navajivan Publishing House	2015
4.	William Shakespeare	As You like It, Act II, Scene 7		

Books for Reference

S.No	Authors	Title	Publisher	year
1	Green, David	Contemporary English Grammar, Structures and Compositions.	Macmillan India	2008
2	Raheem, S.A.	Write Right: A Task Based Approach	Scitech publishers, Chennai	2003
3.	Bhatnagar, R.P	English for Competitive Examinations (English) 3rd Edition	<u>Macmillan India Ltd</u>	2016

Pedagogy: Worksheets, Quiz, Assignment

Course Designer: Dr S.Jayashree Agarwal and Ms. G.Gayathri

Core Course VII: Drama

S.No	Subject Code	Title	Category	L	T	P	Credits
1	19UEN4CC7	Drama	Core Course VII	80	10	-	5

Objective:

1. To incorporate reading and writing in a conversational form.
2. To understand the description and writing of different authors from various homeland.
3. To initiate interest in other interrelated social science

Preamble:

The course is structured to enable the students to know the significance of drama in literature and understand its kinds.

Prerequisite:

An interest in reading and an ability to analyse and understand the theme and purpose of the literature

Syllabus

Unit – I (17 HOURS)

Susan Glaspell's: Alison's House

Unit – II(16 HOURS)

Samuel Beckett: Waiting for Godot

Unit – III(16 HOURS)

G. B Shaw: Pygmalion

Unit– IV(16 HOURS)

T. S. Eliot: Murder in the Cathedral

Unit – V(15 HOURS)

R. B. Sheridan: The Rivals

COURSE OUTCOMES

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO 1	Recall the elements of Drama and explain how these elements combine a theatrical experience	K1
CO2	Explain the limitations and opportunities pertaining to the theatre and film	K2
CO3	Construct a drama by using the similar characters where virtue is rewarded and vices punished	K3
CO4	Classify the types of drama and their characteristics.	K5
CO5	Analyze the significance of drama from the audience perspective.	K4

MAPPING WITH PROGRAMME OUTCOME

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	S	S	S

S-Strong M-Medium L-Low.

Text Book

S. No	Author	Title of the Book	Publishers	Year of Publication
1	Beckett, Samuel	Waiting for Godot.	New Delhi: Rama Brothers India Pvt. Ltd	2015
2	Eliot, T.S.	Murder in the Cathedral	New Delhi: Surjeet Publications	1963
3	Shaw, George Bernard	Pygmalion	New Delhi: Maple Press	2014
4	Sheridan R. B	The Rivals.	Madurai: Manimekala Publishers	2009
5	Glaspell, Susan	Alison's House	New York: Samuel French	1930

Books for Reference:

S. No	Author	Title of the Book	Publishers	Year of Publication
1	William Hutchings	Samuel Beckett's Waiting for Godot: A Reference Guide.	Cliff Notes	1980
2	David Newton- De Molina	The Literary Criticism of T.S. Eliot New Essays	New Essays	2013
3	Stanley Grauman Weinbaum	Pygmalion's Spectacles	Paperback	2004
4	Rosing, Ruth Glean	Val Rosing: Musical Genius	Sunflower University Press	1993
5	Gale, Cengage	A Study Guide for Susan Glaspell's "Allison's House"	Gale, Study Guides	2017

Pedagogy

Group Discussion, Quiz, Assignment, PowerPoint Presentation

Course designer

Ms.U.SREE ARUNA

Core Course VIII: Introduction to Language and Linguistics

S.No	Subject Code	Title	Category	L	T	P	Credits
1	19UEN4CC8	Introduction to Language and Linguistics	Course Course VIII	75	15	-	3

Objective:

1. The course is designed to introduce of the learners of English language to Linguistics.
2. To classify sounds and other units of a word.
3. Enables the learners to gain knowledge in further application of the learnt concepts

Preamble:

The course is structured to develop proper articulation and classification of sounds.

Prerequisite:

A intermediate knowledge in sounds and pronunciation.

Syllabus

Unit – I (15Hrs)

The Origins and the Development of Language

Unit – II (15 Hrs)

Language, Society and Culture

Unit – III (15Hrs)

The Organs of Speech – Classification of Speech Sounds

Unit – IV (17 Hrs)

Phonology – Morphology

Unit – V (13 Hrs)

Syntax – Semantics

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Recall and identify the study of linguistics and its purpose.	K1
CO2	Explain the mechanism and the biological organs involved in speech production.	K2
CO3	To apply and classify speech sounds as vowels, consonants and its further distribution.	K3
CO4	Diagnose, dissect and determine speech sounds into basic elements.	K4
CO5	Analyze the semantics and syntax of a sentence and transcribe the spoken language text.	K4

MAPPING WITH PROGRAMME OUTCOME

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	S
CO2	S	S	S	M	S
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	S	S	S

S-Strong M-Medium L-Low.

Text Book

S. No	Author	Title of the Book	Publishers	Year of Publication
1	George Yule	The Study of Language. An Introduction	Cambridge UP	1985

Pedagogy:

Phonetic Transcription, Quiz, Assignment

Course Designer:

Dr. A. Suganthi Rao

Allied Course IV: HISTORY OF ENGLISH LITERATURE-II

S.No	Subject Code	Title	Category	L	T	P	Credits
1	19UEN4AC4	History of English Literature-II	Allied IV	63	12	-	3

Objective:

1. To have an extensive knowledge of historical and political impact on English Literature .
2. To enrich the knowledge of biographical details of the English literary authors.
3. To expose the students understand the varied genres in English literature.

Preamble:

This course is designed to extensively expound on the details of History, Politics & Society based on the study of English literature.

Prerequisite:

A foundational knowledge in English Literature and its history.

Syllabus

Unit I (10 Hrs)

The Age of Pope / The Classical Age / The Augustan Age (1700-150)

- The Age of Pope: Verse
- The Age of Pope: Prose and the Drama

Unit II (13 Hrs)

The Age of Johnson / The Age of Transition (1748 – 1798)

- The Age of Johnson: General Prose
- The Age of Johnson: The Novel
- The Age of Johnson: Verse

Unit III (11 Hrs)

The Age of Wordsworth / The Romantic Age (1798 – 1830)

- The Age of Wordsworth: The Older Poets
- The Age of Wordsworth: The Younger Poets
- The Age of Wordsworth: General Prose

The Age of Wordsworth: The Novel

Unit IV (14 Hrs)

The Age of Tennyson / The Victorian Age (1830 – 1880)

- The Age of Tennyson: Verse
- The Age of Tennyson: General Prose

- The Age of Tennyson: The Novel

Unit V (15 Hrs)

The Age of Hardy (1887 – 1928) & The Twentieth Century (1928 onwards)

- The Age of Hardy
- The Present Age

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO 1	List the works of Alexander Pope, Five major novelists, Joseph Addison and Richard Steele	K1
CO2	Relate the idea of Anti-Sentimental comedy in the works of Oliver Goldsmith and Richard Brinsley Sheridan.	K1
CO3	Illustrate the works of Romantic Poets	K2
CO4	Outline the works of novelists and prose writers who belong to the age of Tennyson.	K2
CO5	Develop the idea of Modernism in the works of W.B. Yeats, T.S.Eliot, James Joyce and D.H.Lawrence	K3

MAPPING WITH PROGRAMME OUTCOME

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	S	S	S

S-Strong M-Medium L-Low.

Text Book

S. No	Author	Title of the Book	Publishers	Year of Publication
1	Hudson, W.H.	An Outline History of English Literature	Atlantic Publishers	2008

Books for Reference

S. No	Author	Title of the Book	Publishers	Year of Publication
1	Rickett, Compton	A History of English Literature	UBS Publishers	2009.
2	Daiches, David	Critical History of English Literature	Allied Publishers	2005.

Pedagogy

Group Discussion, Quiz, Assignment, Activity, Power point presentation, Brain Storming, Open book test.

Course Designer : Ms.G.Vijayarenganayaki

NON MAJOR ELECTIVE II

Communication Skills in English (NME-II)

S.No	Subject Code	Title	Category	L	T	P	Credits
1	19UEN4NME2	Communication Skills in English	Non Major Elective	26	4	-	2

Objective:

1. To enhance the communicative skills
2. Exposing to reading and writing.
3. Develop self study through reading and enable expression in written form

Preamble:

The course is structured to develop writing skills for graduating learners.

Prerequisite:

A intermediate knowledge in English Vocabulary and Descriptive Writing.

Syllabus

UNIT - I (5 Hrs)

- Greeting and invitation
- Making request
- Asking for and Giving permission
- Offering help
- Giving Instruction and Direction
- Art of Small talk
- Participating in conversation

UNIT - II (5 Hrs)

- Making short Formal Speech
- Describing people, places, places, events and things
- Handling calls
- Leaving message
- Making request
- Making complaints and handling complaints

UNIT - III (5 Hrs)

- Subject- verb arrangement
- 'Do' forms
- Active and Passive voice
- Use of negatives
- Prepositions

UNIT - IV (5 Hrs)

- E-MAIL
- Note making
- Report writing

UNIT - V (6 Hrs)

- Curriculum Vitae
- Facing an interview
- Presentation skills
- Persuasion skills

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO 1	Recall and identify the study of linguistics and its purpose.	K1
CO2	Explain the mechanism and the biological organs involved in speech production.	K2
CO3	To apply and classify speech sounds as vowels, consonants and its further distribution.	K3
CO4	Diagnose, dissect and determine speech sounds into basic elements.	K4
CO5	Analyze the semantics and syntax of a sentence and transcribe the spoken language text.	K4

MAPPING WITH PROGRAMME OUTCOME

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	M	S	S	S	M
CO3	S	S	M	M	S
CO4	S	S	M	S	S
CO5	S	S	S	S	M

S-Strong M-Medium L-Low.

Text Book

S.No	Author	Title of the Book	Publishers	Year of Publication
1.	Mohan, Krishna Banerjee, Meera	Developing Communication Skills	Trinity publications	2000

Books for Reference

S.No	Author	Title of the Book	Publishers	Year of Publication
1	Dutt. P.Kirmani, Rajeevan. Geetha, Prakash.CL.N	A Course in Communication Skill Foundation Books	New Delhi: Cambridge University Press Ltd	2010
2	Murphy, Raymond	English Grammar in Use	Cambridge	2012

Pedagogy :Quiz, Seminar, Assignment

Course Designer : Ms.G.Gayathri

Skill Based Elective I: Writing for Media

S.No	Subject Code	Title	Category	L	T	P	Credits
1	19UEN4SBE1A	Writing for Media	Skill Based elective	26	4	-	2

Objective:

1. To expose students to the genre of formal writing.
2. To make students understand and differentiate reporting in spoken and written form.
3. Kindle interest for other emerging trends based on language learning.

Preamble:

The course is structured to allow students to explore and understand the skill of writing and reporting in media.

Prerequisite:

A intermediate knowledge in English Vocabulary and Descriptive Writing.

Syllabus

UNIT I (5 hrs)

- Mass Media- Definition & Classification- Functions-Agenda Setting- Reality Defining and Constructing.

UNIT II (5 hrs)

- Social Control- Distribution of Knowledge- Mass Media, Theory- Information Age.

Unit III (5 hrs)

- Mass Communication - Culture & Social Change.

UNIT IV (5 hrs)

- Mass Communication –Ethics and Morals

UNIT V (6 hrs)

- The Rise of Media- Media Diversity and its Benefits- Types of Mass Media-Print Media- Electronic Media- New Age Media (Mobile, Internet) Media and its Effects- E- Publishing- Photo Journalism – Blog Writing.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO 1	To identify and understand mass media as a system of interrelated focus on historical foundation, technological advances, economic dynamics, regulatory constraints and ethical concerns.	K1
CO2	Explain and illustrate the complex relationship of media theories.	K2
CO3	Apply and relate the underlying philosophical ideas of one or more communication research methods to construct the range of media.	K3
CO4	Analyze the basis of media ethics and constraints to be followed.	K4
CO5	Distinguish and examine the diversities in media.	K4

MAPPING WITH PROGRAMME OUTCOME

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	M	S	M	S	S
CO3	S	S	M	S	S
CO4	S	S	M	S	S
CO5	S	S	M	M	S

S-Strong M-Medium L-Low.

Text Book

S.No	Author	Title of the Book	Publishers	Year of Publication
1	Dan Laughey	Key Themes in Media Theories.	New Delhi: Rawat Publication	2008
2	De Fleur	Theories of Mass Communication	New York; David Mc Kay	1970
3	McQuail, Denis	Mass Communication Theory: An Introduction.	London: Sage Publications	1983

Pedagogy : Quiz, Seminar, Case Studies

Course Designer : Ms. P. Helan Jona

Skill Based Elective I: Business English

S.No	Subject Code	Title	Category	L	T	P	Credits
1	19UEN4SBE1B	Business English	Skill Based Elective	26	4	-	2

Objective:

1. To enhance the communicative skills pertaining to business
2. Expose students to corporate scenarios
3. To be able to secure and sustain by easily adapting to emerging trends.

Preamble:

The course is designed to enhance the employability of the students, by preparing them as **viable workforce**.

Prerequisite:

A intermediate knowledge in English Vocabulary and Descriptive Writing.

Syllabus

Unit I- Recapitulation of Sentences (5Hrs)

- Paragraph Writing

Unit II- Business Communication at Workplace (5Hrs)

- Letters & Emails
- Memos & Reports
- Resumes & Application Letter

Unit III – Business Writing (5Hrs)

- Report Writing & Types

Unit IV- Business Writing Contd.. (6Hrs)

- Writing abstracts, summaries & user instruction manuals

Unit V – Employment Communication (5Hrs)

- Organizational Roles
- Goals of Interviews
- Types of Interviews

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO 1	Recall and relate facts and terms .	K1
CO2	Classify and demonstrate concepts of various business communication	K2
CO3	Identify, construct and interview communication pertaining to employment	K3
CO4	Classify and categorize various types of reporting	K4
CO5	Test and take part in business writing	K4

MAPPING WITH PROGRAMME OUTCOME

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	M	M
CO2	S	M	M	M	M
CO3	S	M	M	M	M
CO4	S	M	M	M	M
CO5	S	M	M	M	M

S-Strong M-Medium L-Low.

Text Book

S.No	Author	Title of the Book	Publishers	Year of Publication
1	ArunaKoneru	Professional Communication	Tata McGraw-Hill Publishing Company	2008

Pedagogy : Quiz, Seminar, Case Studies

Course Designer : Dr. A. Suganthi Rao

ANNEXURE - I
CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
M.A., ENGLISH PROGRAMME STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2020 - 2021)

Sem	Course	Title	Subject Code	Inst Hrs/ Week	Credit	Exam	Marks		Total	
						Hrs	Int	Ext		
I	Core course-I	British Literature – I (1340-1798)	19PEN1CC1	6	4	3	25	75	100	
	Core course-II	Shakespeare	19PEN1CC2	6	4	3	25	75	100	
	Core course-III	Indian English Literature	19PEN1CC3	6	4	3	25	75	100	
	Core course-IV	Women’s Writing	19PEN1CC4	6	4	3	25	75	100	
	Elective Course-I	Linguistics & Rhetoric	19PEN1EC1A/	6	4	3	25	75	100	
		European Literature	19PEN1EC1B							
Total				30	20				500	
II	Core Course-V	British Literature – II (1799-Present Age)	19PEN2CC5	6	5	3	25	75	100	
	Core Course-VI	Translation Theory & Practice	19PEN2CC6	6	5	3	25	75	100	
	Core Course-VII	American Literature	19PEN2CC7	6	5	3	25	75	100	
	Core Course-VIII	Literary Criticism - I	19PEN2CC8	6	5	3	25	75	100	
	Elective Course-II	English Language Teaching	19PEN2EC2A/	6	4	3	25	75	100	
		Post-Colonial Studies	19PEN2EC2B							
	Total				30	24				500
		Core Course-IX	Asian Literature In English	19PEN3CC9	6	5	3	25	75	100
Core Course-X		Research Methodology	19PEN3CC10	6	5	3	25	75	100	
Core Course-XI		English Literature for UGC Examination	19PEN3CC11	6	5	3	25	75	100	
Core Course-XII		Literary Criticism - II	19PEN3CC12	6	5	3	25	75	100	

III	Elective Course-III	Academic Writing	19PEN3EC3A/	6	4	3	25	75	100
		English for career Advancement	19PEN3EC3B						
	Swayam Online Course	The Popular Gothic Novel	Will fix it later	12 weeks	3	As Per UGC Norms			
	Total			30	24				500
IV	Core Course-XIII	Indian Diasporic Literature	19PEN4CC13	6	5	3	25	75	100
	Core Course-XIV	New Literature	19PEN4CC14	6	5	3	25	75	100
	Elective Course-IV	Award Winning Authors (Noble Laureate)	19PEN4EC4A/ 19PEN4EC4B	6	4	3	25	75	100
		Single Author Study - John Milton							
	Elective Course-V	North East Indian Literature	19PEN4EC5A/	6	4	3	25	75	100
		Post-Modern Fiction	19PEN4EC5B						
Project	Dissertation = 80 Marks Viva = 20 Marks	19PENPW	6	4				100	
	Total			30	22				500
	Grand Total			120	90				2000

M.A. PROGRAMME OUTCOME

PO 1	Identify Literary History, Literary Theories, Literary Genres and Rhetoric in various Literatures.
PO 2	Analyze various Literary Texts and develop proficiency to integrate them with literary research.
PO 3	Express critical and analytical skills in interpreting and evaluating literary text.
PO 4	Create new hypothesis and apply theories to create new literatures and also construct scope for further research.
PO 5	Undertake competitive exams like UGC- NET/SET/JRF/Pre-Ph.D. Registration Exam /TET to enhance job opportunities.

Subject Code	Title of the Paper	Category	L	T	P	Credit
19PEN4CC13	Indian Diasporic Literature	Core Course XIII	80	10	-	5

Objectives:

- To engage the students in knowing the history of migration, ethnicity and identity of diaspora context.
- To create an awareness and understanding of the common and different values, ideals and insights often expressed in works of literature from different cultures and Geographical land scape.

Prerequisite:

Basic knowledge of selected literary texts, concepts, and terminology to develop substantial reading.

Course Outcomes:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Asses the postcolonial themes of diasporic literature with reference to geography.	K3
CO2	Examine the factors determine the writing and reception of literature.	K4
CO3	Examine the changing historical, political, socioeconomic, and cultural contexts	K4
CO4	Appraise the complex and fragmented history in the reformulation of cultural.	K6

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	M	S
CO3	S	S	S	M	S
CO4	S	S	S	S	S

S-STRONG M-MEDIUM L-LOW

SYLLABUS

Unit-I – Diaspora (15 Hrs)

Definition of Diaspora - Birth of Diasporic Literature - Classification of Diaspora -Indian Diaspora Across Continents - Cultural Identity, Cultural Migration and Role of Diaspora

Unit-II - Poem (15 Hrs)

Vikram Seth - *Unclaimed*

Adil Jussawalla - *Sea Breeze, Bombay*

Jerry Pinto - *The Quiet Rebellion of Paper*

Unit- III- Short Story (16 Hrs)

Rohinton Mistry - *Auspicious occasion* (Tales from Firozsha Baag)

Chitra Banarjee Divakaruni - *Clothes* (Arranged Marriage)

[Jhumpa Lahiri](#) - *Interpreter of Maladies* (Interpreter of Maladies)

Unit- IV – Drama (17 Hrs)

Uma Parameswaran - *Sita's Promise*

Unit- V – Novel (17 Hrs)

Amitav Ghosh – *Gun Island*

Books for Reference:

Cohen, Robin. *Global Diaspora: An Introduction*. London: UCL Press. 1997

Jana Evans Braziel and Anita Mannur. *Theorizing Diaspora*. Oxford: Blackwell. 2003

Kim D. Butler. *Defining Diaspora, Refining a Discourse, Diaspora*. 2002

Hall Stuart, *Cultural Identity and Diaspora*. Harvester Wheatsheaf, Newyork ,1993

Rohinton Mistry. *Tales From Firozsha Baag*, Penguin, Canada.1987.

Chitra Banarjee Divakaruni. *Arranged Marriage*, 1996.

[Jhumpa Lahiri](#). *Interpreter of Maladies*, [Houghton Mifflin Harcourt](#), 1999.

Uma Parameswaran. *Sita's Promise*. Alexander Street Press, 2002

Amitav Ghosh. *Gun Island* Penguin, Canada.2019

Pedagogy: Seminar, Quiz, Assignment

Course Designer: MS.Helan Jona

Subject Code	Title of the Paper	Category	L	T	P	Credit
19PEN4CC14	New Literature	Core Course XIV	80	10	-	4

Objectives:

- To engage the students in comparative and interdisciplinary thinking.
- To create an awareness and understanding of the common and different values, ideals and insights often expressed in works of literature from different cultures and historical periods.

Prerequisite:

Basic knowledge of selected literary texts, concepts, and terminology to develop substantial reading

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Interpret the text intensively and distinguish its salient features	K4
CO2	Compare and contrast the writers from around the world and their unique styles	K5
CO3	Appreciate the literary works at varied levels of comprehension	K4
CO4	Perform research, analysis, and criticism of literary and cultural texts from different genre.	K5
CO5	critical analysis to the reading of texts across multiple cultural and linguistic traditions, and various historical periods	K3

MAPPING WITH PROGRAMME OUTCOME

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	M	S
CO3	S	S	S	M	S
CO4	S	S	S	S	S

S-Strong, M-Medium, L-Low

SYLLABUS

Unit I: (Poetry) (15Hrs)

- When Autumn Came - Faiz Ahmed Faiz (Pakistan) (translated by Naomi Lazard)
The Dying Eagle - E.J. Pratt (Canada)
To a Blue Flower - John Shaw Neilson (Australia)
Time - Allen Curnow (New Zealand)

Unit II: (Prose) (15 Hrs)

- Freedom From Fear (an
extract from Freedom From Fear) - Aung San Suu Kyi's (Myanmar)

Unit III: (Short Stories) (16Hrs)

- The Festival Stall (from
Suvimalee Karunaratna) - Le Roy Robinson (Sri Lanka)
Love - Khin Yhin Yu (Translated by Ma Thanegi)

Unit IV: (Drama) (16Hrs)

- Riders to the Sea - J. M Synge (Irish)

Unit V: (Fiction) (18Hrs)

- Please Look After Mom - Shin Kyung Sook (North Korea)
Things Fall Apart - Chinua Achebe (Africa)

Reference Books:

- Pratt, E. J. *Collected Poems*. Macmillan, 1944.
Neilson, John Shaw, *Collected Poems of John Shaw Neilson*, Ed. R.H. Croll, Melbourne, 1934.
Faiz, Ahmad Faiz, *The True Subject*, Translated by Naomi Lazard, Princeton University, 1987.
O'Sullivan, V (Ed), *An Anthology of Twentieth Century New Zealand Poetry*, Wellington, 1979. Synge, J.M, *Riders to the Sea*, Orient Black Swan, 2010.
Selected Myanmar Short Stories Translated by Ma Thnaegi, Unity Publishing House, 2016.
Sen Amarthya, *The Argumentative Indian*, Farrar, Straus and Giroux, 2005.
Tagore, Rabindranath, *Selections from Falpaguchuchha, Kabuliwalla and Other Stories*, Translated by Ratan K. Chattopadhyay, Orient Black Swan, 2010.
Shin, Kyung-sook, *Please Look After Mom*, translated by Chi-Young Kim, Changbi Publisher, 2011. Achebe, Chinua, *Things Fall Apart*, William Heinemann, 1958.

Pedagogy: Seminar, Quiz, Assignment

Course Designer: Dr. Prema Joshua, Dr. R. Vanitha, Dr. S. Senthil Kumari

Subject Code	Title of the Paper	Category	L	T	P	Credit
19PEN4EC4A	Award Winning Authors (Noble Laureate from 1913 - 2020)	Core Course I	80	10	-	4

Objectives:

- To identify the elements and the key components of Award Winning work of art in English 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.

Prerequisite:

Basic Knowledge in English Literature.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Assess the different techniques employed by the prominent Writers.	K3
CO2	Examine the concepts of various Genres.	K4
CO3	Classify the dramas in English Literature and also diagnose the literary awards.	K5
CO4	Appraise the way the writers tried to create an impact and contribute through writings.	K6
CO5	Compile the characters in the works of Award Winning writers.	K6

MAPPING WITH PROGRAMME OUTCOME

COS	PO1	PO2	PO3	PO4	PO5
CO1	M	S	M	M	S
CO2	S	S	M	M	S
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	M	S	S

S-Strong, M-Medium, L-Low.

SYLLABUS

UNIT-I: POETRY (DETAILED) (15 Hrs)

T. S. Eliot - The Hippopotamus
Pablo Neruda - Cat's Dream

POETRY (NON- DETAILED)

Boris Pasternak - Winter Night
Wislawa Szymborska - Tortures

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

George Bernard Shaw - The Sources of Idealism
Albert Camus - The Minotaur or The Stop In Oran
(The Myth of Sisyphus and Other Essays)

UNIT-III: Short Stories (DETAILED) (17 Hrs)

Rabindranath Tagore - Post Master
Pearl S. Buck - *The Refugee*

UNIT-IV: DRAMA (DETAILED) (15 Hrs)

Harold Pinter - Betrayal

UNIT-V: FICTION (DETAILED) (18 Hrs)

Kazuo Ishiguro - An Artist of the Floating World

(NON - DETAILED)

Saul Bellow - Seize the day

Text Books:

<https://www.poetryfoundation.org/poetrymagazine/poems/40129/testimonial>

<https://www.poetryfoundation.org/poems/55930/myth-56d237f7e8011>

<https://www.poetryfoundation.org/poems/55928/incident-56d237f70bd32>

Lady Freedom Among Us

<https://www.gradesaver.com/rita-dove-poems/study-guide/poem-text>

<https://www.poetryfoundation.org/poetrymagazine/articles/69815/on-fear>

<https://www.theparisreview.org/letters-essays/6078/when-i-look-at-a-strawberry-i-think-of-a-tongue-edouard-leve>

<https://www.prospectmagazine.co.uk/magazine/theorphanandthemob>

Tagore, Rabindranath, Selections from Falpaguchchha, Kabuliwalla and Other Stories, Translated by Ratan K. Chattopadhyay, Orient Black Swan, 2010.

Ishiguro, Kazuo, **An Artist of the Floating World**, Faber; Main edition (26 March 2013)

Pinter, Harold, *Betrayal*, Faber & Faber; Main - Faber Modern Classics edition (27 March 2018)

Banville, John. *The Sea*, Picador; Media tie-in edition (30 July 2013)

Pedagogy: Seminar, Quiz, Assignment

Course Designer: MS.K.Anitha

Subject Code	Title of the Paper	Category	L	T	P	Credit
19PEN4EC5A	North East Indian Literature	Elective Course-V	80	10	-	4

Objectives:

- To introduce and intimate the learners about North East Indian Literature.
- To familiarize the learners with the various traditions of North East India.
- To expose and represent the contemporary trans-cultural issues.

Prerequisite:

Basic knowledge of North East Indian Culture.

Course Outcomes:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Discover the aesthetic experience of North East Indian Literature.	K3
CO2	Infer wide spectrum of social, political, cultural, and aspirational concerns	K4
CO3	Assess the factors which influence and contribute in literary production especially for the women writers	K5
CO4	Evaluate the inappropriate notion of homogeneity mirrored in the Indian Literature in the practice of Tokenism.	K5

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	M	S	M	M	S
CO2	S	S	M	M	S
CO3	S	S	S	S	S
CO4	S	S	S	S	S

S-STRONG M-MEDIUM L-LOW

SYLLABUS

Unit I – Poetry (14 hrs)

- Thangjam Ibopishak – “Volcano, You Cannot Erupt”
Robin Ngangom – “Native Land”
Temsula Ao – “Prayer of a Monolith”
“The Spear”

Unit II – Folk Tales(15 hrs)

- A Singpho Tribe Tale
Kari
Tale of Mishmi Girl
The Leap of Ka Likai
Man, Spirit and Tiger
The Beginning of the Storytelling Tradition
(selection from 8 Fascinating Myth And Legends From North East India)

Unit III – Short Stories(15 hrs)

- Temsula Ao – Laburnum for my Head
The Boy Who Sold an Airfield
Janice Pariat – 19/87
Laitlum (from *Boats on Land*)

Unit IV – Drama (18hrs)

- Crimson Rainclouds - Binodini

Unit V - Fiction(18 hrs)

- Mamang Dai – *The Legends of Pensam*
Easterine Kire – *Mari*

Books for Reference:

- Dancing Earth, An Anthology of poetry from North East India.* Ed. Robin Singh Ngangom and Kynpham Singh Nongkynrih. India: Penguin Book, 2009.
Ao, Temsula. *Laburnum for my Head.* India: Penguin Book, 2009.
Pariat, Janice. *Boats on Land.* India: Random House, 2012.
Dai, Mamang. *The Legends of Pensam.* India: Penguin Book, 2006.
Deb, Siddhartha. *The Point of Return.* India: HarperCollins, 2004.
Kire, Easterine. *Mari.* India: HarperCollins, 2010.
Phukam, Mitra. *The Collector's Wife.* India: Penguin Book, 2005.

Pedagogy: Quiz, Assignment, Activity, Power point Presentation

Course Designer: Ms. Helan Jona, Ms. P.K. Durgadevi & Ms. Shrinidhi

III Semester Online Course (Extra credit)
12 Weeks course with 3 Credit
Swayam Online Course - The Popular Gothic Novel

COURSE LAYOUT

- **Week 1:** Introduction to the Gothic: Gothic Motifs
- **Week 2:** Ann Radcliffe, *The Mysteries of Udolpho*
The ‘Explained Supernatural’, Gothic Sublime, and Aristocratic Villainy
- **Week 3:** Mary Shelley, *Frankenstein*
Female Gothic: Feminine Anxieties, Scientific Monsters, and Haunted Landscapes
- **Week 4:** Jane Austen, *Northanger Abbey*
Mocking the Popoular Gothic
- **Week 5:** Emily Bronte, *Wuthering Heights*
Byronic hero and ghostly women: Realism, Fantasy, Violence, and Cruelty
- **Week 6:** Charlotte Bronte, *Jane Eyre*
Gothic Symbolism and Rebellion
- **Week 7:** Charles Dickens, *A Christmas Carol*
Grotesque Gothic: Spectral City, Allegory, and Morality
- **Week 8:** Bram Stoker, *Dracula*
Vampires, Moral Degeneration, Late-Victorian Anxieties
- **Week 9:** Wilkie Collins, *The Moonstone*
Imperial Gothic: Mysticism, Irrationality, Otherness and Empire
- **Week 10:** Arthur Conan Doyle, *The Hound of the Baskervilles*
Gothic Crime: The Anxieties of the Past and the Future
- **Week 11:** Oscar Wilde, *The Picture of Dorian Gray*
Gothic terror: Dark Ambition, Aesthetics and Degeneracy
- **Week 12:** Accommodating the Gothic in Domestic Realism

BOOKS AND REFERENCES

- Lisa Rodensky, ed. *The Oxford Handbook of the Victorian Novel*. Oxford: Oxford University Press, 2013.
- Hogle, Jerrold E., eds. *The Cambridge Companion To Gothic Fiction*. Cambridge: Cambridge University Press, New York, 2002.
- Smith, Andrew and Diana Wallace. "The Female Gothic: Then and Now." *Gothic Studies* 6.1 (2004): 1-7
- Heiland, Donna. *Gothic & Gender: An Introduction*. Malden, MA : Blackwell Pub., 2004.
- Davison, Carol Margaret. "Haunted House/Haunted Heroine: Female Gothic Closets in *The Yellow Wallpaper*." *Women's Studies* 33 (2004): 47-75.
- Catherine Spooner and Emma McEvoy (eds.), *The Routledge Companion to Gothic*. London; New York: Routledge, 2007.
- Carol Margaret Davison. *History of the Gothic: Gothic Literature 1764-1824*. Cardiff: University of Wales Press, 2009.
- Rachel Ablow, *The Feeling of Reading: affective experience and Victorian literature*. Ann Arbor: University of Michigan Press, 2010.
- Mary, Hammond, 'Readers and Readerships' in Joanna Shattock (ed.), *The Cambridge Guide to English Literature 1830-1914*. Cambridge: Cambridge University Press, 2010.

INSTRUCTOR BIO



Prof. A. Divya

IIT Madras

Divya A is an Assistant Professor in English Literature in the Indian Institute of Technology Madras, India. Divya's research interests primarily revolve around explorations in the fields of gender, domesticity, spatiality, urbanism, and the interplay between the visual and the literary arts. After obtaining her Master of Studies degree in Early Modern English Literature from the University of Oxford, Divya completed her PhD in Nineteenth-Century English Fiction at Nanyang Technological University. She has published on Charles Dickens, Elizabeth Gaskell, Wilkie Collins, and the Pre-Raphaelites. Her current research project traces and maps the British colonial visual culture of Nineteenth-Century India.

			Poetry, Textual Grammer and Alakara	19ULS2						
			Communication in French – II	19ULF2						
	II	English language course II (ELC)	Functional Grammer for Effective Communication – II	19UE2	6	3	3	25	75	100
	III	Core course III	Methods of Social Work	19USW2CC3	6	5	3	25	75	100
Core course IV		Human Growth and Development	19USW2CC4	6	5	3	25	75	100	
Allied Course II		Communication for Social workers	19USW2AC2	4	3	3	25	75	100	
	IV	Environmental Studies	Environmental Studies	19UGES	2	2	3	25	75	100
			Total		30	21				600
III	I	Language course III								
		Tamil/	Kappiyamum Nadagamum	19ULT3						
		Other languages	Medieval, Modern Poetry and History of Hindi Literature – 3	19ULH3	6	3	3	25	75	100
			Prose, Textual Grammer and Vakyarachana	19ULS3						
			Communication in French - III	19ULF3						
	II	English language course -III (ELC)	Writing for general and specific purposes - I	19UE3	6	3	3	25	75	100
	III	Core course V	Introduction to Social Work Research and Statistics	19USW3CC5	6	5	3	25	75	100
		Core course VI	Field Work Practicum	19USW3CC6P	6	5	3	40	60	100
		Allied Course III	Social Legislations	19USW3AC3	4	3	3	25	75	100
	IV	Non Major Elective I - for those who studied Tamil under Part I a) Basic Tamil for	Human Rights/	19USW3NME1	2	2	3	25	75	100

		other language students b) Special Tamil for those who studied Tamil upto 10 th / +2 but opt for other languages in degree programme	Basic Tamil/ Special Tamil	19ULC3BT1 19ULC3ST1						
	V	Swayam Online Course	Developing Personality and Softskills	To be fixed later		2	As per UGC recommendation			
			Total		30	21				600
IV	I	Language course IV Tamil/	Pandaya Ellakiyam	19ULT4	6	3	3	25	75	100
		Other languages	Letter writing, General essays, Technical terms, Proverbs, Idioms and phrases, Hindi Literature - 4	19ULH4						
			Drama, History of Drama literature	19ULS4						
			Communication in French - IV	19ULF4						
	II	English language course- IV (ELC)	Writing for general and specific purposes – II	19UE4	6	3	3	25	75	100
	III	Core course VII	Social Welfare Administration	19USW4CC7	5	5	3	25	75	100
		Core course VIII	Field work Practicum	19USW4CC8P	5	5	3	40	60	100
		Allied Course IV	Health Care Services	19USW4AC4	4	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	Women Rights and Laws Basic Tamil	19USW4NME2 19ULC4BT2	2	2	3	25	75	100

		those who studied Tamil upto 10 th / +2 but opt for other languages in degree programme	Special Tamil	19ULC4ST2						
	V	Skill Based Elective-I	Stress Management/ Life Skills	19USW4SBE1A/ 19USW4SBE1B	2	2	3	25	75	100
	VI	Swayam Online Course	As Per UGC Recommendation	To be fixed later	As per UGC recommendation					
			Total		30	23				700
V	III	Core course IX	Family and Child Welfare	19USW5CC9	5	5	3	25	75	100
		Core course X	Community Development (Urban/Rural/ Tribal)	19USW5CC10	5	5	3	25	75	100
		Core course XI	Introduction to Counselling	19USW5CC11	5	5	3	25	75	100
		Core Course XII	Theories of Social Work	19USW5CC12	5	5	3	25	75	100
		Major Based Elective I	Disaster Management/ Welfare of Vulnerables	19USW5MBE1A/ 19USW5MBE1B	4	3	3	25	75	100
	IV	Skill Based Elective II	Psychological First Aid / Employability skills	19USW5SBE2A/ 19USW5SBE2B	2	2	3	25	75	100
		Skill Based Elective III	Family Life Management / Social Entrepreneurship	19USW5SBE3A/ 19USW5SBE3B	2	2	3	25	75	100
		Soft Skill	Soft skill Development	19UGSD	2	2	3	25	75	100
			Total		30	29				800
VI	III	Core course XIII	Welfare of the Persons with disability	19USW6CC13	6	5	3	25	75	100
		Core course XIV	Correctional Social Work	19USW6CC14	6	5	3	25	75	100
		Core Course XV	Field Work Practicum	19USW6CC15P	6	5	3	40	60	100
		Major Based Elective II	Gerontological Social Work / Youth Welfare	19USW6MBE2A/ 19USW6MBE2B	5	4	3	25	75	100
		Major Based Elective III	Social Work in Industry / Basics of Organizational Behaviour	19USW6MBE3A/ 19USW6MBE3B	6	4	3	25	75	100
	IV	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100
		Extension Activity	Extension Activity	19UGEA		1				
				Total		30	25			
			Grand Total		180	140				3900

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
(Nationally Accredited (III cycle) with 'A' Grade (CGPA 3.41 out of 4) by NAAC

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 2020 - 2021 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	19ULT1						
		other languages	Story, Novel, Hindi Literature – 1 & Grammer – I	19ULH1	6	3	3	25	75	100
			History of popular tales,Literature and Sanskrit story	19ULS1						
			Communication in French – I	19ULF1						
	II	English language course – I (ELC)	Functional Grammer for Effective Communication – I	19UE1	6	3	3	25	75	100
	III	Core course I	Introduction to Social Work	19USW1CC1	6	5	3	25	75	100
		Core course II	Structure of Indian Society and Indian Problems	19USW1CC2	6	5	3	25	75	100
		Allied Course I	Basics of Economics and Political System	19USW1AC1	4	3	3	25	75	100
	IV	Value Education	Universal Human Values	20UGVE	2	2	3	25	75	100
		Total		30	21				600	

SEM IV	SOCIAL WELFARE ADMINISTRATION	Category	Course Code	Instructional Hours	Credits
		Core Course VII	19USW4CC7	75	5

PREAMBLE

This course will enlighten the students on concept and functions of social welfare administration, various welfare programmes for uplifting weaker section of People, Procedures for establishing Non Governmental organisations and functions of Social Welfare Board at National and State level.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Define the concept of social welfare administration	K1
CO2	Develop the skills in planning, decision making, coordinating and Recording, Public Relations and Fund Raising	K2
CO3	Utilize the knowledge on Welfare Programmes for weaker sections of people in the society	K3
CO4	Demonstrate the procedures for establishing Non Governmental Organisations	K3
CO5	Examine the structure and functions of central and social welfare Boards	K4

Mapping with Program Outcome:

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	M	M
CO2	S	S	S	S	S
CO3	S	S	S	S	M
CO4	S	M	S	S	M

S- Strong; M-Medium; L-Low

SYLLABUS

Unit 1: (15 Hours)

Social Welfare Administration: Concept, importance, definition, goals, types and nature of social welfare administration.

Unit 2: (15 Hours)

Administrative process in welfare institutions: Planning, Organizing, Directing, Staffing, Coordinating, Financial administration: Budgeting, Fund raising, Accounting, Auditing; Public relations & reports, Maintenance of files.

Unit 3: (15 Hours)

Welfare programmes for Women, Children, Youth, Aged, Destitute & differently abled, Social Welfare Programmes for SCs & STs.,

Unit 4: (15 Hours)

Non- governmental organizations: Registration of Societies and Trusts; Constitution and byelaws. Societies Registration Act; National & international voluntary agencies; Problems of voluntary organization

Unit 5: (15 Hours)

Social Welfare Administration in India-National level & State level : Organizational structure and Functions and Programmes of state and Central social welfare Boards

REFERENCES

- 1) Singh.M.K (2015), Social Welfare Administration and Social Policy, Vayu Education of India publications
- 2) Shardha Chandra.(2017), Social Welfare Administration in India, Lulu Press, Inc, Morrisville, North Carolina, US
- 3) Sachdeva.D.R (2018), Social Welfare Administration in India, Kitab Mahal Publications
- 4) Paul Choudhary .D(1979), Social Welfare Administration, Atma Ram & Sons publications New Delhi

Pedagogy: Lectures, group discussion, PPT presentation, E content and seminars.

Course Designer: Ms.S.Hema

SEMESTER-IV	FIELD WORK PRACTICUM	CATEGORY	Course Code	INSTRUCTIONAL HOURS	Credits
		Core course	19USW4CC8P	75	5

Preamble

To Adopt group living, identify the culture of rural people and to learn the functioning of various social welfare organisations in different geographical areas.

COURSE OUTCOME

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1	Explain the culture of different sections of people in the society	K1
CO2	Demonstrate the skills of planning, organizing and reporting	K2
CO3	Build adjustment with the Environment	K3
CO4	Compare the functioning of social welfare organisations in different geographical regions.	K4

Mapping with Program Outcome

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	S	M
CO2	S	S	S	S	S
CO3	S	M	S	S	S
CO4	S	S	S	S	M

S- Strong; M-Medium; L-Low

Syllabus

- Students will be given an opportunity of arranging a Five day social work camp in rural/tribal areas.
- Students to be given proper orientation and pilot study experience prior to the camp.
- Study tour programme is to be arranged to help the students to learn and compare the functioning of various agencies/settings of social work practice functioning in different geographical areas.
- Students are required to visit 6 – 8 organisations of Social Work practice during their Study Tour
- Students are expected to write and submit a detailed reports of their activities during their camp and observation remarks of their visits during study tour programme.

GUIDELINES FOR FIELD WORK EVALUATION

Evaluation

Internal

	Marks
1. Attendance in field work	5
2. Regularity in submitting reports	5
3. Participation in camp & Study Tour activities	30

Total	40

External evaluation and VIVA VOCE

I Reporting	- 10
II. VIVA VOCE	
1. Theoretical Knowledge	- 10
2. Communication and Presentation	- 10
3. Individual participation and initiative	- 30

Total	60 marks

Pedagogy: Camping , Study tour ,Observation and documentation

Course Designer: Dr.G.Mettilda Buvaneswari

SEMESTER IV	HEALTH CARE SERVICES	Category	Course Code	Instructional hrs	Credits
		Allied IV	19USW4A	60	4

Preamble

The aim of this course is to introduce students to the basic concepts of health and health care services

Course Outcome

CO Number	CO STATEMENT	Course outcome
CO1	Recall the concept of health	K1
CO2	Interpret nutritional deficiency disease	K2
CO3	Relate health and hygiene	K2
CO4	Build programmes on health	K3

Mapping with Program Outcome

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	M
CO2	S	S	S	S	M
CO3	S	S	M	S	M
CO4	S	S	S	S	S

S-

Strong; M-Medium; L-Low

Syllabus

Unit 1: (12 HOURS)

Concept of health, definition, dimension of health, determinants of health, Factors affecting health\ health care.

Unit 2: (12 HOURS)

Basic concepts of nutrition and balanced diet, Constitution of food, Nutritional Deficiency Disease.

Unit 3:(12 HOURS)

Personal Hygiene, Environment, Health, Epidemiology of disease.

Unit 4: (12 HOURS)

Health care services in India, Prevention, Promotion, Curative and rehabilitation aspect, Components of Public Health Care.

Unit 5: (12 HOURS)

Public Health administration, Public health programmes in India, Special national level programmes for health, Role of social worker in community health, National Health policy

References

Sunder Lal Adarsh, Pankaj 2007 Textbook of community Medicine, CBS Publishers

Ahuja,N.(1998). Introduction to Psychiatry. Jaypee Brothers

Pedagogy: Lectures,Group discussion, PPT, and seminars.

Course Designer: MS.PL.Rani

Course Code	Women Rights and Laws	Category	Course Code	Instruction Hours	Credits
19UTANME2		III	19UTANME2	30	2

Preamble

The course aims to make the students to understand women rights and enable them to practice women rights

COURSE OUTCOMES

CO No.	CO Statement	Knowledge Level
CO1	Explain the Women Rights	K1
CO2	Recall the Law of Women	K2
CO3	Apply laws pertaining to Women in solving legal Problems	K3
CO4	Comprehend Women Welfare Programmes	K4

MAPPING WITH PROGRAMME OUTCOMES

Cos	PO1	PO2	PO3	PO4
CO1	S	M	S	S
CO2	M	L	S	S
CO3	M	L	S	S
CO4	M	L	S	S

S – Strong ; M – Medium; L – Low

Syllabus

Unit I (6 Hours)

Status of Women – Historical Perspective – Rights of Women in Indian Constitution – Voting Right - Women Liberation Movement.

Unit II (6 Hours)

The Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW) – Rights of Women under custody – Freedom of Life.

Unit III (6 Hours)

Women Specific Laws – Marriage – Divorce – Maintenance – Guardianship – Adoption – Property Rights.

Unit IV (6 Hours)

Violence against Women – Protective Laws – Court Proceedings and important judgements.

Unit V (6 Hours)

All Women Police Stations – Legal Services – Free Legal Aid Services-Women Courts – Women Commission – Social Welfare Departments – Help Lines – Government Schemes

References of community Medicine, CBS Publishers

Athilatchumai & Logamurthy.(2017). Law at your Hands. Suriyan Pathippagam. Chennai

Jagatha.(2001). Women Protective Law. Sri Shenbaga Pathippagam, Chennai

Mythili Sivaraman.(1997). Women Rights Some Perspectives. Tamil Puthagalayam, Chennai.

Ramalingam T.(2000). Women Protective Laws. Vikatan Publications,Chennai

Rengammal R & Dr,Vausgi S.(2005). Feminist approaches and Use of Literature. Arivu Pathippagam, Chennai

Pedagogy: Group Discussions, Quiz, Essays, Chalk and Talk method

Course Designer: Dr.G.Mettilda Buvaneswari

Semester IV	Stress Management	Category	Instructional Hours	Credits
		SBE	30	2

Preamble

The purpose of this course is to help the students to understand and cope with the stressors of life using coping mechanisms

Course Outcome

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

CO1	Outline the concepts of stress, eustress and Distress	K1
CO2	Identify the sources of stress	K2
CO3	Analyse the physical, psychological and social impact of stress	K3
CO4	Classify Stress response	K3
CO5	Apply stress reduction Technique	K4

Mapping Course Outcome with Programme Outcome

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	S	M
CO2	M	S	S	M	L
CO3	S	M	M	S	S
CO4	M	S	S	M	L
CO5	S	L	S	S	S

S-Strong, M-Medium, L-Low

Unit – 1 (6 hours) Introduction to Stress

Stress: Meaning, Definition, Eustress, Distress, Types of stress: Acute stress, Episodic Acute stress and chronic stress, signs and Symptoms

Unit – 2 (6 hours) Sources of stress

Psychological, Social, Environmental; Academic, Family and Workstress

Unit – 3 (6 hours) Impact of stress

Physiological Impact of stress -- Autonomic Nervous System Changes, Quality of sleep, Diet and Health effects.
Psychological Impact of stress - Impaired Mental functions, Poor memory. Social Impact of stress - Stressful Life Events, Social support and health

Unit – 4 (6 hours) Stress Response and Coping Mechanisms

'Fight or Flight' Response, Stress warning signals Coping Mechanisms: Appraisal focused, Emotional focused and Problem focused

Unit – 5 (6 hours) Stress Management Techniques:

Autogenic Training , Biofeedback , Relaxation , Yoga and Meditation

References

1. Alok Chakrawal Pratiba Goyal 2016 Stress Management New Delhi Studera Press.
2. John Romas Manoj Sharma 2017 Practical Stress Management 7th Edition A Comprehensive Workbook Academic press.
3. Dutta .K 2016 Stress Management Durgapur Himalaya Publishing House Pvt. Ltd.
4. James Campbell Quick, Thomas A. Wright, Joyce A. Adkins, Debra L. Nelson, Jonathan D. Quick
5. 2012 Preventive stress management in organizations Washington DC American Psychological Association.
6. Pandit Shambu Nath 2012 Stress Management using Yoga and Meditation London Shallimar Books

Course Designer: Dr.S.Vidhya

SEMESTER IV	LIFE SKILLS	Category	Course Code	Instructional Hours	Credits
		SBE I	19USW4SBE1B	30	2

Preamble

To educate the students about Life Skills & make use of these life skills in day to day life.

Course Outcomes

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

Mapping Course Outcome with Program Outcome

CO	PO1	PO2	PO3	PO4	PO5	
CO1	S	S	S	M	S	
CO2	S	M	S	M	S	
CO3	S	S	S	S	S	
CO4	S	S	S	S	S	
CO Number	CO Statement					KNOWLEDGE LEVEL
CO1	Define Life Skills and Classification of it					K1
CO2	Explain the importance of Life Skills					K2
CO3	Apply of the Life Skills in day to day					K3
CO4	Analyze the impact of life skills					K4

S-Strong,
M-Medium
L-Low

UNIT I: (15

hours) Introduction to Life skills, Definition, Need and significance, Evolution and Development of the concept of Life skill Education, Contributions of various International organizations to Life Skill Education, Classification of life skills- Generic, Problem specific & Area Specific Skills.

UNIT II: (15 hours) Life Skills for Adolescents and Youth, Self Awareness –Definition, Importance, Dimensions, Components, Effective Communication: Assertiveness, Effective Listening, Negotiation Techniques & Process, Barriers of Communication, Empathy: Sympathy, Empathy & Altruism.

UNIT III: (15 hours) Interpersonal relationship: Definition Skills for Listening and Understanding, Skills for choosing and starting relationship, Factors affecting relationship, Thinking Skills: Critical Thinking, Analytical Thinking, Strategies to enhance critical Thinking, Creative Thinking : Out –of the Box thinking, Stages of creative Thinking, Factors Hindering creative thinking, Characteristics of creative thinkers.

UNIT IV: (15hours) Problem Solving Skill: Definition, Steps in Problem Solving. Decision Making: Definition, Informed Decision Making, Consequences of Decision Making & Models of Decision Making.

UNIT V: (15 hours) Coping with emotions: Basic emotions, Models of Emotions and Coping with stress: Definition, Types source of Stress, Strategies to manage Stress, Leadership Skills, Skill of goal Setting: Types, Steps, Personal Vision & goal, Skill of time management techniques. Application of life Skills in day to day life.

REFERENCES:

1. Adolescence and Life Skills.(2003).Commonwealth Youth Programme Asia Centre. Tata McGraw –Hill.
- 2 .Darkar Framework for Action ,Education for All: Meeting our Collective Commitments. (2000) .Darkar , Senegal.
3. Family Health International ,NACO,USAID.(2007).Life Skills Education Tool Kit for Orphans and vulnerable children in India.
- 4.Hilgard,E,Atkinson,R.C & Atkinson ,R,L.(1976).Introduction to Psychology(6th Ed).IBH Publishing Co., Pvt Ltd. New Delhi.
5. Life Skills Resource Manual, Schools Total Health Program.(2006).Health Education and Promotion International Inc.,Chennai.
- 6 .Global Evaluation of Life Skills education Programmes Final Report, United Nations Children’s Fund.(2012).New York.
- 7 .Kumar ,J, Keval.(2008).Mass Communication in India .Jaico Publication India Pvt.Ltd.
- 8 .Mangal,S,K.(2008).An Introduction to Psychology. Sterling Publishers Pvt. Ltd. New Delhi.
- 9 .Morgan and King.(1993).Introduction to Psychology. Tata McGraw-Hill Publishing Company Ltd. New Delhi.
10. Nair ,V, R.(2010).Life Skills Personality and Leadership. RGNIYD. Tamilnadu.
11. Rao ,P .L.(2008).Enriching Human Capital Through Training and Development .Excel Books. New Delhi.
12. RGNIYD.(2008).Facilitators Manual on Enhancing Life Skills. Tamil snadu.
13. Singh Madhu .(2003).Understanding Life Skills ,Background paper prepared for Education for All :The Leap to Equality.
14. Stella Cottrell.(2008).The Study Skills Handbook. Palgrave Macmillan Ltd. (3rd Ed). New York.
15. UNESCO and Indian National Commission for Co-operation with UNESCO. (2001).Life skills in Non –Formal Education: Review.
16. Wallace ,R, Masters.(2001).Personal Development for Life and Work: UK. South Western.
17. YUVA School Life Skills Programme: Handbook for Teachers .(2008).Department of Education and State Council of Educational Research and Training. Vol I –IV. New Delhi.

Course Designer: Ms.PL.Rani

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
(Nationally Accredited (III cycle) with 'A' Grade (CGPA 3.41 out of 4) by NAAC
PG & RESEARCH DEPARTMENT OF SOCIAL WORK
MASTER OF SOCIAL WORK PROGRAMME STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2019 - 2020 onwards)

Sem	Course Details	Course Title	Subject Code	Ins Hours / Week	Credits	Exam Hrs	Marks		
							Int	Ext	Total
I	Core Course I	Introduction to Social Work	19PSW1CC1	6	4	3	25	75	100
	Core Course II	Social Case Work	19PSW1CC2	6	4	3	25	75	100
	Core Course III	Social Group Work	19PSW1CC3	6	4	3	25	75	100
	Core Course IV	Field Work Practicum	19PSW1CC4P	6	4	3	40	60	100
	Elective Course I	Human Resource Development / NGO Management	19PSW1EC1A / 19PSW1EC1B	6	4	3	25	75	100
		TOTAL		30	20				500
II	Core Course V	Counselling : Theory and Practice	19PSW2CC5	6	5	3	25	75	100
	Core Course VI	Social work Research and Social Statistics	19PSW2CC6	6	5	3	25	75	100
	Core Course VII	Community Organization and Social Action	19PSW2CC7	6	5	3	25	75	100
	Core Course	Field Work	19PSW2CC8P	6		3	40	60	100

	VIII	Practicum			5				
	Elective Course II	Psychology for Social Workers / Health and Hygiene	19PSW2EC2A / 19PSW2EC2B	6	4	3	25	75	100
		TOTAL		30	24				500
III	Core Course IX	Structure and Functions of Social Work for Competitive Examinations	19PSW3CC9	6	5	3	25	75	100
	Core Course X	Specialization I Public Health	19PSW3CC10A	6	5	3	25	75	100
		Women Health and Welfare	19PSW3CC10B						
		Human Resource Management	19PSW3CC10C						
		Rural and Tribal Community Development	19PSW3CC10D						
	Core Course XI	Specialization II Medical Social work	19PSW3CC11A	6	5	3	25	75	100
		Child Rights and Child Protection	19PSW3CC11B						
		Labour Laws and Industrial Relations	19PSW3CC11C						
		Urban Community Development	19PSW3CC11D						
	Core Course XII	Field Work Practicum	19PSW3CC12P	6	5	3	40	60	100

	Elective Course III	Corporate Social Responsibility / Life Skills and Soft Skills for Social Workers	19PSW3EC3A / 19PSW3EC3B	6	4	3	25	75	100
	Swayam Online Course	Stress Management	To be fixed Later	-	1	As per UGC Recommendation			
		TOTAL		30	24				500
IV	Core Course XIII	Specialization III Psychiatric social work	19PSW4CC13A						
		Welfare of the youth and Aged	19PSW4CC13B	5	5	3	25	75	100
		Organisational Behaviour	19PSW4CC13C						
		Development Planning, Policy and Practice	19PSW4CC13D						
	Core Course XIV	Field Work Practicum	19PSW4CC14P	5	5	3	40	60	100
	Elective course – IV	Disaster Management /	19PSW4EC4A						
		Social Inclusion of the Marginalized	19PSW4EC4B	5	4	3	25	75	100
	Elective Course V	Block Placement	19PSW4EC5P	5	4	3	40	60	100
Research Project	Research Project Work	19PSWPW	10	4	3	Evaluation 80 Viva 20		100	
		TOTAL		30	22				500

GRAND TOTAL		120	90				2000
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PG & RESEARCH DEPARTMENT OF SOCIAL WORK
MASTER OF SOCIAL WORK PROGRAMME STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM

(For the candidates admitted from the academic year 2020 - 2021 onwards)

<u>Sem</u>	<u>Course Details</u>	<u>Course Title</u>	<u>Subject Code</u>	<u>Ins Hou rs/ Wee k</u>	<u>Credits</u>	<u>Exam Hrs</u>	<u>Marks</u>		
							<u>Int</u>	<u>Ext</u>	<u>Total</u>
I	Core Course I	Introduction to Social Work	19PSW1CC1	6	4	3	25	75	100
	Core Course II	Social Case Work	19PSW1CC2	6	4	3	25	75	100
	Core Course III	Social Group Work	19PSW1CC3	6	4	3	25	75	100
	Core Course IV	Social Work Practicum	19PSW1CC4P	6	4	3	40	60	100
	Elective Course I	Human Resource Development / NGO Management	19PSW1EC1A / 19PSW1EC1B	6	4	3	25	75	100
		TOTAL		30	20				500
II	Core Course V	Social work Research and Social Statistics	19PSW2CC5	6	5	3	25	75	100
	Core Course VI	Community Organization and Social Action	19PSW2CC6	6	5	3	25	75	100
	Core Course VII	Social Work Practicum	19PSW2CC7P	6	5	3	25	75	100
	Elective Course	Counselling : Theory and Practice/	19PSW2EC2A/	6		3	40	60	100

	II	Family Social Work	19PSW2EC2B		5				
	Elective Course III	Psychology for Social Workers / Health and Hygiene	19PSW2EC3A / 19PSW2EC3B	6	4	3	25	75	100
		TOTAL		30	24				500
III	Core Course VIII	Structure and Functions of Social Work for Competitive Examinations	19PSW3CC8	6	5	3	25	75	100
	Core Course XI	Specialization I Public Health	19PSW3CC9A	6	5	3	25	75	100
		Women Health and Welfare	19PSW3CC9B						
		Human Resource Management	19PSW3CC9C						
		Rural and Tribal Community Development	19PSW3CC9D						
	Core Course X	Specialization II Medical Social work	19PSW3CC10A	6	5	3	25	75	100
		Child Rights and Child Protection	19PSW3CC10B						
		Labour Laws and Industrial Relations	19PSW3CC10C						
		Urban Community Development	19PSW3CC10D						
	Core Course XI	Social Work Practicum	19PSW3CC11P	6	5	3	40	60	100
	Elective Course IV	Corporate Social Responsibility / Life Skills and Soft Skills for Social Workers	19PSW3EC4A / 19PSW3EC4B	6	4	3	25	75	100

	Swayam Online Course	Stress Management	To be fixed Later	As per UGC recommendation					
		TOTAL		30	24				500
IV	Core Course XII	Specialization III Psychiatric social work	19PSW4CC13A						
		Welfare of the youth and Aged	19PSW4CC13B	5	5	3	25	75	100
		Organisational Behaviour	19PSW4CC13C						
		Development Planning, Policy and Practice	19PSW4CC13D						
	Core Course XIII	Social Work Practicum	19PSW4CC14P	5	5	3	40	60	100
	Core Course XIV	Block Placement	19PSW4EC5P	5	4	3	40	60	100
	Elective course – V	Disaster Management /	19PSW4EC5A	5	4	3	25	75	100
		Social Inclusion of the Marginalized	19PSW4EC5B						
Research Project	Research Project Work	19PSWPW	10	4	3	Evaluation 80 Viva 20		100	
		TOTAL		30	22				500
GRAND TOTAL				120	90				2000

Specialisation : Medical & Psychiatric Social Work

Semester IV	PSYCHIATRIC SOCIAL WORK	Category	Instructional Hours	Credits
		Core Course XIII	75	5

Preamble

The purpose of this course is to introduce the concept of psychiatric social work, types of Psychiatric disorders, therapies used in treatment and various other issues covered under it.

Course Outcome

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

CO1	Outline the concepts of psychiatry	K2
CO2	Apply the Methods of social work in Psychiatry	K3
CO3	Classify psychiatric illness and disorders	K4
CO4	Evaluate therapeutic interventions	K5
CO5	Elaborate the roles and functions of social worker in psychiatric settings	K6

Mapping Course Outcome with Programme Outcome

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	S	M
CO2	S	S	S	S	S
CO3	S	M	M	S	S
CO4	S	S	S	M	S
CO5	S	S	S	S	S

S-Strong, M-Medium, L-Low

Syllabus

Unit I (15 Hours)

Psychiatric Social Work: definition and concept, historical development in India and abroad; current status as a field of specialisation.; case work, group work, and community organisation in the psychiatric services; limitations and difficulties faced in psychiatric social work practice; psychiatric epidemiologist in India.

Unit II (15 Hours)

Historical development of Psychiatry as a Field of Specialisation: attitudes and beliefs pertaining to mental illness in ancient, medieval and modern times; concepts of normality, abnormality and mental health; classification of mental illness: diagnostic statistical Manual (DSM) ; international classification of diseases (ICD); psychiatric assessment: interviewing, case history taking; sources of intake, mental status examination; formulation of psychosocial diagnosis.

Unit III (15 Hours)

Psychiatric Illness: neuroses, psychoses, organic and functional, culture bound syndromes, personality disorders, sexual deviations, alcoholism and drug dependence; mental handicap: definition, classification, clinical types and causes, cerebral palsy: clinical types, causes, associated disabilities; epilepsy: definition, types, causes, management; ageing: biological, social and psychological problems; suicide: causes, indications, prevention; childhood disorders: behaviour disorders; eating, elimination, sleep and speech disorders; childhood psychoses: autism, schizophrenia; scholastic backwardness: symptoms, causes and management; attention deficit disorders.

Unit IV (15 Hours)

Therapeutic Intervention in Psychiatric Illness: psycho education, cognitive therapy, group psychotherapy, family therapy, marital therapy: scope and types; behaviour therapy: principles and techniques, ECT, chemotherapy, psychosurgery and mega vitamin therapy; occupational therapy (purpose and concept).

Unit V (15 Hours)

Scope of Psychiatric Social Work practice: roles and functions of a psychiatric social worker with regards to the problems of patients and their families in:

Psychiatric OPD'S; Psychiatric specialty clinics ; de-addiction centres; child guidance clinics; rehabilitation of psychiatric patients: role of the social worker in rehabilitation - planning, mobilisation, reintegration of the patient in the family and community; principles and models of psychiatric rehabilitation; role of the psychiatric social worker in team work. Concepts of : therapeutic community, partial hospitalisation, day care centres, half way homes, sheltered workshop and transitory homes; National mental health programme; District mental health programme.

Practical (Not for Examination)- Observation of family therapy, Behaviour Therapy, ECT. Discussion with the Field Experts.

References:

Carson, Robert C., James N. Butcher, and James C. Coleman.. Scott, 1988, *Abnormal psychology and modern life* Foresman & Co.

Denzin, Norman K. 1987 *Treating alcoholism: An alcoholics anonymous approach*. Vol. 46. Sage Publications, Inc.,

Dickerson, Martha Ufford. 1981 *Social work practice with the mentally retarded*. Free Pr.,

Hudson, Barbara L., and Raghu N. Gaiind. *Current Themes in Psychiatry*. Macmillan, 1978.

An outline of modern psychiatry. John Wiley & Sons, .

Kraepelin, Emil. 1990 *Psychiatry: A Textbook for Students and Physicians. General Psychiatry*. Ed.Jacques M. Quen. Science History Publications,.

Paul, Gordon L., and Robert J. Lentz. *Psychosocial treatment of chronic mental patients: Milieu versus social-learning programs*. Harvard University Press, 1977

Verma, Ratna. *Psychiatric social work in India*. SAGE Publications Pvt. Limited, 1992.

Walrond-Skinner, Sue, ed. *Developments in family therapy: Theories and applications since 1948*. Routledge, 1981.

Course Designer: Dr.S.Vidhya

Specialisation : FAMILY & CHILD WELFARE

Semester IV	Welfare of The Youth And Aged	Category	Course Code	Instructional Hours	Credits
		Core Course XIII	19PSW4CC13B	75	5

Preamble

To highlight the issue of welfare of the youth and aged.

Course Outcomes

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1.	Define the concepts and problems of youth	K2
CO2.	Illustrate youth movement in India & youth welfare.	K2
CO3.	Identify the problems involving in the process of ageing.	K3
CO4.	Discuss the issues of aged	K4
CO5	Evaluate the programs and services for aged	K5
CO6	Analyse the new strategies and plans for Social work with Aged	K6

Mapping Course Outcome with Programme Outcome

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	M	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	S	S	S
CO6	S	S	S	S	S

S – Strong; M – Medium; L – Low

Syllabus

Unit I(15hours) Youth: concept, demographic profile of rural and urban youth; youth in Indian society; process of socialisation of Indian youth. **youth as special category:** basic needs of youth: problems of youth in relation to family life, social relations, education, recreation, employment, sex, marriage, political status.

Unit II (15hours) Youth Movement in India: YMCA, YWCA, SFI, DYFI and other youth movements of various political parties in India, ideologies of youth movements and its role in nation building. youth unrest,need for youth policy in India; **youth work:** concept, objectives, training programmes for youth in tribal, rural and urban areas.

Unit III (15hours) Youth Welfare: definition, scope and evolution of youth welfare programmes in India. **Services for student youth:** education, physical education, sports, recreation, vocational guidance, youth services, Bharath Scouts and Guides, National Services Scheme, National Cadet Corps, youth festivals and youth camp. **Student Counselling;** needs and services for non-student youth; non-formal education for school drop outs. Youth welfare programmes under government and voluntary agencies.

Unit IV (15hours)Aged: definition, types, Demographic profile of aging population in rural and urban area. **Gerontology:** theories of aging; dimensions of aging; changing status of the aged in Indian society; problems of the aged- health, family, social relation and employment; perspective on the population of aging in India; retirement as a social and economic event.

Unit V (15hours) a. Services for the aged: Geriatric services in India; family social work with the aged; social welfare services for the aged; old age social security measures in India and other countries; Rehabilitation and community linkage programme; national and international agencies for aged welfare, policies.

b. Practice(Not for examination) Visit a youth club and write report on their activities. Conduct a mini research study on quality of life among Elderly.

References:

1. Durgadutt,M.V.(1993). *Youth Culture: A Comparative Study in the Indian Context*. South Asia Books.
2. Jones Gill, (2009).*Youth*.Polity Press, UK
3. Kehily Jane Mary (Etd.) (2007).*Understanding Youth: Perspectives, Identities and Practices*.Sage Publication, London
4. Kumar, R.(1986). *Problems, Planning and Development of Youth Health* .Deep and Deep.
5. Muttagi, P. K..(1997). *Aging issues and old age care*. Classical Publishing Company.
6. Nair, P. S et al.(1989). *Indian Youth: A Profile*. Mittal Publications.
7. Peter Ronald D’Souza (2009). *Indian Youth in a transforming world*. SAGE Publication, New Delhi
8. Stephen Hamilton (2004). *The Youth Development Handbook*. SAGE Publication, New Delhi
9. Varkey.J.V(1974). *Youth and National goals*. New Delhi:

SEM-IV	ORGANISATIONAL BEHAVIOUR	Category	Course Code	Instructional HRS	Credits
		Core Course XIII	19PSW4CC13C	75	5

10. Wood Jason and Hine Jean (2009). *Theory and Policy for Practice*.Sage Publications New Delhi.

Specialisation : HUMAN RESOURCE MANAGEMENT

Preamble

Organisational behaviour focuses on developing an understanding of the Individuals and group level factors that influence employee attitudes and behavior at work.

Course Outcome

On the Successful completion of this course ,Students will able to

CO Number	CO Statement	Knowledge Level
CO1	Explain the concept of organizational Behaviour and how the individual behaviour influenced by Personality,learning, attitude and perception	K2
CO2	Interpret the group behaviour and in the aspect of Motivation and decision Making	K2
CO3	Examine the dynamics of organization behaviour in the aspect of Culture, Climate and Conflicts	K4
CO4	Assess the concept of Organisational change and practices of Organizational Development and its intervention techniques	K5
CO5	Combine the trends in OB practices	K6

Mapping with Course Outcome

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	M
CO2	S	S	S	S	M
CO3	S	S	M	M	S
CO4	M	M	M	M	S
CO5	S	S	M	M	S

S-Strong

M- Medium

L-Low

Syllabus

Unit-I(15Hrs)

Organizational Behaviour : Definition, History ,need and Characteristics and Importance of organisational behaviour – models; individual behaviour : personality – types – factors influencing personality – theories; learning: learning process – learning theories – organisational behaviour modification; attitude: characteristics – components – formation; perception: importance – factors influencing perception;

Unit-II (15 Hrs)

Group Behaviour: Meaning and Nature of groups – group formation – groups in Organisations – stages of group development ,Determinants of group behaviour, Decision making – meaning and Techniques, Communication ,Team work and teambuilding, Motivation – importance – theories and effects on work behavior.

Unit-III (15Hrs)

Dynamics of Organisational Behaviour: concept of organisational culture and organizational climate – factors affecting organisational climate, leadership – meaning – importance – leadership styles – theories –Power and politics.Organizational Conflict: Concepts, causes and types, conflict-resolution strategies.

Unit-IV (15 Hrs)

Organizational Change and Development: Organisational change – importance – change process – resistance to change – managing change; concept, characteristics – objectives process/phases, theory and practice, OD intervention technique: sensitivity training, quality circle.

Unit-V (15 Hrs)

Trends in OB Practices: Just in Time(JIT),5S model, SixSigma, LeanManagement, Total productive Management, Total Quality Management ,Kaizen and Suggestion schemes and relevance OB in social work.

(Note: Not for Examination)

Organisational effectiveness – perspective and application of transactional analysis and Johari Window, Kinesics.

Books for References:

Aswathappa.K. (2010). Organisational Behaviour.Himalaya Publishing House Pvt Ltd.

Baron, Robert A. and Greenberg (2008). Jerald. Behavior in organizations – 9th edition. Pearson Education Inc., New Jersey. p.248

Hugh J. Arnold & Daniel C. Feldman. (1986) Organisational Behaviour Mcgraw-Hill Inc,US

John W.Newsrom.(2014) Organizational Behaviour:Human Behavior at Work.McGraw-Hill Publications Ltd.

Khanka S. S. (2000). Organisational Behaviour.S.Chand Publications Pvt Ltd.

Luthans, Fred. (2000). Organizational Behaviour. Singapore: McGraw Hill Ltd.

Robbinns, Stephen. (1995). Essentials of Organization Behaviour. Delhi: Prentice-hall of India Ltd.

Pedagogy: Chalk& Talk, lecture, Seminar, E Content,E Quiz, Group Discussion and Case Study.

Sem ester IV	DEVELOPMENT PLANNING, POLICY PRACTICE AND	category	Course Code	Instructional Hours	Credits
		Core Course XIII	19PSW4CC13D	75	5

Specialisation : Community Development

PREAMBLE:

The course will familiarize the students with the basic concepts of Development, its intricacies and processes of planning, policy making, and implementation.

COURSE OUTCOME:

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

CO Number	CO Statement	Knowledge Level
CO1	Describe the conceptual understanding of Development	K1
CO2	Discuss on needs of Policy Analyst, Planners and Practitioners in understanding the intricacies and processes of policy making.	K4
CO3	Classify the need and importance of multi-level planning and implementation	K4
CO4	Develop students with integrated policy making, planning and practice related skills.	K6
CO5	Evaluate experiences and contextualize the learning of India in a student perspective	K5

Mapping Course Outcome with Programme Outcome

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	M
CO2	S	S	S	S	M
CO3	S	S	M	M	S
CO4	M	M	M	M	S
CO5	S	S	M	M	S

S-Strong

M- Medium

L-Low

SYLLABUS:

UNIT I: FOUNDATIONS AND PERSPECTIVES OF DEVELOPMENT

Development – Concept, Features, Theory, Approaches, India's Development experience. Basic concepts: Political Economy, State, Democracy and Polity. Decentralized Governance and Planning: Concept and features.

UNIT II: DEVELOPMENT PLANNING

Development Planning – Concept & Features, Micro Level planning at the Local, Town, City, and District. Challenges & International Perspective of Development Planning.

UNIT III: DEVELOPMENT POLICY & PRACTICE

Development Policy & Practice – Concept & Features, Process of Policy making, Development Policies related to agriculture, industry, employment, welfare & environment.

UNIT IV: RURAL & ECONOMIC DEVELOPMENT POLICIES IN INDIA

Rural Development Policies: History, Concept & its types - Land & Agricultural Policy, Health Policy, Employment Policy and Rural Institutions Policy.

Economic Development Policies: History, Concept, Origin & its types - Industrial Policy, Trade Policy, Monetary Policy, Fiscal Policy and International Trade Policy,

UNIT V: SKILLS & TOOLS FOR DEVELOPMENT PLANNING, POLICY AND PRACTICE

Skills required: Analyzing and interpreting data and situations, Diagnosing problems and identifying relevant causal factors, Predicting and forecasting, Goal setting and identifying possible courses of action, Evaluating and comparing possible courses of action, Communicating and Implementing actions and monitoring them.

Tools: Participatory planning, Stakeholder identification, Problem Tree analysis, Strategy development, Community Action Plan (CAP), Logical Framework Approach (LFA), Project proposal writing and implementation.

(Not for Exam)

Discussion of Case studies on the implications of Rural and Economic Development Policies on its masses. Visiting an NGO working in Rural setting and understanding Micro level planning – process, advantages and disadvantages.

REFERENCES:

1. Saeed, K. (2016). Development Planning and Policy Design: A System Dynamics Approach (Kindle Edition)
2. Kulshrestha (2012). Urban and Regional Planning in India: A Handbook for Professional Practice, SAGE India; First edition
3. Nath, V (2010). Economic Development and Planning in India Hardcover. Concept Publishing & Co.
4. Dale, R. (2004). Development Planning: Concepts and Tools for Planners, Managers and Facilitators, ZED Publishers.
5. Sukhamoy,C (1998). Development Planning: The Indian Experience, OUP India Publisher.

Online Sources:

1. https://www.orfonline.org/wp-content/uploads/2018/07/70_Policies.pdf
2. <https://www.jnu.ac.in/sites/default/files/u63/12A%20Review%20of%20Urban%20%28Lalit%20Batra%29.pdf>
3. <http://www.economicdiscussion.net/economic-policies/economic-policies-top10-economic-policies-followed-in-india/9914>
4. http://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000032SW/P001729/M021647/ET/1501588996Module-25_e-Text.pdf

Pedagogy: Seminar, PPT Presentation, Brain storming, Group Discussion and Case Study.

Course Designers: Dr Kanaga and Dr Amirtha

		Category	Course Code	Instructional hours	Credits
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SEMESTER IV	FIELD WORK PRACTICUM	Core course XIV	9PSW4CC14P	75	5
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Preamble

Concurrent field work in specialisation helps the students to equip interventions skills in area of interest

Course Outcomes

CO Number	CO Statement	KNOWL EDGE LEVEL
CO1.	Develop knowledge regarding the Specialized Area	K3
CO2.	Survey the numerous problems of the Clients in the specialized area.	K4
CO3.	Deduct the specific problems of the client group.	K5
CO4.	Recommend an area of a mini research study.	K6
CO5	Plan policies and programmes based on the findings of the mini research study.	K6

Mapping Course Outcome with Programme Outcome

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	M	S	S	S
CO3	S	S	S		S
CO4	S	S	S	S	S
CO5	S	S	S	S	S

S-Strong, M-Medium, L-Low

Syllabus

1. Agency placement based on their specializations
2. The placement will be for a minimum duration of 21 field work days/ semester/ for two days per week
3. Importance to be given for the practice of social work methods.

Each student is expected to conduct case work with a minimum of three clients, group work with at least two groups, and organise one institutional/ community based programme (trainees of all specialisations).

Guidelines for Medical and Psychiatric Social Work Specialisation

1. Practice of Social Case Work with at least five clients
2. Practice of Social Group Work with at least two groups
3. One Community based programme.

Guidelines for F & C Welfare Specialisation

1. Exposure to family and child welfare programmes
2. Practice of social work methods – practice of social case work with at least five clients
3. Practice of social group work with at least two groups
4. One community based programme.

Guidelines for HRM Specialisation

1. Exposure to welfare measures and programmes in industries.
2. Orientation to IR activities/Trade Union
3. Understanding of Organisation profile/Organisational Culture
4. Knowledge of labour legislations.

Evaluation

Internal (40Marks)

- | | |
|---|------------|
| 1. Application of Social Work
Methods and Skills | - 20 Marks |
| 2. Reporting | - 10 Marks |
| 3. Attendance to Field work | - 10 Marks |
| | ----- |
| | 40 Marks |
| | ----- |

External Evaluation (60 Marks)

- | | |
|--------------------------------------|------------|
| 1. Theoretical Knowledge | - 20 Marks |
| 2. Practice Skills | - 20 Marks |
| 3. Mobilising Resources | - 10 Marks |
| 4. Communication and
Presentation | - 10 Marks |
| | ----- |
| | 60 |
| | ----- |

SEMESTER IV	DISASTER MANAGEMENT	CATEGORY	Instructional hours	Credit
		Elective Course IV	75	5

Preamble

Disaster management is a process of pre disaster prevention, preparedness, education, and preparedness. It is important for Social Workers to learn this as they are involved in providing psychological assistance to survivors

Course Outcomes

CO Number	CO Statement	KNOWLEDG E LEVEL
CO1.	Classify the types of disaster and its impact	K2
CO2.	Identify emergency services for Rescue and relief phases of disaster	K3
CO3.	Discover psychological first aid for disaster survivors	K4
CO4.	Assess the impact of disaster and provide psychosocial care	K5
CO5	Formulate disaster resilience role of social workers.	K6

Mapping Course Outcome with Programme Outcome

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	S	S	S

S-Strong, M-Medium, L-Low

Syllabus

UNIT I (15 hrs) Disaster and its Types: Disaster: definition, dimensions of disaster, Hazards and Vulnerability. **Types of disaster: Natural and Manmade, Natural :** *Water and climate related:* Floods and drainage management, droughts, cyclones, tsunami, tornadoes, hurricane, snow avalanches, heat and cold waves. *Geological related:* Earthquakes, landslides, mudflows, dam bursts. Industrial accidents, biological disasters

UNIT II (15 hrs) Disaster Cycle-Preparedness, Mitigation, Response and Recovery, Phases (rescue, relief, rehabilitation, rebuilding). Rescue, relief phase: Need assessment, rescue and relief provisions by Army, Police, Fire services, Panchayat Raj institutions. Psychological first aid for disaster survivors.

UNIT III (15 hrs). Crisis management: government response system in disasters – central, state, district, BIRMS – Basic Initial Response Management Steps. **Communication systems during disasters:** HAM (help all mankind) radio promotions, police wireless network, SMS, mobile services, satellite communications; warning systems in disasters.

UNIT IV (15 hrs). Disaster Management Act 2005, Impact of disaster: Physical, social, economic, and psychological impact of disasters. Psycho social care to the disaster survivors; principles of psychosocial care; techniques of providing psychosocial care **Compensation:** Compensation and legal issues among the disaster survivors. **Materialistic and Non-Materialistic Needs.**

UNIT V (15 hrs). Disaster Preparedness and Capacity building Capacity building by Government and Non-Governmental organizations, Role of Central , State Government, NGO and Role of Social Workers in Disaster Services.. National Policy on disaster management.

Practical (Not for Examination) Discussion on case studies, problems of Disaster Survivors, Government role in various Disasters rescue and Rehabilitation

REFERENCES:

Basu, Amit Ranjan, and R. Srinivasa Murthy. 2003 "Disaster and Mental Health: Revisiting Bhopal." *Economic and Political Weekly*).

Consequences of the Marathwada Earthquake Disaster, Pune: Maharashtra Institute of Mental Health.

Dave,A.S., Sekar,K., Bhadra,S., Rajashekar,GP, Kishore Kumar,K., Srinivasa Murthy,R. 2002

Dave,A.S., Sekar,K., Bhadra,S., Rajashekar,GP, Kishore Kumar,K.,Beena,P. Srinivasa Murthy,R.

Desai. N.G., Gupta,D.K., Joshi, P.C., Singh,R.A., Singh, T.B., Lal,M. and Kumar,A.2002

Grace, H, Sekar, K., Subhasis, B., 2005 Bharat, S. Tsunami – Psychosocial care for women.

NIMHANS, Bangalore.

Kishorekumar, K.V. Chandra Sekar, C.R. Choudhury, P.C. Parthasarathy, R. Girimaji, S. Sekar, K. & Srinivasa Murthy, R 2000 Psychosocial care for community level helpers, Bangalore,

Mental health aspects of the earthquake in Gujarat. Indian Council of Medical Research, New Delhi.

Maharashtra Institute of Mental Health. 1994. Proceedings of Symposium on the Health

Nadkarni, V.V. (1991) Developing curriculum in the area of Disaster Management.

S. Bharat and M. Desai (Eds) Research on Families with Problems in India: Issues and implications (Volume I), Bombay: Tata Institute of Social Sciences.

Narayana R.L., Srinivasa Murthy,R., Daz P (2003) Disaster mental health in India: Monograph. American Red Cross. Indian Red Cross, New Delhi

National Institute of Mental Health and Neurosciences (1997) Report on National workshop on Psychosocial consequences of disasters, Bangalore.

Nrayana, R., Dave,A.S., Sekar,K., Kishore Kumar,K., Srinivasa Murthy,R. (2002) Riots,

Psychosocial care for Women surviving the Riots. Books for Change, Bangalore.

Pandey, B (1998) Displaced Development: Impact on open cast mining on women. New Delhi:Friedrich Ebert Stiftung (India office).

Riots (2002): Psychosocial care for children surviving the riots. Books for Change, Bangalore.

Riots: Psychosocial care for Individuals. Books for Change, Bangalore. In English and Gujarati.

Course Designer: Dr.S.Vidhya

Sem IV	Social Inclusion of the Marginalised	Category	Course Code	Instructional Hours	Credits
		Elective IV	19PSW4EC4B	75	4

Preamble

The aim of this course is to introduce students to the basic concept of marginalised and their social inclusion.

Course Outcome

CO. No	CO Statement	Course outcome
CO1	Define the concept of Marginalisation	K1
CO2	Describe about marginalised sections	K1
CO3	Discuss about caste and social exclusion	K2
CO4	Outline the approach to Social Inclusion	K3
CO5	Explain the needs of marginalised	K1
CO6	Enlist the policies for protection of marginalized	K3

Mapping Course Outcome with Programme Outcome

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	M
CO2	S	S	S	S	M
CO3	S	S	M	S	M
CO4	S	S	S	S	S
CO5	S	S	M	S	S

5. S-Strong, M-Medium, L-Low

Syllabus

Unit I (15hours) Conceptual understanding of Marginalization—Meaning, Definitions, Patterns and forms of Marginalization: Sources and dimensions of Marginalization.

Unit II (15hours) Marginalized categories- Understanding the special needs of marginalized categories: Scheduled Caste, Scheduled Tribes, Differently abled, LGBT, Minorities, Women, children, Aged, Migrants, Street dwellers, people living in slums, people living with HIV/AIDS and addicts.

Unit III (15hours) Caste and Exclusion: Caste-meaning and characteristics- Endogamy-Occupation-Educational characteristics- Caste in contemporary India-Politics & caste.Reforming the caste system ,views of Mahatma Gandhi, Narayana Guru, E.V.R. Periyar, Jyothirao Phule and Dr. B.R. Ambedkar .

Unit IV (15hours) Approach to Social Inclusion - Rights based Approach, Institutional Approach, Corporate approach, Constitutional provisions, contemporary policies, important legislations and programmes to protect rights of SC/ST/OBC/ DNT/NT, Minorities and women for inclusion.

Unit V (15hours) a. Inclusive Policy: Current policies of protective discrimination, Public policies to reduce social exclusion, Constitutional safeguards, Panchayati Raj and women empowerment, Convention on the Rights of the Child, Sub-plan approach to tribal development

b. Practice (Not for examination) Conduct three case study on cases of social exclusion in the context of India, write an article on Migrant issues and suggest suitable measures for their social inclusion. Prepare an e-content about the indigenous tribes in Tamil Nadu.

Reference:

- Beteille, Andre (1992): *The Backward Classes in Contemporary India* (Delhi: Oxford University Press).
- Buvinic, M and Kacqueline M. (2005). Gender and Social Inclusion: Social Policy Perspectives from Latin America and the Caribbean. Arusha Conference, “New Frontiers of Social Policy”, December 12-15.
- Byrne, D. (1999) *Social Exclusion. Buckingham.* Open University Press
- Charsley, S. R and G.K. Karanth (1998); *Challenging Untouchability* (Delhi: Sage)
- Chaudhuri, S.N (1988).*Changing Status of Depressed Castes in Contemporary India* (Delhi: Daya Publishing House)
- Chatterjee, C and Sheoran, G. (2007). *Vulnerable groups in India.* The Centre for Enquiry into Health and Allied Themes (CEHAT), Mumbai.
- Furer-H. C.V. (1991). *Tribes of India – the struggle for survival*’. OUP, New Delhi,
- Fernadese, W. (1996). *The Emerging Dalit Identity.*Delhi: Indian Social Institute,
- Hills, J. (2004). *Inequality and the State,* New York: Oxford University Press,
- Hills, John, J. Le Grand and D. Piachaud, eds. (2002). *Understanding Social Exclusion.* Oxford: Oxford University Press.
- Jackson, C., (1999). '*Social Exclusion and Gender: Does One Size Fit All?*'. The European Journal of Development Research, 11(1)
- Kasi, E., Ziyauddin K. M. (Ed). (2009). *Dimensions of Social Exclusion: Ethnographic Explorations.* Cambridge Scholars Publishing.
- Mohanty, K. (2006). *Encyclopaedias of Scheduled Tribes in India.* New Delhi
- Sen, A. (2007). *Social Exclusion: Concept, Application and Scrutiny.*New Delhi: Critical Quest.

Sen, A. (1992). *Inequality Re-examined*, New Delhi: Oxford University Press.

Sen, A. (2000). *Social Exclusion: Concept, Application and Scrutiny*, *Social Development Papers No.1*. Asian Development Bank.

Pedagogy: e -content, Google classroom, moodle, lecture, Seminar, PPT, GroupDiscussion

Course Designer : Dr.O.Aisha Manju

SEMESTER IV	BLOCK PLACEMENT	Category	Course Code	Instructional Hours	Credits
		Elective V	19PSW4EC5P	75	5

Preamble

Block Placement is designed for the learner to integrate theory and practice to enhance competencies of social work practice and experience self in that role.

Course Outcomes

CO Number	CO Statement	KNOWL EDGE LEVEL
CO1	Categorize various client groups and their problems.	K4
CO2..	Analyse practice skill and integrate learning.	K4
CO3.	Prioritize the immediate problems of the clients	K5
CO4.	Evaluate understanding of reality situations through involvement in day to day work.	K5
CO5.	Adapt to the role of a professional social worker.	K6

Mapping Course Outcome with Programme Outcome

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	S	S	S

S-Strong, M-Medium, L-Low

The internship must be for a minimum of one month in an organisation related to the candidate's specialization.

Evaluation

40 marks – Internal

30 marks - Agency Evaluation

30 marks- Viva Voce

(**Note:** Common viva-vice for concurrent field work and Block placement at the end of IV semester with 30 marks)

Pedagogy; Case Conference, Individual conference, Discussions

SEMESTER IV	RESEARCH PROJECT WORK	Course code	Instructional hours	Credits
		19PSWPW	60	4

Preamble

To engage meaningfully in the process of problem formulation, review of literature related to the study, preparing the research proposal, choosing an appropriate research strategy and developing instruments of data collection, collecting the data, processing, analysing and interpreting the data and preparing the research report.

Course Outcomes

CO Number	CO Statement	KNOWL EDGE LEVEL
CO1.	Summarise the social problems to be studied	K2
CO2.	Interpret literature Pertaining to the study	K3
CO3.	Examine Research Proposal	K4
CO4.	Evaluate findings of the study	K5
CO5	Formulate solutions and recommend for policy making	K6

Mapping Course Outcome with Programme Outcome

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	S	S	S

S-Strong, M-Medium, L-Low

1. PROJECT REPORT EVALUATION (Both Internal & External)

S.No	Particulars	Marks
1	Plan of the Project	20
2	Execution of the Plan/Collection of Data/Organisation of Materials/Hypothesis, Testing etc and Presentation of the Report	45
3	Individual Initiative	15
4	Viva Voce/Internal & External	20
	Total	100

Pedagogy : Discussions, assessment of questionnaires/Inventories etc.

SEM I	UNIVERSAL HUMAN VALUES	Category	Course Code	Instructional Hours	Credits
		Part IV	20UGVE	30	2

PREAMBLE

This course inculcates the basic human values among the students so as to make them responsible citizens of the Nation.

COURSE OUTCOMES

On
the

CO Number	CO Statement	Knowledge Level
CO1	Define the values of Love and Compassion	K1
CO2	Understand the value of Truth	K2
CO3	Explain the value of Non-violence	K3
CO4	Practice the values of Righteousness and Service	K3
CO5	Apply the values of Renunciation (sacrifice) & Peace	K4

successful completion of this course, the students will able to

Syllabus

Unit I: (5 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
- 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 : (5 Hours)

Truth

- **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
- 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

Unit III : (5 Hours)

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
- Practicing non-violence: What will learners learn/gain if they practice non- violence? What will learners lose if they don't Practice it?
- Sharing learner's individual and/ or group experience(s) about non - violence
- Simulated situations
- Case studies

Unit IV : (8 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
- Practicing Righteousness: What will learners learn/ gain if they practice righteousness and service? What will learners loose if they Don't Practice these values?
- Sharing learners individual and/ or group experience(s) regarding righteousness and service
- Simulated situations
- Case studies

Unit V : (7 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
- Practicing renunciation, sacrifice and Peace: What will learners learn/ again if they practice Renunciation, sacrifice and Peace? What will learners lose if there Don't Practice these values?
- Sharing learners individual and/ or group experience(s) about Renunciation, sacrifice and Peace
- Simulated situations
- Case studies

ANNEXURE - K
DEPARTMENT OF BUSINESS ADMINISTRATION
SYLLABUS OF BBA PROGRAMME

a. Skeleton of the UG program

SEM	PART	COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CRE DITS	EXAM HRS	MARKS		TOTAL	
							INT	EXT		
I	I	Ikkalallakkiyam	19ULT1	6	3	3	25	75	100	
		Story, Novel, Hindi Literature – 1 & Grammar – I	19ULH1							
		History of Popular Tales and Literature and Sanskrit Story	19ULS1							
		Communication in French – I	19ULF1							
	II	Functional Grammar for Effective Communication – I	19UE1	6	3	3	25	75	100	
	III	Core Course I (CC) Fundamentals of Management	19UBA1CC1	5	5	3	25	75	100	
			Core Course II (CC) Financial Accounting	19UBA1CC2	6	5	3	25	75	100
				Allied Course I Managerial Economics	19UBA1AC1	5	3	3	25	75
	IV	UGC Jeevan Kaushal Life Skills Universal Human Values	20UGVE	2	2	3	25	75	100	
	TOTAL				30	21			600	
II	I	Idaikkalallakkiyamum, Pudhinamum	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	Functional Grammar for Effective Communication – II	19UE2	6	3	3	25	75	100	
	III	Core Course III (CC) Elements of Marketing	19UBA2CC3	5	5	3	25	75	100	
			Core Course IV (CC) Business Statistics	19UBA2CC4	6	5	3	25	75	100
				Allied Course II Business Environment	19UBA2AC2	5	3	3	25	75
	IV	Environmental Studies	19UGES	2	2	3	25	75	100	
	TOTAL				30	21			600	
SEM	PART	COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CRE DITS	EXAM HRS	MARKS		TOTAL	
III	I	KappiyamumNaadakamum	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	Writing for General and Specific Purposes – I	19UE3	6	3	3	25	75	100	
	III	Core Course V (CC) Organisational Psychology	19UBA3CC5	6	5	3	25	75	100	
		Core Course VI (CC) Computer Applications Package for Managers (MS-Office Practical)	19UBA3CC1P	5	4	3	40	60	100	
		Allied Course III Business Law	19UBA3AC3	5	4	3	25	75	100	
	IV	Non – Major Elective – I Stock Exchange Practices	19UBA3NME1	2	2	3	25	75	100	
		Special Tamil	19ULC3ST1							
		Basic Tamil	19ULC3BT1							
	V	Developing Soft Skills and Personality (As per UGC recommendations)	May be fixed later	8	2					
	TOTAL			30	21				600	
IV	I	Pandaiyallakkiyam	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	Writing for General and Specific Purposes – II	19UE4	6	3	3	25	75	100
		III	Core Course VII (CC) Cost Accounting	19UBA4CC6	5	5	3	25	75	100
			Core Course VIII (CC) Computer Applications Package for Managers (Practical Paper)	19UBA4CC2P	5	4	3	40	60	100
			Allied Course IV Company Law	19UBA4AC4	4	3	3	25	75	100
		IV	Non – Major Elective – II Export Import Management	19UBA4NME2	2	2	3	25	75	100
			Special Tamil	19ULC4ST2						
			Basic Tamil	19ULC4BT2						
			Skill Based Elective – I E - Business	19UBA4SBE1A	2	2	3	25	75	100
			Stress Management	19UBA4SBE1B						
		V	SWAYAM ONLINE COURSE (As per UGC recommendations)	May be fixed later			As per UGC norms			
		TOTAL			30	22				700
	SEM	PART	COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CRE DITS	EXAM HRS	MARKS		TOTAL
			Core Course IX (CC) Entrepreneurial Development	19UBA5CC7	5	5	3	25	75	100
		Core Course X (CC) Research methods in Management	19UBA5CC8	5	5	3	25	75	100	
		Core Course XI (CC)	19UBA5CC9	5	5	3	25	75	100	

V	III	Management Accounting							
		Core Course XII (CC) Project work and viva-voce	19UBA5CC10	5	5	3	25	75	100
		Major Based Elective – I Digital Marketing	19UBA5MBE1A	4	3	3	25	75	100
		Consumer Behaviour	19UBA5MBE1B						
	IV	Skill Based Elective – II New Product Development	19UBA5SBE2A	2	2	3	25	75	100
		Business Ethics	19UBA5SBE2B						
		Skill Based Elective – III Event Management	19UBA5SBE3A	2	2	3	25	75	100
		Personality Development	19UBA5SBE3B						
		Soft Skill Development	19UGSD						
	TOTAL			30	29				800
VI	III	Core Course XIII (CC) Global Business Management	19UBA6CC11	6	5	3	25	75	100
		Core Course XIV (CC) Financial Management	19UBA6CC12	6	5	3	25	75	100
		Core Course XV (CC) Human Capital Management	19UBA6CC13	6	5	3	25	75	100
		Major Based Elective - II Managerial Communication	19UBA6MBE2A	5	4	3	25	75	100
		Hospitality Management	19UBA6MBE2B						
		Major Based Elective - III Production and Operations Management	19UBA6MBE3A	6	4	3	25	75	100
		New Product Development	19UBA6MBE3B						
	IV	Extension Activities	19UGEA	--	1	--	--	--	--
		Gender Studies	19UGGS	1	1	3	25	75	100
TOTAL			30	25				600	
GRAND TOTAL			180	140		975	2925	3900	

b. III semester UG Syllabus

CORE COURSE V - ORGANIZATIONAL PSYCHOLOGY

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Core Course V (CC) Organisational Psychology	19UBA3CC5	6	5	3	25	75	100

OBJECTIVES

- To have an understanding of recent trends in Organization.
- To learn the basic structure for managing behavior in Organization at both individual and group level.
- To expose the students about the basic concepts of motivation and group dynamics.
- To help them acquire interpersonal skills.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Create the knowledge on fundamental concepts of Organization behavior and application of the organization concepts.	K1
CO2	Discuss the Personality and perception in individual and Group decision making.	K2
CO3	Apply the concept of Group dynamics, Group cohesiveness and Group Norms.	K3
CO4	Communicate the knowledge about the types of leadership skills and power and authority of the effective leader.	K2
CO5	Analyze the organisational behaviour in the recent business scenario.	K3

Mapping with programmes outcome:

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	M
CO3	S	S	S	S	M
CO4	S	S	S	S	S
CO5	S	S	S	M	M

S-Strong, M-Medium, L-Low

Unit-I:

Meaning of Organizational Behaviour – Scope – Features – Importance – Models – Disciplines contributing to Organisational Behaviour – Emerging trends in Organisational behaviour.

Unit-II:

Meaning of Personality – Determinants – Personality attributes – Meaning of Perception and Importance – Factors influencing perception – Perception in individual decision making – Group Decision Making – Group and inters group behaviour.

Unit-III:

Group Dynamics – Meaning - Features of Group Dynamics – Formal and Informal Groups –Group Cohesiveness – Group Norms – Meaning and types of conflict – Negotiation process.

Unit-IV:

Leadership – Meaning and types – Characteristics – Styles of leadership – Power and authority – Theories of Organizational Behaviour – Managerial Grid – Stress and behavior – Sources and types of stress.

Unit-V:

Motivation – Concepts – Nature – Theories of Motivation – Maslow needs theory – Herzberg’s Two Factor Theory – Morale – Meaning – Measurement of Morale.

TEXT BOOK:

Sl.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	L.M.Prasad	Organizational Behaviour	Sultan Chand and Sons, New Delhi.	Reprint in 2014
2.	S.S. Khanka	Organizational Behaviour	Sultan Chand and Sons, New Delhi.	Reprint in 2013

REFERENCE BOOKS:

Sl.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Jerald Green Berg and Robert	Behaviour in organizations	Prentice Hall	Edition 10, Publishing in 2011.
2.	Stephen P. Robbins	Organization Behaviour, Concepts, Controversies and application	<i>Prentice Hall</i>	Edition 7, Publishing in 2013.
3.	V.S.P. Rae & D.S Narayana	Organization theory and behavior	Konark Publishers Pvt. Ltd	2nd edition, Publishing in 2000.

PEDAGOGY: Power point presentations, Seminar, Assignment, Brain storming.

COURSE DESIGNER: Dr.J.Tamilselvi, Associate professor and Head.

**CORE COURSE VI - COMPUTER APPLICATIONS PACKAGE FOR MANAGERS
(MS-OFFICE PRACTICAL)**

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Core Course VI (CC) Computer Applications Package for Managers (MS-Office Practical)	19UBA3CC1P	5	4	3	40	60	100

OBJECTIVES

- To impart the basic knowledge of the Computer to the students.
- To understand the basics of Microsoft Office and usage of Internet.
- To Create slide presentations that include text, graphics, and animation.
- To identify resources available on the Internet.

COURSE OUTCOMES:

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

CO Number	CO Statement	Knowledge Level
CO1	To analyse the areas of application of computer.	K1
CO2	To create business letters using wizard and to create mail merge.	K2
CO3	To apply statistical and financial function and to create different types of charts.	K3
CO4	To design power point presentation and apply animations.	K3
CO5	To demonstrate the usage of Internet.	K3

Mapping with programmes outcome:

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	S	M	M
CO4	S	S	S	S	S
CO5	S	S	S	S	S

S-Strong, M-Medium, L-Low

UNIT-I INTRODUCTION TO COMPUTERS

Windows 2007-Logging on Desk top - Icons on Desk top - Start Menu - MS-Paint – Create Drawings and Edit Photos - Tools used in MS-Paint – Opening , Saving and Closing Ms-Paint documents.

UNIT-II MICROSOFT OFFICE WORD

MS Word – Creating and Formatting word Document- Business letter using wizards – Editing and formatting documents-Spelling and Grammar check- Header and Footer-Word count- Thesaurus - Auto correct – Mail merge - Working with tables – Saving, opening and closing documents.

UNIT-III MICROSOFT OFFICE: EXCEL

MS Excel- Worksheets and Workbooks- Entering data into MS Excel- Formatting a Worksheet- Creating different types of Charts- Application of financial and statistical function - Saving, opening and closing workbooks.

UNIT-IV MICROSOFT OFFICE: POWERPOINT

MS Power Point -Creating, Editing and Formatting Presentation – Adding and Formatting Text -Customizing Presentations - Working with Shapes and Pictures - Applying Transition and Animation Effects - Applying Design Templates - Viewing and Setting up a Slide Show .

UNIT V INTRODUCTION TO INTERNET

Introduction to Internet - World Wide Web - Search Engines - Understanding URL - Domain name - IP Address - Printing or saving portion of web pages - Down loading - Chatting on Internet . Email - Email addressing - Mailbox: Inbox and outbox - Using Emails - Viewing an email - Sending an Email - Saving mails - Sending same mail to various users - Sending soft copy as attachment.

Text Book:

Sl.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Pradeep K Sinha Priti Sinha.	Computer Fundamentals	B P B Publications, New Delhi	6 th Edition, 2003
2.	Tally Education Pvt Ltd	Tally Guru-Vol.1	Sahaj Enterprises, Banglore.	2019

Books for Reference:

Sl.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Ananthi Sheshasaayee & Sheshasaayee	Computer Applications in Business and Management	Margham Publication	2019
2.	A.K.Nadhani, K.K Nadhani	- Implementing tally 9.0	BPB publishers, India	2007

PEDAGOGY: Lecture, Assignment, Seminar, Computer Practicals

COURSE DESIGNER: Dr.M.Neela , Associate Professor.

ALLIED COURSE III - BUSINESS LAW

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Allied Course III Business Law	19UBA3AC3	5	4	3	25	75	100

OBJECTIVES

- To facilitate the students on the basic principles and legal aspects of Business law
- To enhance the understanding of various legislations relating to business.
- To impart the students to complete the practical business law ideas.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	To enable the students to understand the essentials elements of Indian contract Act	K1
CO2	To Discuss the Performance of Contract and Remedies for breach of contract	K2
CO3	To Elucidate the Law of Agency	K2
CO4	Discuss the knowledge of Sale of goods Act relating to transfer of property and Rights of an unpaid seller.	K2
CO5	To acquire basic knowledge on Partnership Act	K3

Mapping with programms outcome:

COS	PO1	PO2	PO3	PO4	PO5
CO1	M	S	S	S	M
CO2	M	S	S	S	M
CO3	M	S	S	S	M
CO4	M	S	S	M	M
CO5	M	S	S	M	M

S-Strong, M-Medium, L-Low

SYLLABUS

UNIT: I

Contract Act-Definition-Classification- Essentials of a contract- Offer and Acceptance- Consideration- Contractual capacity-Free consent- Legality of object.

UNIT: II

Performance of contract- Modes of Discharge of Contract- Remedies for Breach of contract.

UNIT: III

Law of Agency- Mode of creation- Agency by Ratification-Sub- Agent and Substitute Agent-Termination Agency-Indemnity and Guarantee, Bailment and Pledge.

UNIT: IV

Sale of goods Act-Definition-Condition and warranties – Transfer of property- performance of contracts of sale – Rights of an unpaid seller.

UNIT :V

Partnership - Definition- Essentials- Rights, Duties and Liabilities of Partners - Types of Partnership- Dissolution of Partnership.

TEXT BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	N.D.Kapoor	Elements of Business law	Sultan Chand and Sons, New Delhi.	37 th Revised Edition 2015
2.	M.C. Shukla	A Manual of Mercantile Law	Sultan Chand and Sons, New Delhi.	13 th edition 2016

REFERENCE BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	R.S.N Pillai & Bagawathi	Buiness Law	Business Law	Sultan Chand and Sons, New Delhi.
2.	Kuchhal M C	Mercantile Law	Vikas Publishing Pvt.Ltd, Noida	8 th edition

PEDOGOGY: Lecture, Assignments, Seminar and Quiz

COURSE DESIGNER: Dr. A. Sivaranjani, Assistant Professor.

NON – MAJOR ELECTIVE – I STOCK EXCHANGE PRACTICES

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Non – Major Elective – I Stock Exchange Practices	19UBA3NME1	2	2	3	25	75	100

OBJECTIVES

- To impart the basic knowledge of stock marketing.
- To predict the movements in the stock in various investment avenues and to rate them.
- To equip the students about credit rating of the companies.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Identify the essential of Capital Markets and to evaluate the need for New Issue Markets	K1
CO2	Framing the role and functions of Secondary Markets	K2
CO3	Discuss the necessity of Listing in Stock Exchanges	K3
CO4	Assess the predominant role of Stock brokers in the trading mechanism	K3
CO5	Formulate the methods of ranking of institutions through credit rating	K3

Mapping with programmes outcome:

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	S	S
CO2	S	S	S	S	S
CO3	S	M	S	M	S
CO4	S	S	S	M	S
CO5	S	S	S	M	S

S-Strong, M-Medium, L-Low

SYLLABUS

UNIT: I

Need and importance of Capital Market – New Issue Market – Functions and Methods of Issue.

UNIT: II

Secondary Market – Origin and Growth – Role and Functions of Stock Exchange – NSE – Weaknesses of Stock exchange.

UNIT: III

Listing of Securities – Group A, Group B, Group C Shares – Listing Procedures – Criteria for Listing.

UNIT: IV

Mechanics of Trading in Stock Exchanges – Registration of Stock Brokers

UNIT: V

Credit Rating – CRISIL – CARE – ICRA Agencies, DEMAT Accounts – Depositories

TEXT BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Gordon E & Natarajan K	Financial Markets and Institutions	Himalaya Publishing House	3 rd Revised Edition 2015

REFERENCE BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Punithavathy Pandian	Security Analysis and Portfolio Management	Vikas Publishing House Ltd	2 nd Edition 2012
2.	Joseph Anbarasu D, Boomonathan V. K., Manoharan P, Gnanaraj G	Financial Services	Sultan Chand & Sons	2014

PEDOGOGY: Lecture, Assignments, Seminar and Quiz

COURSE DESIGNER: Dr. M. Gayathri, Assistant Professor.

CERTIFICATE COURSE
INTELLECTUAL PROPERTY RIGHTS
30 HOURS

OBJECTIVES

- To introduce fundamental aspects of Intellectual Property Rights to students who are going to play a major role in development and management of innovative projects in industries.

- To disseminate knowledge on patents, copyrights, trademarks, Geographical Indication, design and integrated circuit layout design and its related rights and registration aspects.

- To facilitate the students to explore career options in IPR.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	To enlighten the students to get an adequate knowledge on patent and copyright for their innovative research works.	K2
CO2	To elucidate the information in IPR laws for developing their innovative ideas.	K3
CO3	Explain the basic Registration Procedure for getting Patent, Copyright and trade mark for their products of budding Entrepreneurs.	K3

SYLLABUS (30 Hrs)

UNIT :I (4 Hrs)

Intellectual Property Rights – Meaning – Definition – Features of a property – Classification of property – National Intellectual property rights policy of India: Vision, Mission, Objectives and features.

UNIT:II (8 Hrs)

Patents – Objectives of the Patent law – The procedure for obtaining a patent in India – Rights granted to a patentee. Trademarks – Functions of a Trademark – Trademark and its types – Good trademark – Registration of a trademark – Rights granted by registration of trademarks.

UNIT:III (5 Hrs)

Copyright – Objectives – Principles of Copyright law – Works protectable under Copyrights – Registration of Copyrights – Rights of the Authors and Copyright owners.

UNIT:IV (6 Hrs)

Geographical indications – Meaning – Kinds of Geographical Indications – Advantages and disadvantages of Geographical indication protection – Registration of Geographical indications – Benefits of Registration of Geographical indications.

UNIT:V (7 Hrs)

Designs – Concepts of Design – Requirements for design protection – Registration of Designs. Integrated Circuit Layout Design – Requirements for Integrated Circuit Layout Design – Registration of Integrated Circuit Layout Design.

TEXT BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	K.V.Nithyananda	Intellectual Property Rights: Protection and Management	Cengage Learning India Pvt. Ltd.	2019

REFERENCE BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Ahuja, V K. & Bagavathi	Law relating to Intellectual Property Rights	Lexis Nexis	2017

c. IV semester UG Syllabus

CORE COURSE VI – COST ACCOUNTING

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Core Course VII (CC) Cost Accounting	19UBA4CC6	5	5	3	25	75	100

OBJECTIVES

- To facilitate students to understand and to gain knowledge about the concepts and principles of cost accounting
- To apply the costing techniques in various practical situation.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Impart the knowledge of basic Cost Concepts, elements of cost and preparation of Cost sheet.	K1
CO2	Formulate stores ledger using FIFO, LIFO, Simple Average and Weighted Average Method as tool of material control	K3
CO3	Compute cost of labour using time and differential piece rate system as a tool of labour control	K2
CO4	Design statement showing allocation and apportionment of overhead of service Department to producing department by using various methods	K3
CO5	Analyze the various types of costing	K3

Mapping with programme outcome:

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	M
CO5	S	S	S	S	S

S-Strong, M-Medium, L-Low.

SYLLABUS

UNIT I:(15 hrs)

Meaning – Objectives and Scope of Cost accounting – Cost concepts – Cost accounting Vs Financial and Management accounting – Classification of Cost – Types of Costing - Elements of Cost – Preparation of Cost sheet.

UNIT II: (16 hrs)

Meaning – Objectives of material control – Stores records – bin card, stores ledger, Levels of stock – EOQ – ABC Analysis – Perpetual inventory system, valuation of material – FIFO – LIFO – Simple average – Weighted average method.

UNIT III: (15 hrs)

Labour cost – Types and Labour Turnover – methods of measuring Labour Turnover – Ideal time – methods of wage payment – Time rate system – Piece rate system – premium and Bonus plans – Halsey, Rowan plan – Taylor’s and Merricks differential piece rate – Gantt’s task bonus plan – Emerson’s efficiency plan.

UNIT IV: (14 hrs)

Definition – Classification – Allocation and Apportionment of Overhead – Primary and Secondary apportionment of overheads – step ladder methods – Reciprocal methods – Machine hour rate – Operating Costing.

UNIT V: (16 hrs)

Job costing – contract costing – Process costing – computation of process costing – normal loss – abnormal loss – abnormal gain - Standard and variance costing.

Text Book:

Sl.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Jain S P and Narang K L	Cost Accounting Principles and Practice	Kalyani Publishers, New Delhi,	2014
2.	Maheshwari S N	Cost Accounting	Sultan Chand and Sons, New Delhi.	2015

Books for Reference:

Sl.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Iyengar S P	Cost Accounting	Sultan Chand and Sons, New Delhi,	2014
2.	Pillai R S N & Bagawathi	Cost Accounting	Sultan Chand and Sons, New Delhi.	2015
3.	Reddy T S & Hari Prasad Reddy	Cost Accounting	Margham Publications, Chennai.	2014

Pedagogy:

Lectures, Quiz and Assignments

Course Designer: Dr. A. Sivaranjani, Assistant Professor.

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Core Course VIII (CC) Computer Applications Package for Managers (Practical Paper)	19UBA4CC2P	5	4	3	40	60	100

OBJECTIVES

- To impart the basics required for systems accounting in the Technological world.
- To prepare various reports using accounting package required for modern business era.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Create company, groups and ledgers using Tally .	K1
CO2	Create different types of voucher.	K2
CO3	Create different stock categories, stock item and stock group.	K3
CO4	Create cost centres and cost categories in voucher entry.	K3
CO5	Prepare reports such as Day books and Final accounts.	K3

Mapping with programme outcome:

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	S	M	S

S-Strong, M-Medium, L-Low.

SYLLABUS

UNIT –I (15 hrs)

Creation of Company – creation of Groups- editing and deleting groups - Creation of Ledgers –editing and deleting ledgers.

UNIT –II (17 hrs)

Introduction to Voucher Entries –Payment Voucher-Receipt Voucher – Sales Voucher – Purchase Voucher - Contra voucher-Journal Voucher- editing and deleting voucher.

UNIT-III (15 hrs)

Introduction to Inventories – Creation of Stock Categories – Stock groups – Stock items – Configuration and features of stock item – Editing and deleting stocks.

UNIT-IV (15 hrs)

Introduction to cost – Creation of cost categories – creation of cost centers – Editing and deleting- usage of cost category and cost centers in voucher entry – Creation of Budgets

UNIT –V (17 hrs)

Day book - Trail Balance - Final Accounts – Trading and Profit and Loss A/c – Balance Sheet - Generating and printing reports in detailed and condensed format.

Text Book:

Sl.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	P K Sinha	Computer Fundamentals	BPB Publications	Reprint Edition 2017
2.	Ashok K. Nadhani	Tally 9.0	BPB Publications	Edition 2018

Books for Reference:

Sl.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Ananthi Sheshasaayee & Sheshasaayee	Computer Applications in Business and Management	Margham Publication	2018
2.	K.K Nandhani	Implementing tally 9.0	BPB publishers	2018

Pedagogy:

Lecture, Power Point Presentation, Assignment, Seminar, Computer Practical.

Course Designer:

Dr. M. Neela, Associate Professor.

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Allied Course IV Company Law	19UBA4AC4	4	3	3	25	75	100

OBJECTIVES

- ◆ To promote basic understanding of the concept of Company Law
- ◆ To impart knowledge about establishing and conducting affairs of the company and formalities for financing a company.
- ◆ To able to conduct different meetings in the company and recording of the proceedings

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Explain the basic concepts and different types of companies	K1
CO2	Communicate the knowledge about the formation of companies and contents of the prospects	K2
CO3	To assist the students to understand the different types of shares, debentures and dividend	K1
CO4	Apply the laws governing various formalities about meetings and proceedings	K3
CO5	Ability to identify the duties and responsibilities of directors	K2

Mapping with programme outcome:

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	M
CO5	S	S	S	S	S

S-Strong, M-Medium, L-Low.

SYLLABUS

UNIT: I (15 hrs)

Company – Definition of Company – Characteristics – Advantages of a company – Kinds of companies – Private Ltd Company Vs Public Company.

UNIT: II (15 hrs)

Formation of Companies – Incorporation of Company – Memorandum of Association – Clauses – Articles of Association – Contents – Prospects - Contents.

UNIT: III (15 hrs)

Shares – Kinds of Shares – Equity Shares – Preference Shares – Premium and Discount – Allotment – Minimum Subscription – Forfeiture of Shares – Debentures – Types – Dividend – Types.

UNIT: IV (15 hrs)

Meetings – Definitions of Meetings – General Meetings of Shareholders – Statutory Meeting – Annual General Meeting – Extraordinary General Meeting – Class Meeting – Quorum for Meeting – Proxy – Resolution – Minutes.

UNIT: V (15 hrs)

Company Management – Appointment of Directors – Powers, Duties and Liabilities of Directors – Winding of Company – Voluntary Winding up – Winding up by Court – Dissolution of Company

TEXT BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	N.D. Kapoor	Company Law	Sultan Chand & Sons	Revised Edition 2017
2.	G.K. Kapoor Sanjay Dharnija	Company Law and Practice	Taxmann's	Revised Edition 2016

REFERENCE BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	PMS. Abdul Gaffoor & S. Thothadri	Company Law and Secretarial Practice	Vijay Nicole Imprints	2017
2.	Kuchhal M.C	Merchantile Law	Vikas Publishing Pvt. Ltd. Noida	8 th Edition

Pedagogy:

Lecture, Assignments, Seminar and Quiz

Course Designer:Dr. A. Sivaranjani, Assistant Professor

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Non – Major Elective – II Export Import Management	19UBA4NME2	2	2	3	25	75	100

OBJECTIVES

- ♣ To design a foundation for the students who seek a career in International markets
- ♣ To enlighten the students' knowledge about International business practices, customs and policies and shipping.

COURSE OUTCOME

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

CO Number	CO Statement	Knowledge Level
CO1	Critique the framework of Export and Import in International Scenario	K1
CO2	Design various strategies and practices for Export and Import	K2
CO3	Plan suitable mode of transportation	K3
CO4	Discuss the payment and pricing for Import and Export procedures	K3
CO5	Outline the EXIM Policy in India	K3

Mapping with programme outcome:

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	M
CO5	S	S	S	S	S

S-Strong, M-Medium, L-Low.

SYLLABUS

UNIT: I (8 Hrs)

Meaning – Definition of Export and Import. Evolution of Export and Import. Foreign Trade – Institutional Framework and Basics. Multinational Organisations and Structure, International Business Scenario.

UNIT: II (7 Hrs)

Documentation and Steps of Export and Import, Export – Import Strategies and Practice, Export Marketing, Export Incentive Schemes, Business Risk Management and Coverage.

UNIT: III (8 Hrs)

Logistics and Characteristics of Modes of Transportation, Characteristics of Shipping Industry, World Shipping, Containerisation and Leasing Practices.

UNIT: IV (9 Hrs)

Export Procedures and Documents, Customs Clearance of Import and Export Cargo, Methods and Instruments of Payment and Pricing Inco terms, Methods of Financing Exporters.

UNIT: V (8 Hrs)

EXIM Policy of India – Meaning – Objectives – Importance of EXIM Policy 1997-2000 and EXIM Policy 2002-2007.

TEXT BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Justin Paul and Rajiv Aserkar	Export Import Management	Oxford University Press	2 nd Edition 2013
2.	Balagopal TAS	Export Marketing	Himalaya Publishing House	22 nd Edition 2016

BOOKS FOR REFERENCE

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Ushakiran Rai	Export Import and Logistics Management	PHI Learning Pvt Ltd	2 nd Edition 2010
2.	Rama Gopal C	Export Import Procedure-Documentation & Logistics	New Age International	1 st Edition 2014

Pedagogy:

Lecture, Assignments, Seminar and Quiz

Course Designer:

Dr. M. Gayathri, Assistant Professor.

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Skill Based Elective – I E - Business	19UBA4SBE1A	2	2	3	25	75	100

OBJECTIVES

- To enable students to get exposed to fundamental aspects of e-business
- To investigate the strategic implications of e-business with emphasis on existing companies

Course Outcome

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

CO Number	CO Statement	Knowledge Level
CO1	Discuss the e-business process	K1
CO2	Describe an example of system architecture for an e-business	K2
CO3	Identify the major electronic payment issues and options	K2
CO4	Discuss security issues and explain procedures used to protect against security threats	K3

Mapping with programme outcome:

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	M
CO5	S	S	S	S	S

S-Strong, M-Medium, L-Low.

SYLLABUS

Unit I: (7 hrs)

Concept of e-business - Nature, scope, and impact of e-business - History and development of e-business - Advantages of e-business.

Unit II: (8 hrs)

Digital Marketing Concept - Measuring the extent of digital marketing activity - Market analysis - Digital marketing tools - Viral marketing.

Unit III: (7 hrs)

Online Distribution - Components of a distribution system - Characterisation of online distribution - hybrid distribution networks.

Unit IV: (7 hrs)

E-Payment System - Characteristics of payment system - Classification of payment systems - e-cash, e-check, overview of smart card.

Unit V: (6 hrs)

E-Contracting - Concept of generic services - information, negotiation, archiving, enforcement, reconciliation - Structure of a contract - Digital signature - Legal affairs.

TEXT BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Sandeep Krishnamurthy	E-Commerce Management Text and Cases	South-Western Pub	2 nd Edition 9 th July 2006
2.	Daniel Minoli&Emma Minoli	Web Commerce Technology Handbook	Computing McGraw-Hill	1 st July 2017

REFERENCE BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Kamlesh K Bajaj and Debjani Nag	E-Commerce	Tata McGraw-Hill Publishing Company Limited	2 nd Edition 2005

Pedagogy:

Interactive Lectures, Presentations, Assignment

Course Designer:

Mrs. A.Suganya, Assistant Professor.

SKILL BASED ELECTIVE –II: STRESS MANAGEMENT

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Stress Management	19UBA4SBE1B	2	2	3	25	75	100

OBJECTIVES

- Identify current and potential sources of stress in students' lives.
- Understand the physiological effect of stress on an individual's health.
- Use stress management techniques learned in class to develop a stress resistant lifestyle.

Course Outcome:

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

CO Number	CO Statement	Knowledge Level
CO1	Explain the sources and types of stress in order to implement appropriate stress management techniques.	K1
CO2	Analyze effectiveness of stress in human body system and causes of diseases.	K3
CO3	Develop an impact of stress on personality and Perception processes.	K4
CO4	Practice the basic elements of the relaxation response.	K3
CO5	Identify common stressors inherent in today's global marketplace.	K3

Mapping with programme outcome:

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	M
CO5	S	S	S	S	S

S-Strong, M-Medium, L-Low.

SYLLABUS**UNIT I (8 hrs)**

Definition of stress & stressor - Sources of Stress - Types of stress - Human fight-or-flight response to stress - Stress and the college student.

UNIT II (8 hrs)

Impact of Stress in body systems - Stress and Nervous System - Hypothalamic-pituitary-adrenal (HPA) axis - Effect of stress on Immune system - Health risk associated with chronic stress - Stress and Major psychiatric disorders - Role of stress emerging as a disease.

UNIT III (8 hrs)

Understanding your stress level - Role of personality pattern, Self Esteem, Locus of control - Role of thoughts beliefs and emotions.

UNIT IV (10 hrs)

Developing cognitive coping skills - Autogenic Training, Imagery and Progressive relaxation - Other relaxation techniques - Exercise and health - DIY strategies stress management - key dimensions of time management.

UNIT V (8 hrs)

Connection between social support and stress - Types of social support - Recognize the role of communication and relationships in managing stress, and in academic / work performance - emotional intelligence.

TEXT BOOK:

S.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Folkman.S	The oxford Handbook of stress, health and coping.	Oxford University.	Publishing in 2010

REFERENCE BOOKS:

S.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	M. Olpin and M. Hesson	Stress Management for Life: A Research-Based Experiential Approach.	Wadsworth Publishing	4th edition, publishing in 2015
2.	K. Lee	Reset: Make the Most of Your Stress: Your 24-7 Plan for Well-being.	IUniverse Publishing	Publishing in 2014

Pedagogy:

Power point presentations, Seminar, Assignment, Brain storming.

Course Designer:

Dr. J. Tamilselvi, Associate Professor and Head.

ANNEXURE - L
CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18
DEPARTMENT OF COMMERCE
B.Com. PROGRAMME STRUCTURE
(For the candidates admitted from the academic year 2019 – 2020 onwards)

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
								Internal	External	
I	I	Language Course - I (LC)	இக்கால இலக்கியம்	19ULT1	6	3	3	25	75	100
			Communication in French - I	19ULF1						
			History of Popular Tales Literature and Sanskrit Story	19ULS1						
			Story, Novel, Hindi Literature - I & Grammar - I	19ULH1						
	II	English Language Course - I (ELC)	Functional Grammar for Effective Communication - I	19UE1	6	3	3	25	75	100
	III	Core Course - I (CC)	Financial Accounting - I	19UCO1CC1	6	5	3	25	75	100
		Core Course - II (CC)	Management Principles and Application	19UCO1CC2	6	5	3	25	75	100
		Allied Course - I (AC)	Business Economics - I	19UCO1AC1	4	3	3	25	75	100
	IV		Value Education	19UGVE	2	2	3	25	75	100
		Total			30	21				

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
								Internal	External	
II	I	Language Course - II (LC)	இடைக்கால இலக்கியமும் புதினமும்	19ULT2	6	3	3	25	75	100
			Communication in French - II	19ULF2						
			Poetry Textual Grammar and Alakara	19ULS2						
			Prose, Drama, Hindi Literature - 2 & Grammer - II	19ULH2						
	II	English Language Course - II (ELC)	Functional Grammar For Effective Communication - II	19UE2	6	3	3	25	75	100
	III	Core Course - III (CC)	Financial Accounting – II	19UCO2CC3	6	5	3	25	75	100
		Core Course - IV(CC)	Fundamentals of Marketing	19UCO2CC4	6	5	3	25	75	100
		Allied Course - II (AC)	Business Economics- II	19UCO2AC2	4	3	3	25	75	100
	IV		Environmental Studies	19UGES	2	2	3	25	75	100
		Total			30	21				

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total	
								Internal	External		
III	I	Language Course - III (LC)	Kappiyamum Nadagamum	19ULT3	6	3	3	25	75	100	
			Communication in French - III	19ULF3							
			Prose, Textual Grammar and Vakyarachana	19ULS3							
			Medieval, Modern Poetry & History of Hindi Literature - 3	19ULH3							
	II	English Language Course III (ELC)	Writing for General and Specific Purposes - I	19UE3	6	3	3	25	75	100	
	III	Core Course - V (CC)	Cost Accounting	19UCO3CC5	6	5	3	25	75	100	
			Core Course - VI(CC)	Banking Theory Law & Practices	19UCO3CC6	6	5	3	25	75	100
			Allied Course - III (AC)	Customer Relationship Management	19UCO3AC3	4	3	3	25	75	100
	IV	Non Major Elective - I	Elements of Insurance	19UCO3NME1	2	2	3	25	75	100	
			Basic Tamil	19ULC3BT1							
			Special Tamil	19ULC3ST1							
	V	<i>Swayam Online Course</i>	<i>Body Language: A Key to Professional Success</i>				1	<i>As per UGC norms</i>			
		Total			30	21					

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total									
								Internal	External										
IV	I	Language Course - IV (LC)	Pandaiya Elakkiyam	19ULT4	6	3	3	25	75	100									
			Communication in French - IV	19ULF4															
			Drama, History of Drama Literature	19ULS4															
			Letter Writing, General Essays, Technical Terms, Proverbs, Idioms & Phrases, Hindi Literature - 4	19ULH4															
	II	English Language Course-IV (ELC)	Writing for General and Specific Purposes - II	19UE4	6	3	3	25	75	100									
	III	Core Course - VII (CC)	Business Statistics	19UCO4CC7	5	5	3	25	75	100									
											Core Course - VIII (CC)	Information Technology	19UCO4CC1P	5	5	3	40	60	100
	IV	Non Major Elective - II	Advertisement Management	19UCO4NME2	2	2	3	25	75	100									
			Basic Tamil	19ULC4BT2															
			Special Tamil	19ULC4ST2															
	V	Skill Based Elective - I	A.Communication Skills	19UCO4SBE1A	2	2	3	25	75	100									
			B.Green Marketing	19UCO4SBE1B															
VI	Swayam Online Course	As per UGC recommendations				1	As per UGC norms												
		Total			30	23													

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
								Internal	External	
V	III	Core Course - IX (CC)	Corporate Accounting	19UCO5CC8	5	5	3	25	75	100
		Core Course - X (CC)	Practical Auditing	19UCO5CC9	5	5	3	25	75	100
		Core Course - XI (CC)	Entrepreneurship & Small Business Management	19UCO5CC10	5	5	3	25	75	100
		Core Course - XII (CC)	Financial Management	19UCO5CC11	5	5	3	25	75	100
		Major Based Elective - I	A. E-Commerce	19UCO5MBE1A	4	3	3	25	75	100
	B. E- Retailing		19UCO5MBE1B							
	IV	Skill Based Elective II -	A. Business Correspondence & Reporting	19UCO5SBE2A	2	2	3	25	75	100
			B. Advertising & Sales Management	19UCO5SBE2B						
		Skill Based Elective - III	A. Personality Development	19UCO5SBE3A	2	2	3	25	75	100
			B. Group Project (with Internship)	19UCO5SBE3B						
			Soft Skills Development	19UGSD	2	2	3	25	75	100
		Total			30	29				

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
								Internal	External	
VI	III	Core Course - XIII (CC)	Management Accounting	19UCO6CC12	6	5	3	25	75	100
		Core Course - XIV (CC)	Direct Taxation	19UCO6CC13	6	5	3	25	75	100
		Core Course XV (CC)	Accounting Package	19UCO6CC2P	6	5	3	40	60	100
		Major Based Elective II	A. Human Resource Management	19UCO6MBE2A	5	4	3	25	75	100
			B. Creativity & Innovation Management	19UCO6MBE2B						
		Major Based Elective III	A. Financial Services	19UCO6MBE3A	6	4	3	25	75	100
	B. Organisational Behaviour		19UCO6MBE3B							
	V		Extension Activities	19UGEA	-	1	-	25	75	100
			Gender Studies	19UGGS	1	1	3	25	75	100
			Total		30	25				

a. III Semester B.Com. Syllabus (Ratification Done)

EXTRA CREDIT COURSE

BODY LANGUAGE: KEY TO PROFESSIONAL SUCCESS

2019 – 2020 Onwards

Semester – III	Body Language: Key to Professional Success	Weeks - 4	
Extra Credit Course – I		Credit - 1	
Course Code -		Internal 25	External 75

Course Outline

- Body language plays a vital role in all formal contexts. The expanding trend of articulating views through vibrant participation in group discussions, power point presentations, team based tasks, brain storming and interviews, has made a good command over Body Language a mandatory skill.
- Whereas technical literacy is essential, it is a confident command over body language which gives an edge in today competitive arena.
- In all professional interactions, your body language is the only window to your attitudes and feelings; and therefore it is always as important as your answers.
- The aim of this course is to impart sensitivity and precision to students understanding of body language so that in professional settings they can regulate their body language can successfully learn to control their hesitation, anxiety and nervousness to come across as a more confident individual in all formal assessment situations.

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

COURSE PLAN:

Week 1:

Defining Body Language, Scope and Relevance, Changing Contours, Classification, Defining Proxemics, Four Zones, Behavioral Connotations, Space and Designs, Haptics and its Role, Behavioral Significance

Week 2:

Shaking Hands and other tactile behavior. Cultural Variations, Oculesics, Right and Left Brain Associations, Different Types of Eye Contact, Individual and Group situations, Facial Expressions, Smiles and Nods, Head Tilts and Inclines

Week 3:

Facial Expressions, Cultural Interface, Kinesics: Types and Contexts, Negative and Positive Gestures, Hand Movements and Steepling, Understanding Finger Movements, Fidgeting and Ticks

Week 4:

Paralanguage and Voice Modulations, Chronemics, Chromatics, Cultural and Gender Based aspects, Stereotypes, Body Language: Online Presence and Video Interviews

Course Instructor



Professor Rashmi Gaur teaches courses of Communication, Culture, Gender Studies and Media (Film and Literature) at IIT Roorkee. In her career, spanning three decades, she has guided about 12 Ph.D. theses, published four books, more than ninety research papers in national and international journals, besides participating in many conferences in India and abroad.

She also runs consultancy projects in related areas and formed strong intercultural networks through international collaborations. She is also a member of several academic bodies. At present she is working in the area of Media, Digital Humanities and Professional Communication.

b. IV Semester B.Com. Syllabus

CORE COURSE – VII
BUSINESS STATISTICS
2019 – 2020 Onwards

Semester – IV	Business Statistics	Hours/Week - 5	
Core Course – VII		Credits - 5	
Course Code - 19UCO4CC7		Internal 25	External 75

Course Objective

- To estimate mean and standard deviation of the marginal distribution of the response variable and use this information to inform a business decision.
- To obtain an interval estimate for the mean of the conditional distribution of the response variable given a value for the predictor and use this information to inform a business decision.
- To construct a prediction interval for the slope of the regression line.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO 1	Define the fundamental concept of Measures of Central Tendency	K1
CO2	Compute various coefficients to measure Dispersion and Skewness	K2
CO3	Applying the good knowledge of probability helps to make sense of uncertainties.	K3
CO4	Predict the cause accruing when price level changes	K4

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	M	M	M	M	M
CO2	M	M	S	M	M
CO3	M	M	S	S	S
CO4	M	M	S	S	S

S – Strong; M – Medium; L – Low

Syllabus

Unit – I Introduction**(10 Hours)**

Introduction – Meaning - Definition – Functions - Importance, Scope, Merits & demerits of statistics. Sampling – Meaning, Definition, Methods of Sampling – Collection of data – Tabulation of data – Diagrammatic and Graphic representation of data.

Unit – II Measures of Central Tendency**(15 Hours)**

Mathematical Averages – Arithmetic Mean – Direct method, Short-cut method, Step Deviation method – Geometric Mean – Harmonic Mean – Corrected Mean – Combined Mean – Positional Averages – Median, Quartiles, Deciles and Percentiles – Mode.

Unit – III Measures of Dispersion, Correlation & Regression**(20 Hours)**

Range – Quartile Deviation – Mean Deviation – Standard Deviation: Actual Mean Method, Assumed Mean Method, Combined Standard Deviation, Corrected Standard Deviation – Co-efficient of Variation – Comparison of Measures of Dispersion – Lorenz curve.

Correlation – Definition - Karl Pearson's co-efficient of correlation – Spearman rank correlation – Concurrent deviation. Regression – Definition – Regression Equation – Linear Regression – Difference between Regression and Correlation.

Unit – IV Probability**(10 Hours)**

Probability- Concepts of Probability- Application of addition & multiplication theorems- Conditional Probability- Baye's Theorem (no proofs, simple problems & business applications only).

Unit – V Analysis of Time Series & Index Numbers**(20 Hours)**

Elements of Time Series – Secular Trend: Graphic Method, Method of Semi-Averages, Method of Moving Averages, Method of Least Squares. Seasonal Fluctuations: Method of Simple Averages, Method of Moving Averages, Ratio to Trend Method, Method of link relatives, Cyclical Fluctuation, Random Fluctuation.

Index Numbers – Definition, Simple Index Number and Weighted Index Number: Laspeyre's formula, Paache's formula, Fisher's formula, Marshal Edge-worth, Bowley's formula, Kelly's formula – Mathematical test of consistency: Time Reversal Test, Factor Reversal Test – Fixed Index Number – Chain Index Number – Cost of Living Index.

Distribution of Marks: Theory 25% & Problem 75%

S. No.	Authors	Title	Publishers	Year of Publication
1.	S.P. Gupta	Statistical Method	Sultan Chand & Sons	33 rd revised edition, 2005
2.	R.S.N.Pillai & Bagavathy	Statistics : Theory & Practice	Sultan Chand & Sons	2010
3.	P.R Vital	Business Statistics	Margam Publications	2001

Reference

S. No.	Authors	Title	Publishers	Year of Publication
1.	P.A. Navanitham	Business Statistics	Jai Publishers	Latest Edition
2.	Vijaya Krishnan & Sivathanu Pillai	Statistics for Beginners	Atlantic Books	2011

Pedagogy

Lecture, Power Point Presentation, Assignment, Quiz, Google Classroom, Moodle, Seminar & Group Discussions.

Course Designer

Dr. P. Kavitha – Associate Professor, Department of Commerce.

CORE COURSE – VIII
INFORMATION TECHNOLOGY
2019 – 2020 Onwards

Semester – IV	Information Technology	Hours/Week - 5	
Core Course – VIII		Credits - 5	
Course Code - 19UCO4CC1P		Internal 40	External 60

Course Objective

- To inculcate the knowledge in information technology and also develop skills in computer based accounting system in theoretical and practical aspects.
- To learn basic principles of using windows operating system.
- Use systems development, word-processing, spread sheet and presentation software to solve basic information systems problem.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO 1	Define the basic concepts and principles of information technology	K1
CO2	Demonstrate the information systems and its network	K2
CO3	Apply the basic technology of Microsoft Office	K3
CO4	List out the statistical functions available in MS-Excel	K4
CO5	Determine appropriate use each of the Microsoft Office programs to create professional and academic document	K5
CO6	Create and design a word document, spread sheet and power point presentation.	K6

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	S	S	S	S
CO2	M	S	S	S	S
CO3	M	S	S	S	S
CO4	M	S	S	S	S
CO5	M	S	S	S	S
CO6	M	S	S	S	S

S – Strong; M – Medium; L – Low

Syllabus

Unit – I Introduction**(15 Hours)**

Information – Characteristics of information – Uses – Flow of information in organisation – Levels of information – Categories. Computers: Introduction to computers – Importance – Classification and characteristics – Basic Principles of computer – Computer Applications in various areas of business – General applications of computers in various fields – Operating System – Functions – Types – Classification.

Unit – II MS - Word**(15 Hours)**

Word Processing: Meaning – Role of Word Processing – Creating of Documents – Editing – Formatting and Printing Documents – Inserting Tables – Page Breaks – Working with Images – Spelling and Grammar Check – Thesaurus – Mail Merge.

Unit – III MS – Excel**(15 Hours)**

Spread Sheet: Basics – Creating – Editing – Saving and Printing Spread sheet – Functions and formulas – Graphically Representing Data: Charts and Graphs – Formatting Worksheets – Securing and Protecting Spread sheets.

Unit – IV MS – Power Point & MS –Access**(15 Hours)**

Power Point: Opening – Viewing – Creating and printing slides – Applying auto layouts – Adding custom animation – Slide transitions – Charts and Graphs – Slide for presentation in professional. MS – Access: Opening – Queries – Forms and Reports.

Unit – V Information System and Network**(15 Hours)**

Computer based Information System: Introduction – Needs – Transaction Processing System – Management Information System – Decision Support System – Recent Trends in IT – IT strategy and planning – Impact of IT on enterprises – Users and the environment. Network: LAN & WANs – Applications – Cybercrime – Internet services provider.

Text Book

S. No.	Authors	Title	Publishers	Year of Publication
1.	Dr. S. V. Srinivasa Vallabhan	Computer Applications in Business, Sultan Chand, New Delhi.	Sultan Chand, New Delhi.	2011
2.	R.Sarvana Kumar, R. Parmeswaran & T. Jayalakshmi	A Text Book of Information Technology	Sultan Chand, New Delhi.	2003

Reference

S.No.	Authors	Title	Publishers	Year of Publication
1.	Alexis Leon & Mathews	Introduction to Computers with MS – Office 2000	TMH, New Delhi	2005
2.	Deepak Bharihoke	Fundamentals of Information Technology	Excel Publications, New Delhi.	2002

List of Practicals:

1. Drafting kinds of Letters
2. Draft a Resume
3. Creation of tables in MS-Word and entering text and numeric data
4. Creation of Mail Merge
5. Pay Roll Preparation in Excel
6. Mark Sheet Preparation in Excel
7. Preparing a graph for a given data
8. Creation of Power point Presentation

Pedagogy

Lecture, Power Point Presentation, Assignment, Seminar, Group Discussions, Google Classroom, Moodle & Lab Practicals.

Course Designer

Ms. J. Lalithambigai – Assistant Professor, Department of Commerce.

ALLIED COURSE – IV**BUSINESS LAW****2019 – 2020 Onwards**

Semester - IV	Business Law	Hours/Week - 4	
Allied Course - IV		Credits – 3	
Course Code - 19UCO4AC4		Internal 25	External 75

Course Objective

- To provide a conceptual framework of Indian Business Laws.
- To orient students about the legal aspects of business.
- To familiarize students with case laws related to business.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO 1	Define the concept of contract and state the law relating to Indian Contract Act	K1
CO2	Explain the different elements of contract, performance of contract and different modes of discharge of contract	K2
CO3	Illustrate the process of for registration of partnership	K3
CO4	List out the objectives of competition act	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	M	M
CO2	S	M	M	M	M
CO3	S	M	S	M	M
CO4	S	M	S	M	M

S – Strong; M – Medium; L – Low

Syllabus**Unit – I The Indian Contract Act, 1872: General Principles of Contract (12 Hours)**

Contract - Meaning & Definition - Nature of Contract - Characteristics and Kinds - Essentials of a valid Contract - Offer and Acceptance - Consideration - Contractual capacity - Free Consent - Legality of objects - Void agreements.

Unit – II The Indian Contract Act, 1872: Specific Contracts (12 Hours)

Performance of contract - Modes of discharge of a contract - Breach and its remedies - Contingent Contracts - Quasi Contracts - Contract of Indemnity and Guarantee - Contract of Bailment and Pledge - Contract of Agency.

Unit – III The Sale of Goods Act, 1930 (12 Hours)

Formation of Contract of Sale - Sale & Agreement to Sell - Conditions and Warranties - Doctrine of Caveat Emptor - Transfer of property – Passing of Property - Performance of contract of sale - Unpaid seller - Remedies for Breach of Contract of Sale - Auction Sale.

Unit – IV Partnership Act, 1932 & Limited Liability Partnership Act 2008 (14 Hours)

Nature and Characteristics of Partnership - Registration of a Partnership Firms - Types of Partners - Rights and Duties of Partners - Implied Authority of a Partner - Incoming and outgoing Partners - Mode of Dissolution of Partnership - The Limited Liability Partnership Act, 2008.

Unit – V Competition Act, 2002 (10 Hours)

Objectives - Salient features - Anti-competitive agreements - Prevention of abuse of dominant position – Combination - Competition advocacy - Competition Commission of India.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	N.D. Kapoor	Elements of Mercantile Law	Sultan Chand & Sons Private Limited , New Delhi	2014
2.	R.S.N. Pillai & Bagavathi	Business Law	S. Chand & Co. Ltd., New Delhi	2016

Reference

S.No.	Authors	Title	Publishers	Year of Publication
1.	P.C. Tulsion & Bharat Tulsian	Mercantile Law	Tata Mc Graw Hill Education India	2014
2.	P.P.S. Gogna	Mercantile Law	S. Chand & Co. Ltd., New Delhi	2005

Pedagogy

Lecture, Power Point Presentation, Assignment, Quiz, Google Classroom, Moodle, Seminar & Group Discussions.

Course Designer

Ms. D. Indumathi – Assistant Professor, Department of Commerce.

NON-MAJOR ELECTIVE – II
ADVERTISEMENT MANAGEMENT

2019 – 2020 Onwards

Semester – IV	Advertisement Management	Hours/Week - 2	
Non-Major Elective – II		Credits – 2	
Course Code - 19UCO4NME2		Internal 25	External 75

Course Objective

- To know the basic marketing communication and the processes.
- To understand the process involved in personal selling and its implications for relationship development.
- To comprehend the ethical issues and social aspects of advertising.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO 1	Recall the conceptual framework of advertising	K1
CO2	Explain the formulation of advertising through effective marketing strategy to promote the product and service for economic development	K2
CO3	Identify the recent era in advertising and its powerful tools	K3
CO4	Analyze the ethical issues and social aspects of advertising	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	M	M	M	M
CO2	M	S	S	M	S
CO3	M	S	S	S	S
CO4	M	S	S	M	S

S – Strong; M – Medium; L – Low

Syllabus

Unit-I Introduction to Advertising

(6 Hours)

Advertising – Definition - Objectives, scope and types - Role & significances – advertising an element of marketing mix – communication process in advertising.

Unit – II Technological Aspects

(6 Hours)

Advertisement message, themes, appeal, structure, Copywriting and layout – DAGMAR approach, Determination of target audience – Building of advertising programme – Message, Headlines, Copy, Logo, Illustration, Appeal and layout.

Unit – III Advertising Media

(6 Hours)

Media planning, Electronic media, Buying advertising aids, Trademarks, Slogans, Packaging, Pop - up Displays, Premiums, Free samples etc.

Unit – IV Advertising Agencies**(6 Hours)**

Advertising Agencies: Selection, Compensation and Appraisal of an agency – Methods of measuring advertising effectiveness - Developing corporate image – Techniques, concepts and practices.

Unit – V Advertising in India**(6 Hours)**

Role of Advertising in modern business - Economic, Social and Ethical aspects of advertising and advertising goals – Recent developments and issues in advertising.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	S.L. Gupta & V.V. Ratna	Advertising and Sales Promotion Management, An Indian perspective Text and Cases	Sultan Chand & Sons, New Delhi	2004

Reference Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Ruchi G.	Advertising Principles & Practice	S.Chand & Company Ltd, Delhi	2012
2.	Dr. Ansuya. Angadi	Advertising & Sales Management	Sri Siddalingeshwara Prakashana, Gulbarga	2010
3.	Aaker, David A., Rajeev Batra and John G. Mayers	Advertising Management	Prentice Hall of India Pvt. Ltd., New Delhi	2001

Pedagogy

Lecture, Power Point Presentation, Assignment, Quiz, Google Classroom, Moodle, Seminar & Group Discussions.

Course Designer

Ms. Shilpa A. Talreja – Assistant Professor, Department of Commerce.

SKILL BASED ELECTIVE – I

A. COMMUNICATION SKILLS

2019 – 2020 Onwards

Semester – IV	Communication Skills	Hours/Week - 2	
Skill Based Elective – I		Credits - 2	
Course Code - 19UCO4SBE1A		Internal 25	External 75

Course Objective

- To understand techniques of effective communication.
- To make aware about barriers to communication with ethical context.
- To provide opportunities for the students to build their communicative skills and enhance the knowledge perspective of listening, speaking, reading and writing skills.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO 1	List out the techniques required to build skills on content writing	K1
CO2	Explain the listening skills through various demonstrations	K2
CO3	Develop and widening their speaking skills through debate and discussion	K3
CO4	Analyze the grammatical knowledge to improve the communicative skills	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	M	M	S	M
CO2	M	S	S	S	S
CO3	M	S	S	S	S
CO4	M	S	S	S	S

S – Strong; M – Medium; L – Low

Syllabus

Unit-I Listening /Viewing

(6 Hours)

Listening and Note-taking – Listening to telephonic conversations – Ted talks – Inspiring speeches – Watching documentaries on personalities, Places, Socio-Cultural Events, TV news programmes and discussions to answer different kinds of questions, viz., identifying key idea and comprehension questions.

Unit – II Speaking

(6 Hours)

Conversation practice – Interview - Group Discussion – Introducing oneself and others Role Play – Debate – Presentation – Panel Discussion – Neutral Accent.

Unit – III Reading**(6 Hours)**

Different genres of text (Literature, Media, Technical) for Comprehension – Reading Strategies like note-making – Reading graphs, charts and graphic organizer – Sequencing sentences – Reading online sources like E-Books, E-Journals and E-Newspapers.

Unit – IV Vocabulary & Grammar**(6 Hours)**

Idioms and Phrases – Proverbs – Collocations – Chunks of language - Sentence Structures – Subject - Verb agreement – Pronoun - Antecedent agreement – Tense forms – Active and Passive Voices – Direct and Indirect Speeches – Cohesive Devices.

Unit – V Writing**(6 Hours)**

Blogs – Tweets – Online Resume – E-Mails – SMS and Online texting – Report writing – Describing charts and tables – Writing for media on current events.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Barker. A	Improve your Communication Skills	Kogan Page India Pvt., Ltd.	2006
2.	Carven, Miles	Listening Extra – A Resource Book of Multi-level Skills Activities	Cambridge University Press	2004

Reference Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Gammidge, Mick	Speaking Extra – A Resource Book of Multi-Level Skills Activities	Cambridge University Press	2004
2.	Hartley, Peter	Group Communication	London: Rout Ledge	2004
3.	John Seely	The Oxford Guide to Writing and Speaking	Oxford University Press	2004
4.	Ramesh Gopaldaswamy & Mahadevan Ramesh	The ACE of Soft Skills	Pearson	2010

Pedagogy

Lecture, Power Point Presentation, Assignment, Quiz, Google Classroom, Moodle, Seminar & Group Discussions.

Course Designer

Dr. S. Shameem – Associate Professor, Department of Commerce.

SKILL BASED ELECTIVE – I

B. GREEN MARKETING

2019 – 2020 Onwards

Semester – IV	Green Marketing	Hours/Week - 2	
Skill Based Elective – I		Credits - 2	
Course Code - 19UCO4SBE1B		Internal 25	External 75

Course Objective

- To understand the importance of Green Marketing on consumer satisfaction and environmental safety.
- To find out consumers are gradually becoming conscious buying eco-friendly products.
- To find out green revolution, going green, environment protection and sustainable development have become the buzz words today.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO 1	Define the fundamental concept of green marketing and green products	K1
CO2	Explain about environment consciousness and its guidelines	K2
CO3	Identify the various factors that affect purchase decision of consumers and its initiatives	K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	S	M	S	M
CO2	S	S	S	S	S
CO3	M	S	S	S	M

S – Strong; M – Medium; L – Low

Syllabus

Unit-I Green Marketing and Green Product

(6 Hours)

Green product – Green Marketing – Evolution – Importance – Benefits – Adoption of green marketing – Green Marketing Mix – Strategies to Green Marketing.

Unit – II Green Marketing concepts

(6 Hours)

Green Spinning – Green Selling – Green Harvesting – Enviropreneur Marketing – Compliance Marketing – Green Washing – Climate Performance – Green Index.

Unit – III Green Marketing Initiatives

(6 Hours)

Green Firms – HCL's Green Management Policy – IBM's Green Solutions – IndusInd Bank's Solar Powered ATMs – ITCs Paperkraft – Maruti's Green Supply Chain – ONCG's Mokshada Green Crematorium – Samsung's Eco-friendly handsets – Wipro Infotech's Eco-friendly computer peripherals.

Unit – IV Purchase Decision**(6 Hours)**

Introduction of purchase decision – Factors affecting purchase decision – steps in the decision making process – Five stages of consumer buying decision process – Models of buyer decision making.

Unit – V Environmental Consciousness**(6 Hours)**

Introduction of Environment – Importance – Environmental movement – Benefits of green environment to the society – E-waste exchange – Extended producer responsibility society – Guidelines for collection and storage of E-waste – Guidelines for transportation of E-waste – Guidelines for environmentally sound recycling of E-waste.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Esakki and Thangasamy	Green Marketing and Environmental Responsibility in Modern Corporations	IGI Global	2017
2.	Robert Dahlstrom	Green Marketing Management	Cengage Learning	2010

Reference Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Jacquelyn A. Ottman	Green Marketing: Challenges and Opportunities for the New Marketing Age	NTC Business Books	1993
2.	Jacquelyn A. Ottman	The New Rules of Green Marketing	Berrett Koehler Publishers	2011

Pedagogy

Lecture, Power Point Presentation, Assignment, Quiz, Google Classroom, Moodle, Seminar & Group Discussions.

Course Designer

Dr. R.Ayswarya – Assistant Professor, Department of Commerce.

c. Skeleton of B.Com. CA



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18
DEPARTMENT OF COMMERCE

B.Com. COMPUTER APPLICATIONS – PROGRAMME STRUCTURE

(For the candidates admitted from the academic year 2019 – 2020 onwards)

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total		
								Internal	External			
I	I	Language Course - I (LC)	இக்கால இலக்கியம்	19ULT1	6	3	3	25	75	100		
			Communication in French - I	19ULF1								
			History of Popular Tales Literature and Sanskrit Story	19ULS1								
			Story, Novel, Hindi Literature - I & Grammar - I	19ULH1								
	II	English Language Course - I (ELC)	Functional Grammar for Effective Communication - I	19UE1	6	3	3	25	75	100		
	III	Core Course - I (CC)	Principles of Accountancy	19UCC1CC1	6	5	3	25	75	100		
				Core Course – II (CC)	Modern Management Concepts	19UCC1CC2	6	5	3	25	75	100
				Allied Course - I (AC)	Fundamentals of Computer & Internet	19UCC1AC1	4	3	3	25	75	100
	IV		Value Education	19UGVE	2	2	3	25	75	100		
			Total			30	21					

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
								Internal	External	
II	I	Language Course - II (LC)	இடைக்கால இலக்கியமும் புதினமும்	19ULT2	6	3	3	25	75	100
			Communication in French - II	19ULF2						
			Poetry Textual Grammar and Alakara	19ULS2						
			Prose, Drama, Hindi Literature - 2 & Grammar - II	19ULH2						
	II	English Language Course- II (ELC)	Functional Grammar For Effective Communication - II	19UE2	6	3	3	25	75	100
	III	Core Course - III (CC)	Modern Marketing	19UCC2CC3	6	5	3	25	75	100
			Web Designing	19UCC2CC4	6	5	3	25	75	100
			HTML Practicals	19UCC2AC1P	4	3	3	40	60	100
	IV		Environmental Studies	19UGES	2	2	3	25	75	100
		Total			30	21				

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total		
								Internal	External			
III	I	Language Course - III (LC)	காப்பியமும் நாடகமும்	19ULT3	6	3	3	25	75	100		
			Communication in French - III	19ULF3								
			Prose, Textual Grammar and Vakyarachana	19ULS3								
			Medieval, Modern Poetry & History of Hindi Literature - 3	19ULH3								
	II	English Language Course III (ELC)	Writing for General and Specific Purposes - I	19UE3	6	3	3	25	75	100		
	III	Core Course - V (CC)	Business Accounting	19UCC3CC5	6	5	3	25	75	100		
				Core Course - VI(CC)	Database Management Systems	19UCC3CC6	5	5	3	25	75	100
				Allied Course - III (AC)	Business Tools for Decision Making	19UCC3AC3	5	3	3	25	75	100
	IV	Non Major Elective - I	Elements of Insurance	19UCC3NME1	2	2	3	25	75	100		
				Basic Tamil							19ULC3BT1	
Special Tamil				19ULC3ST1								
V	Swayam Online Course	Body Language: A Key to Professional Success			1	As per UGC norms						
	Total			30	21							

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
								Internal	External	
IV	I	Language Course - IV (LC)	பண்டைய இலக்கியம்	19ULT4	6	3	3	25	75	100
			Communication in French – IV	19ULF4						
			Drama, History of Drama Literature	19ULS4						
			Letter Writing, General Essays, Technical Terms, Proverbs, Idioms & Phrases, Hindi Literature - 4	19ULH4						
	II	English Language Course IV (ELC)	Writing for General and Specific Purposes - II	19UE4	6	3	3	25	75	100
	III	Core Course - VII (CC)	Cost Accounting	19UCC4CC7	6	6	3	25	75	100
		Core Course - VIII (CC)	Database Management Systems - Practicals	19UCC4CC1P	4	3	3	40	60	100
		Allied Course - IV (AC)	Business Law	19UCC4AC4	4	4	3	25	75	100
	IV	Non Major Elective – II	Advertisement Management	19UCC4NME2	2	2	3	25	75	100
			Basic Tamil	19ULC4BT2						
			Special Tamil	19ULC4ST2						
		Skill Based Elective – I	A. Communication Skills	19UCC4SBE1A	2	2	3	25	75	100
	B. Green Marketing		19UCC4SBE1B							
	V	Swayam Online Course	As per UGC recommendations				1	As per UGC norms		
		Total			30	23				

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total	
								Internal	External		
								V	III		Core Course - IX (CC)
		Core Course - X (CC)	Data Analytics & R Programming	19UCC5CC9	5	5	3	25	75	100	
		Core Course - XI (CC)	Management Information System	19UCC5CC10	5	5	3	25	75	100	
		Core Course - XII (CC)	R Programming Practicals	19UCC5CC2P	5	5	3	40	60	100	
		Major Based Elective - I	A. Entrepreneurial Development	19UCC5MBE1A	4	3	3	25	75	100	
			B. E-Retailing	19UCC5MBE1B							
	IV	Skill Based Elective - II	A. Business Correspondence & Reporting	19UCC5SBE2A	2	2	3	25	75	100	
				B. Advertising & Sales Promotion							19UCC5SBE2B
			Skill Based Elective - III	A. Personality Development	19UCC5SBE3A	2	2	3	25	75	100
				B. Group Project (with Internship)	19UCC5SBE3B						
			Soft Skills Development	19UGSD	2	2	3	25	75	100	
		Total			30	29					

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
								Internal	External	
VI	III	Core Course - XIII (CC)	Corporate Accounting	19UCC6CC11	6	5	3	25	75	100
		Core Course - XIV (CC)	Income Tax Theory Law & Practice	19UCC6CC12	6	5	3	25	75	100
		Core Course - XV (CC)	Computerized Accounting	19UCC6CC3P	6	5	3	40	60	100
		Major Based Elective - II	A. Modern Banking	19UCC6MBE2A	5	4	3	25	75	100
			B. Human Resource Management	19UCC6MBE2B						
		Major Based Elective III	A. Auditing	19UCC6MBE3A	6	4	3	25	75	100
	B. E - Commerce		19UCC6MBE3B							
	V		Extension Activities	19UGEA	-	1	-	25	75	100
			Gender Studies	19UGGS	1	1	3	25	75	100
			Total		30	25				

d. III Semester B.Com. CA Syllabus (Ratification Done)

EXTRA CREDIT COURSE

BODY LANGUAGE: KEY TO PROFESSIONAL SUCCESS

2019 – 2020 Onwards

Semester - III	Body Language: Key to Professional Success	Weeks - 4	
Extra Credit Course - I		Credit - 1	
Course Code -		Internal 25	External 75

Course Outline

- Body language plays a vital role in all formal contexts. The expanding trend of articulating views through vibrant participation in group discussions, power point presentations, team based tasks, brain storming and interviews, has made a good command over Body Language a mandatory skill.
- Whereas technical literacy is essential, it is a confident command over body language which gives an edge in today competitive arena.
- In all professional interactions, your body language is the only window to your attitudes and feelings; and therefore it is always as important as your answers.
- The aim of this course is to impart sensitivity and precision to students understanding of body language so that in professional settings they can regulate their body language can successfully learn to control their hesitation, anxiety and nervousness to come across as a more confident individual in all formal assessment situations.

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

COURSE PLAN:

Week 1:

Defining Body Language, Scope and Relevance, Changing Contours, Classification, Defining Proxemics, Four Zones, Behavioral Connotations, Space and Designs, Haptics and its Role, Behavioral Significance

Week 2:

Shaking Hands and other tactile behavior. Cultural Variations, Oculistics, Right and Left Brain Associations, Different Types of Eye Contact, Individual and Group situations, Facial Expressions, Smiles and Nods, Head Tilts and Inclines

Week 3:

Facial Expressions, Cultural Interface, Kinesics: Types and Contexts, Negative and Positive Gestures, Hand Movements and Steepling, Understanding Finger Movements, Fidgeting and Ticks

Week 4:

Paralanguage and Voice Modulations, Chronemics, Chromatics, Cultural and Gender Based aspects, Stereotypes, Body Language: Online Presence and Video Interviews

Course Instructor



Professor Rashmi Gaur teaches courses of Communication, Culture, Gender Studies and Media (Film and Literature) at IIT Roorkee. In her career, spanning three decades, she has guided about 12 Ph.D. theses, published four books, more than ninety research papers in national and international journals, besides participating in many conferences in India and abroad.

She also runs consultancy projects in related areas and formed strong intercultural networks through international collaborations. She is also a member of several academic bodies. At present she is working in the area of Media, Digital Humanities and Professional Communication.

e. IV Semester B.Com. CA Syllabus

**CORE COURSE – VII
COST ACCOUNTING
2019 – 2020 Onwards**

Semester - IV	Cost Accounting	Hours/Week - 6	
Core Course - VII		Credits - 6	
Course Code - 19UCC4CC7		Internal 25	External 75

Course Objective

- To familiarize the students with the basic concepts of cost and various methods and techniques of cost accounting.
- To make aware about cost structure and cost elements.
- To understand the concept of contract costing along with job and batch costing.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO 1	Define the fundamental concepts of Cost Accounting	K1
CO2	Explain different methods of labour turnover and compute remuneration	K2
CO3	Identify relevant costs for different types of managerial decisions	K3
CO4	Analyse the various methods of overheads allocation and prepare reconciliation statement	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	M	M	M	M
CO2	M	S	M	M	M
CO3	S	S	M	M	S
CO4	S	S	M	M	S

S – Strong; M – Medium; L – Low

Syllabus

Unit – I Introduction to Cost (10 Hours)

Introduction – evolution and cost accounting & management accounting – Cost concepts – Classifications – Objectives and advantages – Demerits of cost accounting – Methods and techniques – Cost units – Cost centres – Cost sheets – Tender and Quotations.

Unit – II Material Cost (20 Hours)

Material Cost – Purchase procedures – Stores procedure – Receipts and issue of materials - Stores organization and layout – Inventory control – Levels of stock, perpetual inventory, ABC analysis, EOQ – Stores Ledger – Pricing of materials issues, FIFO, LIFO, HIFO, Simple and Weighted average.

Unit – III Labour Cost

(20 Hours)

Labour Cost – Time recording and time booking – Methods of remuneration and incentive scheme – Overtime and Idle time – Labour turnover types, causes and remedies.

Unit – IV Overheads

(20 Hours)

Overheads – Collection, Classification, Allocation, Apportionment, Absorption – Recovery Rates – Over and under absorption – Activity based costing – Reconciliation of Cost and Financial accounts

Unit – V Job Costing, Process Costing & Operating Costing

(20 Hours)

Job Costing, Contract Costing – Process Costing (Normal Loss, Abnormal Loss and Gains) – Operating Costing.

Distribution of Marks: Theory 20% & Problem 80%

Text Book

S. No.	Authors	Title	Publishers	Year of Publication
1.	Jain & Narang	Cost Accounting	Kalyani Publications	Reprint 2015

Reference

S. No.	Authors	Title	Publishers	Year of Publication
1.	S.N. Maheswari	Principles of Cost Accounting	Sultan Chand & Sons	2017
2.	Bhagavathi & Pillai	Cost Accounting	Sultan Chand & Sons	2016
3.	Reddy T.S & Hari Prasad Reddy Y	Cost Accounting	Margham Publication	2018

Pedagogy

Lecture, Power Point Presentation, Assignment, Quiz, Google Classroom, Moodle, Seminar & Group Discussions.

Course Designer

Ms. J. Lalithambigai – Assistant Professor, Department of Commerce.

ALLIED COURSE – IV**BUSINESS LAW****2019 – 2020 Onwards**

Semester - IV	Business Law	Hours/Week - 4	
Allied Course - IV		Credits - 3	
Course Code - 19UCC4AC4		Internal 25	External 75

Course Objective

- To provide a conceptual framework of Indian Business Laws.
- To orient students about the legal aspects of business.
- To familiarize students with case laws related to business.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	Define the concept of contract and state the law relating to Indian Contract Act	K1
CO2	Explain the different elements of contract, performance of contract and different modes of discharge of contract	K2
CO3	Illustrate the process of for registration of partnership	K3
CO4	List out the objectives of competition act	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	M	M
CO2	S	M	M	M	M
CO3	S	M	S	M	M
CO4	S	M	S	M	M

S – Strong; M – Medium; L – Low

Syllabus**Unit – I The Indian Contract Act, 1872: General Principles of Contract (12 Hours)**

Contract - Meaning & Definition - Nature of Contract - Characteristics and Kinds - Essentials of a valid Contract - Offer and Acceptance - Consideration - Contractual capacity - Free Consent - Legality of objects - Void agreements.

Unit – II The Indian Contract Act, 1872: Specific Contracts (12 Hours)

Performance of contract - Modes of discharge of a contract - Breach and its remedies - Contingent Contracts - Quasi Contracts - Contract of Indemnity and Guarantee - Contract of Bailment and Pledge - Contract of Agency.

Unit – III The Sale of Goods Act, 1930 (12 Hours)

Formation of Contract of Sale - Sale & Agreement to Sell - Conditions and Warranties - Doctrine of Caveat Emptor - Transfer of property – Passing of Property - Performance of contract of sale - Unpaid seller - Remedies for Breach of Contract of Sale - Auction Sale.

Unit – IV Partnership Act, 1932 & Limited Liability Partnership Act 2008 (14 Hours)

Nature and Characteristics of Partnership - Registration of a Partnership Firms - Types of Partners - Rights and Duties of Partners - Implied Authority of a Partner - Incoming and outgoing Partners - Mode of Dissolution of Partnership - The Limited Liability Partnership Act, 2008.

Unit – V Competition Act, 2002 (10 Hours)

Objectives - Salient features - Anti-competitive agreements - Prevention of abuse of dominant position – Combination - Competition advocacy - Competition Commission of India.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	N.D. Kapoor	Elements of Mercantile Law	Sultan Chand & Sons Private Limited , New Delhi	2014
2.	R.S.N. Pillai & Bagavathi	Business Law	S. Chand & Co. Ltd., New Delhi	2016

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2.	P.P.S. Gogna	Mercantile Law	S. Chand & Co. Ltd., New Delhi	2005

Pedagogy

Lecture, Power Point Presentation, Assignment, Quiz, Google Classroom, Moodle, Seminar & Group Discussions.

Course Designer

Ms. D. Indumathi – Assistant Professor, Department of Commerce.

NON-MAJOR ELECTIVE – II
ADVERTISEMENT MANAGEMENT

2019 – 2020 Onwards

Semester - IV	Advertisement Management	Hours/Week - 2	
Non-Major Elective - II		Credits - 2	
Course Code - 19UCC4NME2		Internal 25	External 75

Course Objective

- To know the basic marketing communication and the processes.
- To understand the process involved in personal selling and its implications for relationship development.
- To comprehend the ethical issues and social aspects of advertising.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	Recall the conceptual framework of advertising	K1
CO2	Explain the formulation of advertising through effective marketing strategy to promote the product and service for economic development	K2
CO3	Identify the recent era in advertising and its powerful tools	K3
CO4	Analyze the ethical issues and social aspects of advertising	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	M	M	M	M
CO2	M	S	S	S	S
CO3	M	S	S	S	S
CO4	M	S	S	S	S

S – Strong; M – Medium; L – Low

Syllabus

Unit-I Introduction to Advertising

(6 Hours)

Advertising – Definition - Objectives, scope and types - Role & significances – advertising an element of marketing mix – communication process in advertising.

Unit – II Technological Aspects

(6 Hours)

Advertisement message, themes, appeal, structure, Copywriting and layout – DAGMAR approach, Determination of target audience – Building of advertising programme – Message, Headlines, Copy, Logo, Illustration, Appeal and layout.

Unit – III Advertising Media

(6 Hours)

Media planning, Electronic media, Buying advertising aids, Trademarks, Slogans, Packaging, Pop - up Displays, Premiums, Free samples etc.

Unit – IV Advertising Agencies**(6 Hours)**

Advertising Agencies: Selection, Compensation and Appraisal of an agency – Methods of measuring advertising effectiveness - Developing corporate image – Techniques, concepts and practices.

Unit – V Advertising in India**(6 Hours)**

Role of Advertising in modern business - Economic, Social and Ethical aspects of advertising and advertising goals – Recent developments and issues in advertising.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	S.L. Gupta & V.V. Ratna	Advertising and Sales Promotion Management, An Indian perspective Text and Cases	Sultan Chand & Sons, New Delhi	2004

Reference Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Ruchi G.	Advertising Principles & Practice	S.Chand & Company Ltd, Delhi	2012
2.	Dr. Ansuya. Angadi	Advertising & Sales Management	Sri Siddalingeshwara Prakashana, Gulbarga	2010
3.	Aaker, David A., Rajeev Batra and John G. Mayers	Advertising Management	Prentice Hall of India Pvt. Ltd., New Delhi	2001

Pedagogy

Lecture, Power Point Presentation, Assignment, Quiz, Google Classroom, Moodle, Seminar & Group Discussions.

Course Designer

Ms. Shilpa A. Talreja – Assistant Professor, Department of Commerce.

SKILL BASED ELECTIVE – I

A. COMMUNICATION SKILLS

2019 – 2020 Onwards

Semester – IV	Communication Skills	Hours/Week - 2	
Skill Based Elective – I		Credits - 2	
Course Code - 19UCC4SBE1A		Internal 25	External 75

Course Objective

- To understand techniques of effective communication.
- To make aware about barriers to communication with ethical context.
- To provide opportunities for the students to build their communicative skills and enhance the knowledge perspective of listening, speaking, reading and writing skills.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO 1	List out the techniques required to build skills on content writing	K1
CO2	Explain the listening skills through various demonstrations	K2
CO3	Develop and widening their speaking skills through debate and discussion	K3
CO4	Analyze the grammatical knowledge to improve the communicative skills	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	M	M	S	M
CO2	M	S	S	S	S
CO3	M	S	S	S	S
CO4	M	S	S	S	S

S – Strong; M – Medium; L – Low

Syllabus

Unit-I Listening /Viewing

(6 Hours)

Listening and Note-taking – Listening to telephonic conversations – Ted talks – Inspiring speeches – Watching documentaries on personalities, Places, Socio-Cultural Events, TV news programmes and discussions to answer different kinds of questions, viz., identifying key idea and comprehension questions.

Unit – II Speaking

(6 Hours)

Conversation practice – Interview - Group Discussion – Introducing oneself and others Role Play – Debate – Presentation – Panel Discussion – Neutral Accent.

Unit – III Reading**(6 Hours)**

Different genres of text (Literature, Media, Technical) for Comprehension – Reading Strategies like note-making – Reading graphs, charts and graphic organizer – Sequencing sentences – Reading online sources like E-Books, E-Journals and E-Newspapers.

Unit – IV Vocabulary & Grammar**(6 Hours)**

Idioms and Phrases – Proverbs – Collocations – Chunks of language - Sentence Structures – Subject - Verb agreement – Pronoun - Antecedent agreement – Tense forms – Active and Passive Voices – Direct and Indirect Speeches – Cohesive Devices.

Unit – V Writing**(6 Hours)**

Blogs – Tweets – Online Resume – E-Mails – SMS and Online texting – Report writing – Describing charts and tables – Writing for media on current events.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Barker. A	Improve your Communication Skills	Kogan Page India Pvt., Ltd.	2006
2.	Carven, Miles	Listening Extra – A Resource Book of Multi-level Skills Activities	Cambridge University Press	2004

Reference Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Gammidge, Mick	Speaking Extra – A Resource Book of Multi-Level Skills Activities	Cambridge University Press	2004
2.	Hartley, Peter	Group Communication	London: Rout Ledge	2004
3.	John Seely	The Oxford Guide to Writing and Speaking	Oxford University Press	2004
4.	Ramesh Gopaldaswamy & Mahadevan Ramesh	The ACE of Soft Skills	Pearson	2010

Pedagogy

Lecture, Power Point Presentation, Assignment, Quiz, Google Classroom, Moodle, Seminar & Group Discussions.

Course Designer

Dr. S. Shameem – Associate Professor, Department of Commerce.

SKILL BASED ELECTIVE – I

B. GREEN MARKETING

2019 – 2020 Onwards

Semester – IV	Green Marketing	Hours/Week - 2	
Skill Based Elective – I		Credits - 2	
Course Code - 19UCC4SBE1B		Internal 25	External 75

Course Objective

- To understand the importance of Green Marketing on consumer satisfaction and environmental safety.
- To find out consumers are gradually becoming conscious buying eco-friendly products.
- To find out green revolution, going green, environment protection and sustainable development have become the buzz words today.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	Define the fundamental concept of green marketing and green products	K1
CO2	Explain about environment consciousness and its guidelines	K2
CO3	Identify the various factors that affect purchase decision of consumers and its initiatives	K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	M	S	M	M
CO2	M	M	S	M	M
CO3	M	M	S	M	M

S – Strong; M – Medium; L – Low

Syllabus

Unit-I Green Marketing and Green Product (6 Hours)

Green product – Green Marketing – Evolution – Importance – Benefits – Adoption of green marketing – Green Marketing Mix – Strategies to Green Marketing.

Unit – II Green Marketing concepts (6 Hours)

Green Spinning – Green Selling – Green Harvesting – Enviropreneur Marketing – Compliance Marketing – Green Washing – Climate Performance – Green Index.

Unit – III Green Marketing Initiatives

(6 Hours)

Green Firms – HCL’s Green Management Policy – IBM’s Green Solutions – IndusInd Bank’s Solar Powered ATMs – ITCs Paperkraft – Maruti’s Green Supply Chain – ONCG’s Mokshada Green Crematorium – Samsung’s Eco-friendly handsets – Wipro Infotech’s Eco-friendly computer peripherals.

Unit – IV Purchase Decision (6 Hours)

Introduction of purchase decision – Factors affecting purchase decision – steps in the decision making process – Five stages of consumer buying decision process – Models of buyer decision making.

Unit – V Environmental consciousness (6 Hours)

Introduction of Environment – Importance – Environmental movement – Benefits of green environment to the society – E-waste exchange – Extended producer responsibility society – Guidelines for collection and storage of E-waste – Guidelines for transportation of E-waste – Guidelines for environmentally sound recycling of E-waste.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Esakki and Thangasamy	Green Marketing and Environmental Responsibility in Modern Corporations	IGI Global	2017
2.	Robert Dahlstrom	Green Marketing Management	Cengage Learning	2010

Reference Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Jacquelyn A. Ottman	Green Marketing: Challenges & Opportunities for the New Marketing Age	NTC Business Books	1993
2.	Jacquelyn A. Ottman	The New Rules of Green Marketing	Berrett Koehler Publishers	2011

Pedagogy

Lecture, Power Point Presentation, Assignment, Quiz, Google Classroom, Moodle, Seminar & Group Discussions.

Course Designer

Dr. R.Ayswarya – Assistant Professor, Department of Commerce.

f. Skeleton of M.Com.



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18

DEPARTMENT OF COMMERCE

M.Com. PROGRAMME STRUCTURE

(For the candidates admitted from the academics year 2019 – 2020 onwards)

Semester	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		
							Internal	External	Total
I	Core Course – I (CC)	Corporate Finance	19PCO1CC1	6	4	3	25	75	100
	Core Course – II (CC)	Managerial Economics	19PCO1CC2	6	4	3	25	75	100
	Core Course – III (CC)	Corporate Laws	19PCO1CC3	6	4	3	25	75	100
	Core Course – IV (CC)	Strategic Management	19PCO1CC4	6	4	3	25	75	100
	Elective Course – I (EC)	Business Ethics, Corporate Social Responsibility & Governance	19PCO1EC1A	6	4	3	25	75	100
Services Marketing			19PCO1EC1B						
Total				30	20				

Semester	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		
							Internal	External	Total
III	Core Course – V (CC)	Quantitative Techniques for Business	19PCO2CC5	6	5	3	25	75	100
	Core Course – IX (CC)	Advanced Corporate Accounting	19PCO3CC9	6	5	3	25	75	100
	Core Course – VI (CC)	Logistics & Supply Chain Management	19PCO2CC6	6	5	3	25	75	100
	Core Course – X (CC)	Business Research Methods – I	19PCO3CC10	6	5	3	25	75	100
	Core Course – VII (CC)	Big Data Analytics	19PCO2CC7	6	5	3	25	75	100
	Core Course – XI (CC)	Commerce for Competitive Examinations	19PCO3CC11	6	5	3	25	75	100
	Core Course – VIII (CC)	Portfolio Management	19PCO2CC8	6	5	3	25	75	100
	Core Course – XII (CC)	Programming Practicals Retail Management	19PCO3CC1P 19PCO2EC2A	6	5	3	40	60	100
	Elective Course – II (EC)	Digital Marketing	19PCO3EC3A	6	4	3	25	75	100
	Elective Course – III (EC)	International Trade Finance	19PCO2EC2B	6	4	3	25	75	100
		Advertisement and Sales Promotion	19PCO3EC3B						
Total				30	24				

IV	<i>Swayam Online Course</i>	<i>Leadership</i>			<i>1</i>	<i>As per UGC Norms</i>			
		Total		30	24				

Semester	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		
							Internal	External	Total
IV	Core Course – XIII (CC)	Business Taxation	19PCO4CC12	5	5	3	25	75	100
	Core Course – XIV (CC)	Business Research Methods – II (Practicals)	19PCO4CC2P	5	5	3	25	75	100
	Elective Course – IV (EC)	Managerial Behaviour & Effectiveness	19PCO4EC4A	5	4	3	25	75	100
		Enterprise Resource Planning	19PCO4EC4B						
	Elective Course – V (EC)	Entrepreneurship & New venture Creation	19PCO4EC5A	5	4	3	25	75	100
		Project Management	19PCO4EC5B						
Project Work	Project Work	19PCOPW	10	4	3	25	75	100	
		Total		30	22				

g. III Semester M.Com. Syllabus (Ratification Done)

EXTRA CREDIT COURSE

LEADERSHIP

2019 – 2020 Onwards

Semester - III	Leadership	Weeks - 4	
Extra Credit Course - I		Credit - 1	
Course Code -		Internal 25	External 75

Course Outline

- The concept of leadership has been employed within different context and at different levels of analysis e.g. self-leadership, small-group leadership, organizational leadership and national leadership.
- The primary purpose of this course is to serve as a catalyst for the students of leadership's thinking and dialogue about leaders and the process of leadership.

COURSE PLAN:

Week 1:

Introduction to Leadership: Functions; Leadership Roles: Leaders Vs Managers: Theories

Week 2:

Leadership Styles: Effective Vs Successful Managers; Leadership Styles: Adaptation - Studies / Case: “From Sindhi to Siddhi” (Part - I) Leadership Behaviour: Emergence: Leadership and Trust; Case: “From Sindhi to Siddhi (Part-II)”/ Transformation Leadership.

Week 3:

Leadership Skills: Leadership and Management; Case: The DVC story - A First Person Account Leadership in Action - (Part - I) Competencies and Skills of Leaders: Issues in Organizational Leadership; Case: The DVC Story - A First Person Account, Leadership in Action Part – II.

Week 4:

Self Regulating - The Key to Institution Building, Framework of institution Building; Case: “Rai Bahadur Mohan Singh Oberoi” (Part - I), Issues in Institution Building; Case: Rai Bahadur Mohan Singh Oberoi (Part-II)

Course Instructor



Prof. Kalyan Chakravarti is an alumnus of IIT Kharagpur, in electrical engineering, in the graduating class of 1963. Thereafter, he received his business management training from IIM Ahmedabad and the Harvard Business School. He has over three decades of corporate experience in prestigious companies – English Electric, Larsen & Toubro and Cable Corporation of India, and a decade of experience in IIT Kharagpur as Dean and Professor of the Vinod Gupta School of Management. In academic life he has taught a wide range of courses – human behaviour, human resources, values and ethics, strategic management and leadership.

His current area of interest is change management and organisation development.



Prof. Tuheena Mukherjee's core competency lies in handling issues of emotions in organizations, high performance work systems, and cross-cultural issues in business. Prof. Mukherjee is an industrial psychologist and a certified MBTI Trainer, one of the widely used psychometric assessment tools for training and consultancy world over and used as best practices for organizations world-wide. Prof. Mukherjee uses multiple pedagogic techniques like experimentation and psychometric assessments for training personnel. In corporate life he has a wide range of experience in marketing, manufacturing, human resources, industrial relations, projects, administration and corporate affairs, rising from assistant manager, to executive director and a member of the board.

h. IV Semester M.Com. Syllabus

CORE COURSE – XIII
BUSINESS TAXATION
2019 – 2020 Onwards

Semester – IV	Business Taxation	Hours/Week – 5	
Core Course – XIII		Credits – 5	
Course Code – 19PCO4CC12		Internal 25	External 75

Course Objective

- To help the students understand and apply basic concepts and provisions of Income Tax Act 1961.
- To make aware about agriculture income, residential status and incidence/charge of tax.
- To understand the provision and procedure to compute total income under five heads of income i.e. Salaries, House Property, Profits and Gains from Business & Profession, Capital Gain and other sources

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	Apply the basic concepts of Income Tax and Residential Status of an Individual	K3
CO2	Examine the Taxable Income of Salary and House Property of an Individual	K4
CO3	Determine the Total Income of Business or Profession, Capital Gain and Other Sources	K5
CO4	Create e-filing of Tax and GST	K6

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	S
CO2	S	S	M	M	S
CO3	S	S	M	M	S
CO4	S	S	M	S	S

S – Strong; M – Medium; L – Low

Syllabus

Unit – I Introduction to Income Tax

(15 Hours)

Income Tax Act 1961- Definitions – Income – Agricultural Income - Person – Assessee – Types of Assessee - Previous Year – Assessment Year – Residential Status – Scope of Total Income – Capital and Revenue Receipts and expenditure – Incomes exempt under Sec.10.

Unit – II Income from Salaries & House Property

(15Hours)

Computation of Income from Salaries – Annual accretion – Allowances – Perquisites – Types and treatment – Profit in lieu of salary – Exempted Profits – Deduction u/s 16 - Computation of Income from House Property – Determination of GAV,NAV – Deduction out of Annual Value.

Unit – III Profits and Gains of Business or Profession, Capital Gain & Other Sources

(15 Hours)

Profits and Gains of Business or Profession – meaning – computation - expenses expressly allowed – expenses expressly disallowed - Computation of Capital Gain – cost of acquisition – cost of improvement – capital gain exempt from tax – tax on capital gain - Computation of income from other sources – specific incomes and other incomes chargeable under the head income from other sources.

Unit – IV Gross Total Income & Tax Liability

(15Hours)

Assessment of Individual, Hindu Undivided Family, Partnership firms and companies – Set off and carry forward of losses – Income tax Authorities – Procedure for assessment – Tax Deducted at Source (TDS)- Deduction from Gross total income – Total tax liability .

Unit – V GST

(15 Hours)

GST – History – Formation and launch – Tax - GST Council – Goods and Service Tax Network (GSTN) – Criticism – Application of GST - Introduction to e-filing.

Distribution of Marks: Theory 20% & Problem 80%**Text Book**

S.No.	Authors	Title	Publishers	Year of Publication
1.	Dr.H.C.Mehrotra	Income Tax Law and Practice	Sahithya Bhavan Publications	Current edition
2.	Murthy A	Income Tax	Vijay Nicole Chennai	Current edition

Reference Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	T.S.Reddy and Hari Prasad Reddy	Income Tax Law and Practice	Margham Publications, Chennai	Current edition
2.	Dinagar Pagare	Tax Laws	S.Chand & Sons, New Delhi	Current edition

Pedagogy

- Lecture, Power Point Presentations, Group Discussion, Seminar, Quiz, Google Classroom, Moodle, Assignment, Experience Discussion and Activity.

Course Designer

Dr. M. A. Parveen Banu, Associate Professor, Department of Commerce.

CORE COURSE – XIV**BUSINESS RESEARCH METHODS – II (PRACTICALS)**

2019 – 2020 Onwards

Semester – IV	Business Research Methods – II (Practicals)	Hours/Week – 5	
Core Course – XIV		Credits – 3	
Course Code – 19PCO4CC2P		Internal 25	External 75

Course Objective

- The primary objective of this course is to expose the students with the research framework and develop research proposal.
- To impart knowledge for enabling students to develop data analytics skills and meaningful interpretation to the data.
- To familiarize the students with statistical package and formulating research hypothesis and report.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	Develop the hypotheses to value the population parameters.	K3
CO2	Analyze the data with SPSS	K4
CO3	Compare the dependence and independence methods in multivariate data analysis.	K5
CO4	Formulating and Testing research hypothesis.	K6

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	M	S	S	S
CO2	M	M	S	S	S
CO3	M	M	M	S	S
CO4	M	M	M	S	S

S – Strong; M – Medium; L – Low

Syllabus

Unit – I Introduction (15 Hours)

Introduction to Data Collection – Methods of Data Collection – Primary and Secondary Data – Data Coding in SPSS – Reliability of Data – Selection of tools for analysis – Introduction to Hypothesis testing – Hypothesis Testing Procedure.

Unit – II Testing of Hypothesis – Parametric & Non Parametric Test (15 Hours)

Introduction – Parametric Test: Students ‘T’ test, ANOVA - Non – Parametric Test: One Sample Tests; Chi Square Test; Two Samples Test; Two Sample Median Test, Man – Whitney U Test – K – related Test; K – Sample related test – Kruskal – Wallis Test (H Test) – Friedman Test using SPSS Software.

Unit – III Basic Multivariate Analysis (15 Hours)

Introduction – Correlation Analysis: Pearson and Spearman Correlation – Rank Correlation – Linear Regression and Time Series; Simple Regression – Multiple Regression and Time Series Analysis

Unit – IV Advanced Multivariate Analyses (15 Hours)

Introduction – Discriminant Analysis: Steps of Two – Group Discriminant Analysis – Directions for Multiple Discriminant Analysis – Factor Analysis – Cluster Analysis – Multidimensional Scaling

Unit – V Research Report (15 Hours)

Research Report – Different Types – Contents of Report – Need of Executive Summary – Chapterization – Contents of Chapter – Report writing – The role of audience – Readability –

Comprehension – Report Format – Title of the Report – Ethics in Research – Ethical Behaviour of Research – Social implication and practical implication in research report.

List of Practicals

- Questionnaire Framing
- Data Collection and Reliability Data
- Creation of Hypothesis
- “T” test
- ANOVA
- Chi Square Test
- Mann – Whitney U Test
- Kruskal Wallis H Test
- Friedman Test
- Correlation
- Regression
- Discriminant Analysis
- Factor Analysis
- Multidimensional Scaling
- Report Writing
- Readings form Articles, Lecture, PPT Presentations, E-content module, Assignment, Lab work, Google Classroom, Moodle and Group Discussion

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Donald R. Cooper and Pamela S. Schindler	Business Research Methods	Tata McGraw Hill	2006 9 th edition
2.	K. N. Krishnaswamy, AppalyerSivakumar and M. Mathirajan	Management Research Methodology	Pearson Education	2006
3.	Uma Sekaran	Research Methods For Business : A	Wiley India	Copyright 2003 4 th Edition

		skill Building Approach		
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Reference Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Alan Bryman and Emma Bell	Business Research Methods	Oxford University Press	May 2015 4 th Edition
2.	Dr. Sue Greener	Business Research Methods	Ventus Publishing	2008

Pedagogy

- Readings form Articles, Lecture, PPT Presentations, E-content module, Assignment, Lab work, Google Classroom, Moodle and Group Discussion

Course Designer

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

ELECTIVE COURSE – IV

MANAGERIAL BEHAVIOUR & EFFECTIVENESS

2019 – 2020 Onwards

Semester – IV	Managerial Behaviour & Effectiveness	Hours/Week – 5	
Elective Course – IV		Credits – 4	
Course Code – 19PCO4EC4A		Internal 25	External 75

Course Objective

- To understand various managerial skills, roles functions and levels.
- To gain knowledge of traditional and contemporary structural designs.
- To identify various leadership styles and their suitability to the situation.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	Apply the managerial dimensions for effective job behavior	K3
CO2	Examine managerial styles in terms of concern for production and concern for people	K4
CO3	Assess different systems of management and relate these systems to organizational characteristics	K5
CO4	Develop the managerial skills to enhance the competitive spirit through creativity and innovation.	K6

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	M	M
CO2	S	M	S	S	M
CO3	S	S	S	S	M
CO4	S	S	S	S	M

S – Strong; M – Medium; L – Low

Syllabus

Unit – I Introduction to Managerial Job (15 Hours)

Descriptive Dimensions of Managerial Jobs – Methods – Model – Time Dimensions in Managerial Jobs – Effective and Ineffective Job behavior – Functional and level differences in Managerial Job behavior.

Unit – II Designing the Managerial Job (15 Hours)

Identifying Managerial Talent – Selection and Recruitment – Managerial Skills Development – Pay and Rewards – Managerial Motivation – Effective Management Criteria – Performance Appraisal Measures – Balanced Scorecard – Feedback – Career Management – Current Practices.

Unit – III Concept of Managerial Effectiveness (15 Hours)

Definition – The person, process, product approaches – Bridging the Gap – Measuring Managerial Effectiveness – Current Industrial and Government practices in the Management of Managerial Effectiveness- the Effective Manager as an Optimizer.

Unit – IV Environmental Issues in Managerial Effectiveness (15 Hours)

Organizational Processes – Organizational Climate – Leader – Group Influences – Job Challenge– Competition – Managerial Styles

Unit – V Developing the Winning Edge (15 Hours)

Organizational and Managerial Efforts – Self Development – Negotiation Skills – Development of the Competitive Spirit – Knowledge Management – Fostering Creativity and Innovation

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Peter Drucker	Management	Harper Row	2008
2.	Milkovich and Newman	Compensation	McGraw-Hill International	2017

3.	Blanchard and Thacker	Effective Training Systems	Pearson	2012
4.	R.M.Omkar	Personality Development and Career Management	S.Chand	2016

Reference Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Dubrin	Leadership, Research Findings, Practices and Skills	Biztantra	2015
2.	Joe Tidd , John Bessant, Keith Pavitt	Managing Innovation	Wiley 3 rd Edition	2006
3.	T.V. Rao	Appraising and Developing Managerial Performance	Excel Books	2002
4.	Richard L.Daft	Leadership	Cengage	2017

Pedagogy

- Lecture, Power Point Presentations, Group Discussion, Seminar, Quiz, Google Classroom, Moodle, Assignment, Experience Discussion and Activity.

Course Designer

Dr. P. Banu, Assistant Professor, Department of Commerce.

ELECTIVE COURSE – IV
ENTERPRISE RESOURCE PLANNING
2019 – 2020 Onwards

Semester – IV	Enterprise Resource Planning	Hours/Week – 5	
Elective Course – IV		Credits – 4	
Course Code – 19PCO4EC4B		Internal 25	External 75

Course Objective

- To understand how a business works and how information systems fit into business operations.
- To gain insight on the evolution and basics of Enterprise Resource Planning (ERP) and its technologies.
- To describe the selection, acquisition and implementing enterprise systems and their impact on organization.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	Make use of the technical aspects of ERP and its Modules	K3
CO2	Analyze the concept of ERP implementation system	K4
CO3	Determine the objectives and application of supply chain management	K5
CO4	Build a theoretical approach on strategies to be resumed for a successful ERP process	K6

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	M	S	S	M
CO2	M	M	S	S	M
CO3	M	M	M	S	M
CO4	M	M	M	S	M

S – Strong; M – Medium; L – Low

Syllabus

Unit – I Introduction to ERP

(15 Hours)

ERP – Meaning – Definition – History and Evolution – Components of ERP – Need – Functions – Role of ERP – Conceptual Framework of ERP – Benefits – Limitations – Scope.

Unit – II ERP Modules Structure

(15 Hours)

Finance Module – Production Planning, Control and Maintenance – Sales and Distribution – HRM – Inventory Control – Quality Management.

Unit – III ERP Implementation

(15 Hours)

Approaches to the study of ERP implementation – Perspectives in ERP Implementation – Challenges to Implementation – Implementation Strategy – Phases in ERP Implementation – Benefits realized in ERP Implementation – Reasons for failure of ERP Implementation.

Unit – IV Supply Chain Management

(15 Hours)

Supply Chain Management – Meaning – Objective – Process – Challenges – Difference between ERP and Supply Chain Management.

Unit – V Future Directions in ERP

(15 Hours)

New trends in ERP – E - Commerce – ERP and Internet – Factors guiding Selection – Evolution of ERP – Strategies for successful ERP – Integrating ERP into Organization – ERP and E - business.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	K.Ganesh, Mohapatra Sanjay , P. Sivakimar & S.P.Anbu Udayasankar	Enterprise Resource Planning	Springer International Publishing	2014

Reference Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Vinod kumar Venkitakrishnan, N. K. Garg	Enterprise Resource Planning: Concepts and practices	Prentice Hall of India	2011
2.	Mary Summer	Enterprise Resource Planning	Prentice Hall of India	2004
3.	Parthasarathy	Enterprise Resource Planning – Managerial and Technical Perspective	New Age International Ltd Publishers	2007

Pedagogy

- Lecture, Power Point Presentations, Group Discussion, Seminar, Quiz, Google Classroom, Moodle, Assignment, Experience Discussion, Brain storming, Activity & Case Study.

Course Designer

Dr. S. Shameem, Associate Professor, Department of Commerce

ELECTIVE COURSE – V**ENTREPRENEURSHIP & NEW VENTURE CREATION****2019 – 2020 Onwards**

Semester – IV	Entrepreneurship & New Venture Creation	Hours/Week – 5	
Elective Course – V		Credits – 4	
Course Code – 19PCO4EC5A		Internal 25	External 75

Course Objective

- To understand the resources required to underpin venture development and growth and know from where and how to access these resources.

- To develop a greater awareness of their personal goals, motivations, strengths and limitations in the context of venture creation and growth, particularly in the context of forming new ventures or joining a new young venture.
- Develop insights of Entrepreneurship concepts and build the necessary skills to assume Entrepreneurial activities

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	Identify various Governmental and Non - Governmental support schemes offered to the entrepreneurs.	K3
CO2	Distinguish the types of entrepreneurship and the modes of Business Networking.	K4
CO3	Assess the commercial viability of new technologies and business opportunities	K5
CO4	Create Business Plans that Articulate and apply the Entrepreneurial Competencies	K6

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	S
CO2	S	S	S	M	M
CO3	S	S	S	M	M
CO4	S	S	S	M	M

S – Strong; M – Medium; L – Low

Syllabus

Unit – I Entrepreneurial Framework

(15 Hours)

Introduction of Entrepreneur and Entrepreneurship – Role of entrepreneurship in Economic development – Entrepreneurial careers and education – Ethics and social responsibility of entrepreneurs, Global Entrepreneurship Monitor – Sustainable Entrepreneurship – Case insights.

Unit – II Entrepreneurial & Intrapreneurial Mind

(15 Hours)

The entrepreneurial process - The entrepreneurial decision process, Intrapreneurship – Entrepreneurial competencies and types – Behavioral Patterns– Motivational skills.

Unit – III Development of Business Ideas

(15 Hours)

Discovering a business idea – Researching and evaluating the business ideas – Developing the business model – Concept and method of project appraisal – Case insights.

Unit – IV Financial Assistance, Incubation & Innovation

(15 Hours)

Financial Assistance through SFC's, SIDBI, Commercial Banks, IFCI – Non-Financial Assistance from DIC, SISI, AWAKE, KVIC - PM MUDRA Yojana - Meaning, Objectives, Procedures for obtaining loan under MUDRA. Financial incentives for SS's and Tax Concessions.

Business Incubators – Role of TDB: Seed support for STEP/TBI's, S and T Entrepreneurship Development – Innovation and Technology, Entrepreneur Development Programs. – Case insights.

Unit – V New Venture Creation

(15 Hours)

Defining the small firms – Small firms in India – Small firms around the world – Scope of Micro and Small enterprise, Institutional support to Entrepreneurs and External Resources: Angel Investors and Venture Capital – Adding values to Business – Launching the Business – Legal foundations.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Robert.D. Hisrich & Micheal P. Peters	Entrepreneurship	Tata McGraw Hill	2002 10 th edition
2.	Paul Burns	Entrepreneurship and Small Business	Macmillan Publishers	2001
3.	Dr.S.S.Khanka	Entrepreneurial Development	S.Chand& Company Pvt. Ltd	2015 5 th Edition
4.	A.Sahay & V.Sharma	Entrepreneurship and New Venture Creation	Anurag Jain for Excel books	2008 First edition

Reference Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Dr.C.B.Gupta & N.P.Srinivasan	Entrepreneurship Development in India	Sultan Chand & Co	2004 5th Edition

Pedagogy

- Lecture, Power Point Presentations, Group Discussion, Seminar, Quiz , Google Classroom, Moodle, Assignment, Experience Discussion, Brain storming, Activity & Case Study.

Course Designer

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

ELECTIVE COURSE – V
PROJECT MANAGEMENT

2019 – 2020 Onwards

Semester – IV	Project Management	Hours/Week – 5	
Elective Course – V		Credits – 4	
Course Code – 19PCO4EC5B		Internal 25	External 75

Course Objective

- To understand the project cycle and the phases of project management.
- To develop the knowledge of students in the management of project and to know about how to prepare project in business.
- To organize and apply the project management tools and techniques in a more efficient manner

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	Outline the project management concepts	K2
CO2	Identify the project resource and infer the appraisal techniques	K3
CO3	Examine the methods of financing of projects and analyze the cost control techniques	K4
CO4	Evaluate Project Proposal	K5
CO5	Develop Feasible Projects	K6

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	M	M	M	S
CO2	M	M	M	S	S
CO3	M	M	S	S	S
CO4	M	M	S	S	S
CO5	M	M	S	S	S

S – Strong; M – Medium; L – Low

Syllabus

Unit – I Introduction

(15 Hours)

Nature and Contents of Project Management: Project Characteristics – Attributes of a Good Project Manager – Taxonomy of Projects – Projects Environment – History of Project Management – Project as a Conversion Process – Project Life Cycle – Project Roles – A System Approaches to Project Management.

Unit – II Project Identification & Appraisal

(15 Hours)

Project Identification – Project preparation – Tax Incentives and Project Investment Decisions – Tax Planning for Project Investment Decisions – Zero based Project Formulation – Technical, Commercial, Economic, Financial and Management Appraisal – Social Cost benefit Analysis and Project Risk Analysis.

Unit – III Project Financing**(15 Hours)**

Project Cost Estimation – Project Financing – Financial Evaluation of Projects – Financial Projections – Project Planning and Scheduling – Estimation, Resource analysis, Justification and Evaluation – Teams and organization – Projects Cost Control.

Unit – IV Project Review**(15 Hours)**

Role of Management and Leadership in Project Environment – Problem Solving and Decision Making – Project review Rehabilitation of Sick Units – Project Organization – Project Contracts.

Unit – V Project Evaluation**(15 Hours)**

Meaning – Project review and Administrative aspects – Computer aided Project Management – Options in Projects – Risk Analysis – Topics of interest on Project Management

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Chandra Prasanna	Projects – Planning, Analysis, Selection, Implementation and Review	Tata McGraw Hill, New Delhi	2012

Reference Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Maylor Harvey	Project Management	Pearson Education, New Delhi	2010
2.	Rao P.C.K,	Project Management and Control	Sultan Chand and Sons	2011

Pedagogy

- Lecture, Power Point Presentations, Group Discussion, Seminar, Quiz, Google Classroom, Moodle, Assignment, Experience Discussion and Activity.

Course Designer

Dr. P. Kavitha, Associate Professor, Department of Commerce.

i. Allied Course Syllabus for B.C.A. & B.Sc. IT

2019 – 2020 Onwards

Semester – IV	Organizational Behaviour	Hours/Week - 5	
Allied Course - III		Credits - 3	
Course Code - 19UCA4AC5 / 19UIT4AC5		Internal 25	External 75

Course Objective

- To help the students to develop cognizance of the importance of human behaviour.
- To enable students to describe how people behave under different conditions and understand why people behave as they do.
- To provide the students to analyse specific strategic human resources demands for future action.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO 1	Define the conceptual framework of organization behaviour	K1
CO2	Explain what leadership is and what makes an effective leader	K2
CO3	Identify the individual characteristics that influence work behaviour and organizational effectiveness.	K3
CO4	Analyse specific strategic human resources demands for future action	K4

Syllabus

Unit – I Fundamentals of Organisational Behaviour

(15 Hours)

Definition – Nature – Scope and Goals of Organisation Behaviour – Fundamentals Concepts – Models – Foundation of Individual Behaviour – Human Behaviour - TQM – Managing Cultural Diversity – Total Employee Involvement.

Unit – II Personality, Perception & Motivation

(15 Hours)

Definition – Determinants – Theories of Personality – Trait Theory: Big Five Model Type of Theory –Types of Personality. Perception: Meaning – Factors Affecting Perception – Motivation – Needs and Importance of Motivation – Process and Models of Motivation – Theories of Motivation: Maslow’s Need Hierarchy Theory, Mc Gregors’s Theory “X” and Theory “Y” and Herzberg’s Two factor theory of Motivation – Techniques of Motivation.

Unit – III Job Satisfaction & Job Stress

(15 Hours)

Meaning – Factors – Importance of Satisfaction – Morale – Importance – Employee Attitude and Behaviour and Their Significance to Employee Productivity – Job Enrichment – Job Enlargement - Job Stress – Nature - Kinds of Stressors – Managing Stress – Job Frustration.

Unit – IV Groups and Conflict in Organisation

(15 Hours)

Group: Meaning - Nature - Types – Group Dynamics – Cohesiveness – Group Norms. Conflict: Concept – Process – Types – Resolution of Conflict – Sociometry – Power and Politics – Meaning – Distinction between Power and Politics – Organisational Politics – Types of Power.

Unit – V Learning & Leadership**(15 Hours)**

Learning - Components of Learning, Theories of Learning - Leadership – Types – Theories – Trait – Managerial Grid - Fielders Contingency Theory – Organisational Climate – Organisational Effectiveness – Counselling and Guidance – Importance – Types of Counselling.

Text Book

S. No.	Authors	Title	Publishers	Year of Publication
1.	L.M. Prasad	Organisational Behaviour	Sultan Chand & Sons	2008
2.	K. Aswathappa	Organisational Behaviour Text, Cases & Games	Himalaya Publications	2013

Reference

S. No.	Authors	Title	Publishers	Year of Publication
1.	P. Subba Rao	Management & Organisational Behaviour	Himalaya Publications	2009
2.	S.S. Khanka	Organisational Behaviour Text & Cases	Sultan Chand & Co. Ltd	2008
3.	Fred Luthans	Organisational Behaviour Text & Cases	Mc Graw Hill	2014

Pedagogy

Lecture, Power Point Presentation, Assignment, Quiz, Google Classroom, Moodle, Seminar & Group Discussions.

Course Designer

Ms. D. Indumathi – Assistant Professor, Department of Commerce.

ANNEXURE - M
CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
PG AND RESEARCH DEPARTMENT OF MATHEMATICS
B.Sc MATHEMATICS COURSE STRUCTURE
(For the candidates admitted in the year 2019-2020)

Sem	Part	Course	Title	Subject Code	Ins.	Credit	Exam	Marks		Total	
					Hrs		Hours	Int	Ext.		
I	I	Language Course – I (LC) – Tamil*/Other Languages + #		19ULT1/19ULH1 19ULF1/19ULS1	6	4	3	25	75	100	
	II	English Language Course - I(ELC)		19UE1	6	4	3	25	75	100	
	III		Core Course – I (CC)	Differential Calculus and Trigonometry	19UMA1CC1	5	5	3	25	75	100
			Core Course – II (CC)	Integral Calculus and Fourier Series	19UMA1CC2	6	5	3	25	75	100
			First Allied Course – I (AC)	Mathematical Statistics - I	19UMA1AC1	5	3	3	25	75	100
	IV	Value Education	Value Education	19UGVE	2	2	3	25	75	100	
				TOTAL	30	23	-	-	-	600	
II	I	Language Course – II (LC) -Tamil*/Other Languages + #		19ULT2/19ULH2 19ULF2/19ULS2	6	4	3	25	75	100	
	II	English Language Course – II(ELC)		19UE2	6	4	3	25	75	100	
	III		Core Course – III (CC)	Analytical Geometry and Vector Calculus	19UMA2CC3	6	5	3	25	75	100
			First Allied Course – II (AP)	Mathematical Statistics- II (Practical)	19UMA2AC1P	5	3	3	25	75	100
			First Allied Course – III (AC)	Mathematical Statistics-III	19UMA2AC2	5	3	3	25	75	100
	IV	Environmental Studies	Environmental Studies	19UGES	2	2	3	25	75	100	
				TOTAL	30	21	-	-	-	600	
Sem	Part	Course	Title	Subject Code	Ins.	Credit	Exam	Marks		Total	
					Hrs		Hours	Int	Ext		
III	I	Language Course – III (LC) – Tamil*/Other Languages + #		19ULT3/19ULH3 19ULF3/19ULS3	6	4	3	25	75	100	
	II	English Language Course - III(ELC)		19UE3	6	4	3	25	75	100	
	III		Core Course – IV (CC)	Differential Equations and Laplace Transforms	19UMA3CC4	5	5	3	25	75	100
			Core Course – V (CC)	Classical Algebra and Theory of Equations	19UMA3CC5	5	5	3	25	75	100

		Second Allied Course – I (AC)	Programming in C	19UMA3AC3	4	3	3	25	75	100	
		Second Allied Course – II (AP)	Programming in C LAB	19UMA3AC2P	2	-	-	-	-	-	
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 up to 10 th , +2 but opt for other languages in degree programme		Mathematics for competitive Examinations- I	19UMA3NME1	2	2	3	25	75	100	
			Basic Tamil	19ULC3BT1							
			Special Tamil	19ULC4ST1							
V	Swayam Online Course	Introduction to R Software		As Per UGC Norms	2	As Per UGC Norms					
TOTAL					30	23	-	-	-	600	
IV	I	Language Course – IV(LC) - Tamil*/Other Languages +#		19ULT4/19ULH4 19ULF4/19ULS4	6	4	3	25	75	100	
	II	English Language Course – IV(ELC)		19UE4	6	4	3	25	75	100	
	III	Core Course – VI (CC)	Sequences and Series	19UMA4CC6	5	4	3	25	75	100	
		Second Allied Course – II (AP)	Programming in C LAB	19UMA3AC2P	2	2	3	40	60	100	
		Second Allied Course – III (AC)	Principles of Information Technology	19UMA4AC4	5	3	3	25	75	100	
		Major Based Elective-I	Discrete Mathematics	19UMA4MBE1A	4	3	3	25	75	100	
		Automata Theory	19UMA4MBE1B								
	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 up to 10 th , +2 but opt for other languages in degree programme		Mathematics for competitive Examinations- II	19UMA4NME2	2	2	3	25	75	100
				Basic Tamil	19ULC4BT2						
				Special Tamil	19ULC4ST2						

	V	Swayam Online Course	As per UGC Recommendations	May be fixed Later	As Per UGC Norms					
	TOTAL				30	22	-	-	-	700

Sem	Part	Course	Title	Subject Code	Ins.	Credit	Exam	Marks		Total
					Hrs		Hours	Int	Ext.	
V	III	Core Course – VII (CC)	Abstract Algebra	19UMA5CC7	6	5	3	25	75	100
		Core Course – VIII (CC)	Real Analysis	19UMA5CC8	6	5	3	25	75	100
		Core Course – IX(CC)	Statics	19UMA5CC9	5	4	3	25	75	100
		Core Course – X (CC)	Operations Research	19UMA5CC10	5	4	3	25	75	100
		Major Based Elective-II	Fuzzy Set Theory and its Applications	19UMA5MBE2A	4	3	3	25	75	100
	Astronomy		19UMA5MBE2B							
	V	Skill Based Elective-I	Introduction to MATLAB	19UMA5SBE1A	2	2	3	25	75	100
			19UMA5SBE1B							
		Soft Skills Development	Soft Skills Development	UGSD	2	2	3	25	75	100
	TOTAL				30	25	-	-	-	700
VI	III	Core Course – XI(CC)	Linear Algebra	19UMA6CC11	6	5	3	25	75	100
		Core Course – XII(CC)	Complex Analysis	19UMA6CC12	5	4	3	25	75	100
		Core Course – X III(CC)	Dynamics	19UMA6CC13	5	4	3	25	75	100
		Core Course – X IV(CC)	Methods in Numerical Analysis	19UMA6CC14	5	4	3	25	75	100
		Major Based Elective-III	Graph Theory	19UMA6MBE3A	4	3	3	25	75	100
	Number Theory		19UMA6MBE3B							
	V	Skill Based Elective-II	Numerical methods with MATLAB Programming	19UMA6SBE2A	2	2	3	25	75	100
				19UMA6SBE2B						
		Skill Based Elective-III	Numerical methods with PYTHON	19UMA6SBE3A	2	2	3	25	75	100
			19UMA6SBE3B							
		Extension Activities	Extension Activities	19UGEA	-	1	-	-	-	-
		Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100
	TOTAL				30	26	-	-	-	800
	GRAND TOTAL				180	140	-	-	-	4000

List of Allied Courses

Group I (Any one)

1. Physics
2. Mathematical Statistics
3. Financial Accounting

Group II (Any one)

1. Chemistry
2. Computer Science
3. Management Accounting

Language Part – I	-	4
English Part –II	-	4
Core Paper	-	14
Allied Paper	-	4
Allied Practical	-	2
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(Credit only)

- For those who studied Tamil up to 10th, +2 (Regular Stream)

- Syllabus for other Languages should be on par with Tamil at degree level

those who studied Tamil up to 10th,+2 but opt for other languages in degree level under Part I should study special Tamil in Part IV

** 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 up to 10th or +2 but opt for other languages in degree programme

Note:

	Internal Marks	External Marks
Theory	25	75
Practical	40	60

Separate passing minimum is prescribed for Internal and External marks

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]

Third semester –ratified paper

Swayam Online Course
Introduction to R software
2019-2020 Onwards

Course id	Course Name	Duration	Core/Elective	Course		Exam Date	Credit
				Start Date	End Date		
noc20-ma53	Introduction to R Software	8 Weeks	Core	August 17 th 2020	October 9 th 2020	October 17 th 2020	2

COURSE LAYOUT

Week 1 : Basic fundamentals, installation and use of software, data editing, use of R as a calculator, Functions and assignments.

Week 2 : Use of R as a calculator, functions and matrix operations, missing data and logical operators.

Week 3 : Conditional executions and loops, data management with sequences.

Week 4 : Data management with repeats, sorting, ordering and lists.

Week 5 : Vector indexing, factors, Data management with strings, display and formatting.

Week 6 : Data management with display paste, split, find and replacement, manipulations with alphabets, evaluations of strings, data frames.

Week 7 : Data frames, import of external data in various file formats, statistical functions, compilation of data.

Week 8: Graphics and plots, statistical functions for central tendency, variation, skewness and kurtosis, handling of bivariate data through graphics, correlations, programming and illustration with examples.

BOOKS AND REFERENCES:

- Introduction to Statistical and Data Analysis – With Exercises, Solutions and Applications in R By Christian Heumann, Michal Schomaker and Shalabh Springer, 2016.
- The R Software –Fundamental of Programming and Statistical Analysis- Pierre Lafaye de Micheaux Remy Drouilhet, Benoit Liquet Springer 2013.
- A Beginner's Guide to R(Use R) By Alain F. Zuur, Elena N Ieno, Erik H.W.G. Meesters, Springer 2009.

Fourth semester UG-syllabus:**CORE COURSE VI – (CC)
SEQUENCES AND SERIES****2019-2020 Onwards**

Semester - IV	SEQUENCES AND SERIES	Hours/Week – 5	
Core Course VI - (CC)		Credits – 4	
Course Code – 19UMA4CC6		Internal 25	External 75

Objectives

- To lay a good foundation for classical analysis.
- To study the behavior of sequences and series.
- To acquire the knowledge of solving problems in Binomial, Logarithm & Exponential Series.

Course Outcomes

On the Successful completion of the course, students will be able to

CO No.	CO Statement	Knowledge Level
CO1	Explain the concepts of convergent sequences, divergent sequences and series.	K2
CO2	Apply the ideas of sequences in Algebra of limits.	K3
CO3	Compute the behavior of monotonic functions.	K3
CO4	Apply the theory of Cauchy's condensation test and Cauchy's root test on series.	K3
CO5	Solve the problems based on binomial, logarithmic and exponential series.	K3
CO6	Examine infinite series using D' Alembert's ratio test.	K4

Mapping with Programme Outcome:

COS/POS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	S
CO2	S	S	S	S	S
CO3	S	S	S	M	M
CO4	S	S	S	M	M
CO5	S	M	S	S	S
CO6	S	S	S	S	M

S-Strong, M-Medium, L-Low

CORE COURSE VI – (CC)
SEQUENCES AND SERIES
2019-2020 Onwards

UNIT – I **(15 Hours)**

Introduction – Sequences – Bounded Sequences – Monotonic Sequences – Convergent Sequences – Divergent and Oscillating Sequences – The Algebra of Limits.

UNIT –II **(15 Hours)**

Behavior of Monotonic sequences – Some theorems on limits –Subsequences.

UNIT –III **(15 Hours)**

Infinite Series – Definition of Convergence, Divergence & Oscillate – Convergence of Geometric series – Some general theorems concerning infinite series – Series of positive terms – Comparison tests- convergence of $\sum \frac{1}{n^k}$ – D' Alembert's Ratio test.

UNIT – IV **(10 Hours)**

Cauchy's Condensation test – Cauchy's Root test and simple problems – Absolute Convergence – Conditional Convergence – Alternative Series.

UNIT – V **(20 Hours)**

Binomial theorem for a rational index – Some important particular case of the Binomial expansion – Sign of terms in binomial expansion – Numerically greatest term expansions – Method of splitting functions into partial fractions – Application of the Binomial theorem to the summation of series – Approximate values – Exponential limit – The Exponential theorem – Summation – The Logarithmic series – Modification of the logarithmic series – Summation of series– Euler's constant – Series which can be summed up by the logarithmic series – Calculation of logarithms by means of the logarithmic series.

Text Books

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	Dr.S.Arumugam & Prof.A.Thangapandi Isaac	Sequences and Series	New Gamma Publishing House	2015
2	T.K.Manicavachagom Pillay, T.Natarajan & K.S.Ganapathy	Algebra, Volume I	S.Viswanathan Pvt Limited	2015

Chapters and Sections

S.NO.	UNIT	CHAPTER	SECTIONS
1.	I	3(1)	3.0-3.6
2.	II	3(1)	3.7-3.9
3.	III	2(2)	8-14, 16
4.	IV	2(2)	15, 17, 21-24
5.	V	3(2)	5-10, 14
		4(2)	1-3, 5-10

Reference Books

S.No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	M.K.Singal & Asha Rani Singal	A First Course in Real Analysis	R. Chand &co	2018
2	N.P.Bali	Golden Maths series -Real Analysis	Laxmi Publication	2019

Web links:

1. https://youtu.be/JKiwztS6e_s
2. <https://youtu.be/A02NqndQan0>
3. <https://youtu.be/9sLsX9DV5Fs>
4. https://youtu.be/O3_IGStTGVO
5. <https://youtu.be/BydVprh9NgQ>

Pedagogy

Power point presentation, Group Discussion, Seminar, Assignment.

MAJOR BASED ELECTIVE COURSE (MBE) - I
DISCRETE MATHEMATICS
2019-2020 Onwards

Semester – IV	DISCRETE MATHEMATICS	Hours/Week – 4	
Major Based Elective Course (MBE) – I		Credits – 3	
Course Code – 19UMA4MBE1A		Internal 25	External 75

Objectives

- To make the students understand the basics of discrete mathematics.
- Applying the method of logical reasoning to solve a variety of problems.
- To introduce the concepts of Lattices and Boolean Algebras.

Course Outcome

On the Successful completion of the course the student would be able to

CO No.	CO Statement	Knowledge Level
CO1	Illustrate the concepts on statements and truth tables.	K2
CO2	Describe the properties of lattices and some special lattices.	K2
CO3	Apply the ideas of tautology in statements.	K3
CO4	Relate the notion of normal forms and its types.	K3
CO5	Apply the theory of Boolean Algebra and its functions.	K3
CO6	Compute the inference theory of predicate calculus and its characteristics.	K3

Mapping with Programme Outcomes

COS\POS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	M	S	S	S
CO3	S	S	S	S	S
CO4	S	S	S	M	S
CO5	M	S	S	S	S
CO6	S	S	S	S	S

S-Strong, M-Medium, L-Low

MAJOR BASED ELECTIVE COURSE (MBE) - I
DISCRETE MATHEMATICS

2019-2020 Onwards

Unit I **(12 Hours)**

Statements and Notation – Connectives: Negation – Conjunction – Disjunction – Statement formulas and Truth Tables – Conditional and Biconditional – Well-Formed Formulas– Tautologies – Equivalence of formulas – Duality Law –Tautological Implications –Formulas with Distinct Truth Tables.

Unit II **(12 Hours)**

Normal Forms : Disjunctive Normal Forms – Conjunctive Normal Forms – Principal Disjunctive Normal Forms – Principal Conjunctive Normal Forms – Ordering and Uniqueness of Normal Forms.

Unit III **(12 Hours)**

The Predicate Calculus: Predicates – The Statement Function, Variables and Quantifiers– Predicate Formulas – Free and Bound Variables – The Universe of Discourse –Inference Theory of the Predicate Calculus – Valid Formulas and Equivalences – Some Valid Formulas over Finite Universe – Special Valid Formulas Involving Quantifiers – Theory of Inference for the Predicate Calculus – Formulas Involving More Than One Quantifier – Binary and n-ary Operations – Characteristic Function of a Set – Hashing Functions.

Unit IV **(12 Hours)**

Lattices as Partially Ordered Sets : Definition and Examples – Some Properties of Lattices – Lattices as Algebraic Systems – Sub Lattices , Direct Product and Homomorphism – Some Special Lattices.

Unit V **(12 Hours)**

Boolean Algebra : Definition and Examples – Sub Algebra, Direct Product and Homomorphism – Boolean Functions : Boolean Forms and Free Boolean Algebras – Values of Boolean Expressions and Boolean Functions – Representation and Minimization of Boolean Functions :Representation of Boolean Functions – Minimization of Boolean Functions.

Text Books

S.No	Authors	Title	Publishers	Year of publication
1.	J.P. Tremblay & R. Manohar	Discrete Mathematical Structures with Applications to Computer Science	Tata McGraw Hill	2011

Chapters and Sections

S.NO.	UNIT	CHAPTER	SECTIONS
1.	I	1	1-1
		1	1-2.1 to 1-2.4, 1-2.6 to 1-2.12
2.	II	1	1-3.1 to 1-3.5
3.	III	1	1-5.1 to 1-5.5, 1-6.1 to 1-6.5
		2	2-4.4 to 2-4.6
4.	IV	4	4-1.1 to 4-1.5
5.	V	4	4-2.1, 4-2.2, 4-3.1, 4-3.2, 4-4.1, 4-4.2

Reference Books

S.No	Authors	Title	Publishers	Year of publication
1.	Rakesh Dube, Adesh Pandey and Ritu Gupta	Discrete Structures and Automata Theory	Narosa Publishing House.	2000
2.	John E. Hopcroft Jeffery D. Ullman	Introduction to Automata Theory	Languages and Computation.	1995

Web links :

1. <https://youtu.be/i3m0hV157Ro>
2. <https://youtu.be/5cyocztOtq4>
3. <https://youtu.be/w9DyAVrU8j0>
4. <https://youtu.be/qPtGlrbsXg>
5. <https://youtu.be/MH2uTVgG1bo>

Pedagogy

Power point presentation, Group Discussion, Seminar, Assignment.

MAJOR BASED ELECTIVE (MBE) - I**AUTOMATA THEORY****2019-2020 Onwards**

Semester – IV	AUTOMATA THEORY	Hours/Week – 4	
Major Based Elective Course (MBE) – I		Credits – 3	
Course Code – 19UMA4MBE1B		Internal 25	External 75

Objectives

- To introduce the definition of Automaton.
- To enable thorough knowledge in constructing the Regular Expressions.
- To study the Pumping lemma for regular sets.

Course Outcome

On the Successful completion of the course the student would be able to

CO No.	CO Statement	Knowledge Level
CO1	Study Deterministic and Nondeterministic Finite state automata.	K1
CO2	Outline the Chomsky classification of languages.	K1
CO3	Understand the concepts of Regular Expressions.	K2
CO4	Impart knowledge in Pumping lemma for Regular sets.	K3
CO5	Apply the simplification of context free grammars.	K3

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	M	S	S	S	S
CO2	M	S	M	S	S
CO3	S	M	S	S	S
CO4	S	S	S	M	S
CO5	S	S	S	S	M

S-Strong, M-Medium, L-Low

MAJOR BASED ELECTIVE - I

AUTOMATA THEORY

2019-2020 Onwards

UNIT I

THE THEORY OF AUTOMATA

(6 Hours)

Definition of an Automaton – Description of a Finite Automaton – Transition Systems – Properties of Transition Functions – Acceptability of a string by a Finite Automaton – Nondeterministic Finite State Machines – The equivalence of DFA and NFA.

UNIT II

FORMAL LANGUAGES

(6 Hours)

Basic Definitions and Examples: Definition of a Grammar – Derivations and the Language Generated by a Grammar. Chomsky Classification of Languages – Languages and their Relation – Recursive and Recursively Enumerable sets – Operations on Languages.

UNIT III

REGULAR SETS AND REGULAR GRAMMARS

(6 Hours)

Regular Expressions: Identities for Regular Expressions. Finite Automata and Regular expressions: Transition System Containing λ -moves – NFAs with λ -moves and Regular Expressions – Conversion of Nondeterministic Systems to Deterministic Systems – Algebraic Methods Using Arden's Theorem – Construction of a finite Automata Equivalent to a Regular Expressions – Equivalence of Two Finite Automata – Equivalence of Two Regular Expressions.

UNIT IV

REGULAR SETS AND REGULAR GRAMMARS

(4 Hours)

Pumping Lemma for Regular Sets – Applications of Pumping Lemma – Closure Properties of Regular Sets – Regular Sets and Regular Grammars.

UNIT V

CONTEXT FREE LANGUAGES

(2 Hours)

Context-free Languages and Derivation Trees: Derivation Trees – Ambiguity in Context Free Grammars.

Text Book:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	K. L. P. Mishra and N. Chandrasekaran	Theory of Computer Science: Automata, Languages and Computation- Third Edition	Prentice Hall of India Private Limited	2008

Chapters and Sections:

Unit	Chapter	Sections
I	3	3.1 to 3.7
II	4	4.1: 4.1.1, 4.1.2, 4.2 to 4.5
III	5	5.1: 5.1.1, 5.2: 5.2.1 to 5.2.7
IV	5	5.3 to 5.6
V	6	6.1: 6.1.1, 6.2

Reference Books:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	John E. Hopcroft, Rajeev Motwani and Jeffrey D. Ullman	Introduction to Automata theory, Languages and Computations, Third Edition	Pearson Education.	2009
2	Alfred V. Aho and Jeffrey D. Ullman,	Principles of Compiler Design	Narosa Publishing House Pvt.,	2002.

Web links

1. <https://youtu.be/Y9PwXM6KN34>
2. <https://youtu.be/6YH9wsLM-8o>
3. https://youtu.be/xEvC-t_QI3o
4. <https://youtu.be/WrzaPNj9OZ4>
5. <https://youtu.be/6aRJONYyz4s>

Pedagogy

Power point presentation, Group Discussion, Seminar, Assignment.

NON-MAJOR ELECTIVE (NME)– II

MATHEMATICS FOR COMPETITIVE EXAMINATIONS - II

2019-2020 Onwards

Semester – IV	MATHEMATICS FOR COMPETITIVE EXAMINATIONS - II	Hours/Week – 2	
Non-Major Elective-II		Credits – 2	
Course Code – 19UMA4NME2		Internal 25	External 75

Objective

- To provide the knowledge to analyze, interpret and solve the Mathematical problems.
- To develop the thinking capacity to solve the problems.
- To study many short tricks to solve the mathematical problems easily

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Solve decimal fractions and simplification	K2
CO2	Explain the concept of square roots, cube roots, Average, profit and loss	K2
CO3	Apply the concept of Ratio & Proportion and Problems on Trains	K3
CO4	Distinguish the concept of Simple Interest and Compound Interest	K3
CO5	Apply the concept of Permutations & Combinations, Odd Man Out & Series	K3

Mapping with Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	S	S
CO2	M	S	S	S	S
CO3	S	S	M	M	S
CO4	S	S	M	M	M
CO5	S	S	S	S	M

S - Strong, M - Medium, L - Low

NON-MAJOR ELECTIVE – II (NME)

MATHEMATICS FOR COMPETITIVE EXAMINATIONS - II

2019-2020 Onwards

UNIT I (6 Hours)

Decimal Fractions – Simplification

UNIT II (6 Hours)

Square Roots & Cube Roots - Average - Profit & Loss

UNIT III (6 Hours)

Ratio & Proportion - Problems on Trains

UNIT IV (6 Hours)

Simple Interest - Compound Interest

UNIT V (6 Hours)

Permutations & Combinations – Odd Man Out & Series

Text Book:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	R.S.Aggarwal	Quantitative Aptitude	S. Chand & Company Ltd,	2007

Chapters and Sections:

Unit	Chapter	Pages
I	3 & 4	46 – 116
II	5, 6 & 11	117 - 160 and 251 - 293
III	12 & 18	294 – 310 and 405 - 424
IV	21 & 22	445 – 486
V	30 & 35	613 – 620 and 649 – 657

Reference Books:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	T.K.Sinha	80+ Practice Sets of Quantitative Aptitude for Bank PO Exams	Arihant Publication (India) limited	2002
2	Abhijit Guha	Quantitative Aptitude for Competitive Examinations	McGraw-Hill Publishing Company Limited, New Delhi, 5 th Edition	2014.

Web links

1. <https://youtu.be/8BeJUzLqOTE>
2. <https://youtu.be/pShzc9AQMos>
3. <https://youtu.be/JP5J-rzoATg>
4. <https://youtu.be/ZnpEoROH1Vc>
5. <https://youtu.be/VIsyYMEAagc>

Pedagogy

Group Discussion, Seminar, Assignment.

Skeleton of PG –Program:

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
PG AND RESEARCH DEPARTMENT OF MATHEMATICS
M. Sc MATHEMATICS COURSE STRUCTURE
(For the candidates admitted in the year 2019-2020)**

SEM	Course	Course Title	Subject code	Ins. Hrs / Week	Credit	Exam Hrs	Marks		Total
							Int.	Ext.	
I	Core Course – I (CC)	Algebra –I	19PMA1CC1	6	5	3	25	75	100
	Core Course – II (CC)	Ordinary Differential Equations	19PMA1CC2	6	5	3	25	75	100
	Core Course – III (CC)	Integral Equations, Calculus of Variations and Transforms	19PMA1CC3	6	5	3	25	75	100
	Core Course – IV (CC)	Algebraic Number Theory	19PMA1CC4	6	5	3	25	75	100
	Core Course - V (CC)	Discrete Mathematics	19PMA1CC5	6	5	3	25	75	100
	TOTAL			30	25				500
II	Core Course – VI (CC)	Algebra- II	19PMA2CC6	6	5	3	25	75	100
	Core Course – VII (CC)	Real Analysis I	19PMA2CC7	6	5	3	25	75	100
	Core Course – VIII (CC)	Linear Algebra	19PMA2CC8	6	5	3	25	75	100
	Core Course – IX (CC)	Topology	19PMA2CC9	6	5	3	25	75	100
	Elective Course – I (EC)	Partial Differential Equations	19PMA2EC1A	6	3	3	25	75	100
Difference Equations			19PMA2EC1B						
	TOTAL			30	23				500

III	Core Course – X (CC)	Real Analysis – II	19PMA3CC10	6	5	3	25	75	100
	Core Course – XI (CC)	Measure and Integration	19PMA3CC11	6	5	3	25	75	100
	Core Course – XII (CC)	Analytical skills for competitive examinations	19PMA3CC12	6	5	3	25	75	100
	Elective Course – II (EC)	Computational Numerical Analysis	19PMA3EC2A	6	3	3	25	75	100
		Fluid Dynamics	19PMA3EC2B						
	Elective Course – III (EC)	Probability Theory and Machine learning	19PMA3EC3A	6	3	3	25	75	100
		Stochastic Processes	19PMA3EC3B						
SWAYAM ONLINE COURSE	Scientific Computing using MATLAB		As per UGC Norms	3	As per UGC Norms				
TOTAL				30	21				500
IV	Core Course – XIII (CC)	Functional Analysis	19PMA4CC13	6	5	3	25	75	100
	Core Course – XIV(CC)	Complex Analysis	19PMA4CC14	6	5	3	25	75	100
	Elective Course – IV (EC)	Optimization Techniques	19PMA4EC4A	6	3	3	25	75	100
		Fuzzy Sets and their Applications	19PMA4EC4B						
	Elective Course – V (EC)	Differential Geometry	19PMA4EC5A	6	3	3	25	75	100
		Automata Theory	19PMA4EC5B						
Project			19PMA4PW	6	5	-	-	-	100
TOTAL				30	21				500
GRAND TOTAL				120	90				2000

Note:

Project : 100 Marks

Dissertation : 80 Marks

Viva Voce : 20 Marks

Core Papers - 14

Core Practical - Nil

Elective Papers - 5

Project - 1

Note:

1. Theory Internal 25 marks External 75 marks
2. Practical Internal 40 marks External 60 marks
3. Separate passing minimum is prescribed for Internal and External
 - a) The passing minimum for CIA shall be 40% out of 25 marks (i.e. 10 marks).
 - b) The passing minimum for End Semester Examination shall be 40% out of 75 marks (i.e. 30 marks).
 - c) The passing minimum not less than 50% in the aggregate.

Third semester –ratified paper

**SWAYAM ONLINE COURSE
SCIENTIFIC COMPUTING USING MATLAB
2019 – 2020 Onwards**

Course id	Course Name	Duration	Core/Elective	Course		Exam Date	Credit
				Start Date	End Date		
noc20- ma40	Scientific Computing using MATLAB	12 Weeks	Core	July 20 th 2020	October 9 th 2020	October 17 th 2020	3

COURSE LAYOUT

Week 1: Introduction to MATLAB.

Week 2: Error estimation and methods of roots finding.

Week 3: Solving System of Linear Algebraic equations.

Week 4: Curve fitting and Interpolation.

Week 5: Numerical differentiation.

Week 6: Numerical Integration.

Week 7: Numerical Optimization.

Week 8: Problem solving session.

Week 9: Numerical solution of Initial value problems (IVP).

Week 10: Discussion about Convergence of numerical schemes.

Week 11: Numerical solution of Boundary value problems (BVP).

Week 12: Discussion and Problem-solving session.

Fourth semester PG - Syllabus

CORE COURSE – XIII (CC)

FUNCTIONAL ANALYSIS

2019-2020 Onwards

Semester – IV	FUNCTIONAL ANALYSIS	Hours/Week – 6	
Core Course – XIII		Credits – 5	
Course Code – 19PMA4CC13		Internal 25	External 75

Objectives

- To study the three structure theorems of Functional Analysis viz., Hahn-Banach theorem, Open mapping theorem and Uniform boundedness principle.
- To introduce Hilbert spaces and operator theory which leads to the spectral theory of operators on a Hilbert space.
- To enable the thorough knowledge of Banach* Algebra with the Gelfand-Neumark theorem.

Course Outcome

On the Successful completion of the course the student would be able to

CO No.	CO Statement	Knowledge Level
CO1	Relate the concepts of groups, rings and linear transformation	K3
CO2	Apply general principle of Banach Algebra to define the regular and singular elements of topological divisors and prove spectral radius formula.	K3
CO3	Determine the concepts of Hilbert Space and discriminate different types of operators.	K4
CO4	Analyze the structure of Commutative Banach Algebras to prove the Gelfand Neumark theorem.	K4
CO5	Compose clear, accurate proof of Hahn Banach Theorem, Open Mapping Theorem using continuous linear transformation and Conjugate of an operator.	K6
CO6	Generalize finite dimensional spectral theory for different types of operators.	K6

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	M	S	S	S	S	S
CO2	M	S	M	S	S	S
CO3	S	M	S	S	S	S
CO4	S	S	S	M	S	S
CO5	S	S	S	S	M	S
CO6	M	S	S	S	S	S

S-Strong, M-Medium, L-Low

CORE COURSE - XIII (CC)

FUNCTIONAL ANALYSIS

2019-2020 Onwards

UNIT I

ALGEBRAIC SYSTEMS

(18 Hours)

Groups – Rings – The structure of rings – Linear spaces – The dimension of a linear space – Linear transformations – Algebras.

BANACH SPACES

The definition and some examples – Continuous linear transformations – The Hahn-Banach theorem – The natural imbedding of N in N^{**} - The open mapping theorem – The conjugate of an operator.

UNIT II

HILBERT SPACES

(18 Hours)

The definition and some simple properties – Orthogonal complements – Orthonormal sets - The conjugate space H^* - The adjoint of an operator – Self-adjoint operators – Normal and unitary operators – Projections.

UNIT III

FINITE-DIMENSIONAL SPECTRAL THEORY

(18 Hours)

Matrices –

Determinants and the spectrum of an operator – The spectral theorem – A survey of the situation.

UNIT IV

GENERAL PRELIMINARIES ON BANACH ALGEBRAS

(18 Hours)

The definition and some examples – Regular and singular elements – Topological divisors of zero – The spectrum – The formula for the spectral radius – The radical and semi-simplicity.

UNIT V

THE STRUCTURE OF COMMUTATIVE BANACH ALGEBRAS

(18 Hours)

The Gelfand mapping – Applications of the formula $r(x) = \lim_{n \rightarrow \infty} \|x^n\|^{1/n}$ - Involutions in Banach Algebras – The Gelfand-Neumark theorem.

Text Book:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	George F. Simmons	Introduction To Topology and Modern Analysis	McGraw-Hill International student Edition	1963

Chapters and Sections:

S.No.	Unit	Chapter
1	I	8 and 9
2	II	10
3	III	11
4	IV	12
5	V	13

Reference Books:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	Walter Rudin	Functional Analysis	TMH Edition	1974
2	B.V. Limaye	Functional Analysis	Wiley Eastern Limited, Bombay, Second Print	1985
3	K.Yosida	Functional Analysis	Springer-Verlag	1974
4	Laurent Schwarz	Functional Analysis	Courant Institute of Mathematical Sciences, New York University	1964

Web links

1. <https://youtu.be/8DtYIUgike8>
2. https://youtu.be/A_9QRYHIvRY
3. <https://youtu.be/LAG-FxIFvTs>
4. <https://youtu.be/ZXVA-q8Ltc>

Pedagogy

Power point presentation, Group Discussion, Seminar, Assignment.

CORE COURSE – XIV (CC)**COMPLEX ANALYSIS****2019-2020 Onwards**

Semester - IV	COMPLEX ANALYSIS	Hours/Week – 6	
Core Course – XIV		Credits – 5	
Course Code – 19PMA4CC14		Internal 25	External 75

Objectives

- To learn the various intrinsic concepts and the theory of Complex Analysis.
- To enable the concept of Analyticity, Complex Integration.
- To make the students to solve the problems for competitive exams.

Course Outcome

On the Successful completion of the course the student would be able to

CO No.	CO Statement	Knowledge Level
CO1	Apply the basic concepts of Elementary Point Set Topology and Conformality.	K3
CO2	Ascertain the basic properties of Harmonic function and theorem and series.	K4
CO3	Examine the Local Properties and theorems of Analytic functions.	K4
CO4	Evaluate definite integral by Cauchy's theorem and Residue theorem.	K5
CO5	Evaluate line integral, Cauchy's integral formula for higher derivatives.	K5

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	M	S	M	S	M	S
CO2	S	M	M	S	M	S
CO3	S	S	S	S	M	S
CO4	S	S	S	S	M	S
CO5	S	M	M	S	S	S

S - Strong, M - Medium, L - Low

CORE COURSE – XIV (CC)

COMPLEX ANALYSIS

2019-2020 Onwards

UNIT I

(18 Hours)

Elementary Point Set Topology: Sets and Elements – Metric Spaces – Connectedness – Compactness – Continuous Functions – Topological Spaces. **Conformality:** Arcs and Closed Curves – Analytic Functions in Regions – Conformal Mapping – Length and Area. **Linear Transformations:** The Linear Group – The Cross Ratio – Symmetry.

UNIT II

(18Hours)

Fundamental Theorems: Line Integrals – Rectifiable Arcs – Line Integrals as Functions of Arcs – Cauchy's Theorem for a Rectangle – Cauchy's Theorem in a Disk. **Cauchy's Integral Formula:** The Index of a Point with Respect to a Closed Curve – The Integral Formula – Higher Derivatives.

UNIT III

(18 Hours)

Local Properties of Analytic Functions: Removable Singularities. Taylor's Theorem - Zeros and Poles - The Local Mapping – The Maximum Principle.

UNIT IV

(18 Hours)

The General Form of Cauchy's Theorem: Chains and Cycles – Simple Connectivity – Homology – The General Statement of Cauchy's Theorem – Proof of Cauchy's Theorem – Locally Exact Differentials – Multiply Connected Regions. **The Calculus of Residues:** The Residue Theorem – The Argument Principle – Evaluation of Definite Integrals.

UNIT V

(18 Hours)

Harmonic Functions: Definition and Basic Properties – The Mean-value Property – Poisson's Formula – Schwarz's Theorem – The Reflection Principle. **Power Series Expansions:** Weierstrass's Theorem – The Taylor Series – The Laurent Series.

Text Book:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	Lars V. Ahlfors	Complex Analysis	McGraw-Hill Book Company	1979

Chapters and Sections:

Unit	Chapter	Section
I	3	1.1 - 1.6, 2.1 - 2.4, 3.1 - 3.3.
II	4	1.1 -1.5, 2.1 - 2.3
III	4	3.1 - 3.4
IV	4	4.1 - 4.7, 5.1 - 5.3
V	4	6.1 - 6.5
	5	1.1- 1.3

Reference Books:

S.No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	Serge Lang	Complex Analysis	Springer International Edition	2005
2	J.N. Sharma	Functions of a Complex Variable	Krishna Prakashan Media Pvt. Ltd	2014
3	James Ward Brown, Ruel V. Churchill	Complex Variables and Applications	Mc Graw - Hill Higher Education	2009

Web links

1. <https://youtu.be/iUhwCfz18os>
2. <https://youtu.be/qTDDFMA7j4>
3. <https://youtu.be/0JZMyutBk9o>
4. <https://youtu.be/0ZOMkmy-aTo>
5. <https://youtu.be/YWiseo5LwgQ>
6. <https://youtu.be/E3-Hji569w4>

Pedagogy

Power point presentation, Group Discussion, Seminar, Assignment.

ELECTIVE COURSE – IV (A) (EC)**OPTIMIZATION TECHNIQUES****2019-2020 Onwards**

Semester – IV	OPTIMIZATION TECHNIQUES	Hours/Week –6	
Elective Course – IV (A)		Credits – 3	
Course Code – 19PMA4EC4A		Internal 25	External 75

Objectives

- To enlighten the students in the field of Resource Management Techniques.
- To help the students to apply Resource Management Techniques in business and management problems.
- To develop an understanding of problem solving methods based upon model formulation.

Course Outcome

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Solve Integer Programming by various types.	K3
CO2	Classify several Dynamic Programming problems.	K3
CO3	Compute Decision Theory problems and solve problems on games.	K3
CO4	Predict Inventory models and solve them accordingly.	K3
CO5	Diagnose Non-linear Programming problems.	K4

Mapping with Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	M	S	S	S	S
CO2	S	S	S	S	S	M
CO3	M	M	S	S	S	M
CO4	M	M	S	S	S	M
CO5	S	S	S	S	S	S

S - Strong, M - Medium, L - Low

ELECTIVE COURSE – IV (A) (EC)

OPTIMIZATION TECHNIQUES

2019-2020 Onwards

UNIT I

INTEGER LINEAR PROGRAMMING:

(18 Hours)

Illustrative Applications of Integer Programming – Solutions methods of Integer Programming – Branch and Bound Algorithm – Cutting–Plane Algorithms – Zero-One Integer Program.

UNIT II

DYNAMIC (MULTISTAGE) PROGRAMMING:

(18 Hours)

Elements of the DP model: The Capital Budgeting Example – More on the Definition of the State – Examples of DP models and Computations – Problem of Dimensionality in Dynamic Programming – Solution of Linear Programs by Dynamic Programming.

UNIT III

DECISION THEORY AND GAMES:

(18 Hours)

Decisions under Risk – Decision Trees – Decisions under uncertainty – Game Theory.

UNIT IV

INVENTORY MODELS:

(18 Hours)

The ABC Inventory system – A Generalized Inventory Models – Deterministic Models – Probabilistic Models.

UNIT V

NON-LINEAR PROGRAMMING ALGORITHMS:

(18 Hours)

Unconstrained Nonlinear Algorithms – Constrained Nonlinear Algorithms.

Text Book:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	Hamdy A. Taha	Operations Research: An Introduction	Macmillan Publishing Company, 5 th Edition	1992

Chapters and Sections:

Unit	Chapter	Section
I	9	9.1 to 9.5
II	10	10.1 to 10.5
III	12	12.1 to 12.4
IV	14	14.1 to 14.4
V	20	20.1, 20.2 (omit 20.2.4 & 20.2.6)

Reference Books:

S.No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	KantiSwarup, P.K.Gupta and Man Mohan	Operations Research	Sultan Chand & Sons	2010
2	Prem Kumar Gupta and D.S. Hira	Operations Research-An Introduction	S.Chand	2011

Web links

1. <https://nptel.ac.in/courses/112/106/112106131/#>
2. <https://www.youtube.com/watch?v=gxLQ7Q26SkE>
3. <https://www.youtube.com/watch?v=fPIIAevo-4>
4. <https://www.youtube.com/watch?v=fSuqTgnCVRg>
5. <https://www.youtube.com/watch?v=kf8VqBzUodA>
6. <https://www.youtube.com/watch?v=7SBKfVkbGU4>

Pedagogy

Power point presentation, Group Discussion, Seminar, Quiz, Assignment.

FUZZY SETS AND THEIR APPLICATIONS

2019-2020 Onwards

Semester – IV	FUZZY SETS AND THEIR APPLICATIONS	Hours/Week – 6	
Elective Course – IV(B)		Credits – 3	
Course Code – 19PMA4EC4B		Internal 25	External 75

Objectives

- To introduce the concept of fuzzy theory and study its application in real problems.
- To acquire knowledge of the uncertainty environment through the fuzzy sets that incorporates imprecision and subjectivity.
- To provide a good outline of a model formulation and solution process.

Course Outcome

On the Successful completion of the course the student would be able to

CO No.	CO Statement	Knowledge Level
CO1	Explain the basic concepts of Fuzzy set theory.	K2
CO2	Classify the operations on Fuzzy sets and Fuzzy measures and give examples.	K3
CO3	Relate type-2 Fuzzy sets with Fuzzy numbers.	K3
CO4	Compose clear and accurate proofs using the concepts of Fuzzy relations and Fuzzy graphs.	K6
CO5	Develop Fuzzy concepts to compute Fuzzy decision, Fuzzy Linear Programming Program, Dynamic Programming.	K6

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	S	S	S	M
CO2	S	S	S	S	S	M
CO3	S	S	S	S	M	M
CO4	S	S	S	S	S	M
CO5	S	S	S	S	M	M

S-Strong, M-Medium, L-Low

ELECTIVE COURSE – IV (B) (EC)

FUZZY SETS AND THEIR APPLICATIONS

2019-2020 Onwards

UNIT I

INTRODUCTION TO FUZZY SETS:

(18 Hours)

Crispness, Vagueness, Fuzziness, Uncertainty - Fuzzy Set Theory.

FUZZY SETS:

Basic Definitions - Basic Set-Theoretic Operations for Fuzzy Sets.

UNIT II

EXTENSIONS:

(18 Hours)

Types of Fuzzy Sets - Further Operations on Fuzzy Sets - Algebraic Operations - Set-Theoretic Operations.

FUZZY MEASURES AND MEASURES OF FUZZINESS:

Fuzzy Measures - Measures of Fuzziness.

UNIT III

THE EXTENSION PRINCIPLE AND APPLICATIONS:

(18 Hours)

The Extension Principle - Operations for Type-2 Fuzzy Sets - Algebraic Operations with Fuzzy Numbers - Special Extended Operations - Extended Operations for LR-Representation of Fuzzy Sets.

UNIT IV

FUZZY RELATIONS AND FUZZY GRAPHS:

(18 Hours)

Fuzzy Relations on Sets and Fuzzy Sets - Compositions of Fuzzy Relations - Properties of the Min-Max Composition - Fuzzy Graphs - Special Fuzzy Relations.

UNIT V

DECISION MAKING IN FUZZY ENVIRONMENTS:

(18 Hours)

Fuzzy Decisions - Fuzzy Linear Programming - Symmetric Fuzzy LP - Fuzzy LP with Crisp Objective Function - Fuzzy Dynamic Programming.

Text Books:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	H. J. Zimmermann	Fuzzy Set Theory and its Applications, Fourth Edition	Springer(India) Private Limited	2006

Chapters and Sections:

Unit	Chapter	Section
I	1	1.1,1.2
	2	2.1,2.2
II	3	3.1,3.2(OMIT 3.2.3)
	4	4.1,4.2
III	5	5.1-5.3
IV	6	6.1 - 6.3
V	14	14.1-14.3

Reference Books:

S.No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	G.J.Klir and B.Yuan	Fuzzy Sets and Fuzzy Logic	Prentice-Hall of India	1995
2	Kwang H.Lee	First course on Fuzzy theory and Applications	Springer	2005
3	M.Ganesh	Introduction to Fuzzy Sets and Fuzzy Logic	Prentice-Hall of India	2006

Weblink

1. https://youtu.be/rln_kZbYaWc
2. <https://youtu.be/P8wY6mi1vV8>
3. <https://youtu.be/YQY8yGI7xBM>
4. <https://youtu.be/fpojnXFp9dk>
5. <https://youtu.be/oWqXwCEfY78>
6. <https://youtu.be/ZosV61vlZgw>
7. <https://youtu.be/WZVAfLreIwM>

Pedagogy

Power point presentation, Group Discussion, Seminar, Quiz, Assignment.

ELECTIVE COURSE – V (A) (EC)**DIFFERENTIAL GEOMETRY****2019-2020 Onwards**

Semester - IV	DIFFERENTIAL GEOMETRY	Hours/Week – 6	
ELECTIVE COURSE – V (A)		Credits – 3	
Course Code – 19PMA4EC5A		Internal 25	External 75

Objectives

- To equip the students with mathematical methods formatted for their major concepts.
- To introduce the students the notion of surfaces with their properties.
- To study geodesics and differential geometry of surfaces.

Course Outcome

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Define space curves and the concepts of fundamental existence theorem	K2
CO2	Explain the notion of surfaces and their intrinsic properties.	K2
CO3	Ascertain various concepts on geodesics.	K4
CO4	Deduce non intrinsic properties of a surface.	K3
CO5	Classify Differential Geometry of several surfaces.	K3

Mapping with Programme Outcomes

Cos / POs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	M	M	S	S
CO2	S	S	M	M	S	S
CO3	S	S	M	S	S	S
CO4	S	S	S	S	S	S
CO5	S	S	S	M	S	S

S - Strong, M - Medium, L - Low

ELECTIVE COURSE – V (A) (EC)

DIFFERENTIAL GEOMETRY

2019-2020 Onwards

UNIT I

The Theory of Space Curves

(18 Hours)

Introductory remarks about space curves – Definitions – Arc length – Tangent, normal and binormal – Curvature and torsion of a curve given as the intersection of two surfaces – Contact between curves and surfaces – Tangent surface, involutes and evolutes – Intrinsic equations, fundamental existence theorem for space curves – Helices.

UNIT II

The Metric: Local intrinsic properties of a surface

(18 Hours)

Definition of a surface – Curves on a surface – Surfaces of Revolution – Helicoids – Metric – Direction coefficients – Families of curves – Isometric correspondence – Intrinsic properties.

UNIT III

Geodesics

(18 Hours)

Geodesics – Canonical geodesic equations – Normal property of geodesics – Existence theorems – Geodesic parallels – Geodesic curvature – Gauss-Bonnet Theorem – Gaussian curvature – Surfaces of constant curvature.

UNIT IV

The Second Fundamental Form: Local Non-intrinsic properties of a surface (18 Hours)

The Second fundamental form – Principal curvatures – Lines of curvature – Developables – Developables associated with space curves – Developables associated with curves on surfaces.

UNIT V

Differential Geometry of surfaces in the large (18 Hours)

Minimal surfaces – Ruled surfaces – Compact surfaces whose points are umbilics – Hilbert's Lemma – Compact surfaces of constant Gaussian or mean curvature.

Text Book:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	T.J. Willmore	An Introduction to Differential Geometry	Oxford university Press, 21 st Impression	2006

Chapters and Sections:

Unit	Chapter	Section
I	1	1 to 9
II	2	1 to 9
III	2	10 to 18
IV	3	1 to 6
V	3	7 and 8
	4	2 to 4

Reference Books:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	D. Somasundaram	Differential Geometry, A first course	Narosa Publishing House	2010
2	Christian Bar	Elementary Differential Geometry	Cambridge University Press	2011
3	J.A. Thorpe	Elementary topics in Differential Geometry, Under-graduate Texts in Mathematics	Springer-Verlag	1979

Weblink

1. <https://www.youtube.com/watch?v=4fB0VfKZRXM>
2. <https://youtu.be/1HUpNAS81PY?list=PLIijB45xT85DWUifYYGqJVfnkUFWkKtP>
3. <https://youtu.be/J-RgiQca6Q8?list=PLIijB45xT85DWUifYYGqJVfnkUFWkKtP>
4. <https://youtu.be/drOldszOT7I?list=PLIijB45xT85DWUifYYGqJVfnkUFWkKtP>
5. <https://youtu.be/QXrqs5zD2I>
6. <https://youtu.be/zADj0k0waFY>
7. <https://youtu.be/wtpe-y9eqcM>

Pedagogy

Power point presentation, Group Discussion, Seminar, Assignment.

ELECTIVE COURSE – V (B) (EC)**AUTOMATA THEORY****2019-2020 Onwards**

Semester - IV	AUTOMATA THEORY	Hours/Week – 6	
Elective Course – V (B)		Credits – 3	
Course Code – 19PMA4EC5B		Internal 25	External 75

Objectives

- To make the students to understand the nuances of Automata and Grammar.
- To make them to understand the applications of these techniques in Computer science.
- To enable thorough Knowledge in constructing the Regular Expressions.

Course Outcome

On the Successful completion of the course the student would be able to

CO No.	CO Statement	Knowledge Level
CO1	Relate the concepts of Deterministic and Nondeterministic Finite Automata and Grammars.	K3
CO2	Determine the implementation of Lexical analyzers.	K4
CO3	Compare Pushdown Automaton with Context free languages.	K5
CO4	Develop the concepts of Lexical analyzers.	K6

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6
CO1	M	M	S	M	S	S
CO2	M	M	S	M	S	S
CO3	S	S	M	S	M	S
CO4	S	S	M	S	M	S

S-Strong, M-Medium, L-Low

ELECTIVE COURSE – V (B) (EC)

AUTOMATA THEORY

2019-2020 Onwards

**UNIT I FINITE AUTOMATA
AND REGULAR EXPRESSIONS: (18 Hours)**

Finite state systems – Basic definitions – Nondeterministic finite Automata – Finite Automata with ϵ – moves.

UNIT II (18 Hours)

FINITE AUTOMATA AND REGULAR EXPRESSIONS: Regular expressions.

CONTEXT- FREE GRAMMARS: Motivation and introduction – Context-free grammars – Derivation trees – Chomsky normal form – Greibach normal form.

UNIT III

PUSHDOWN AUTOMATA: (18 Hours)

Definitions - Pushdown Automata and Context-free languages.

**UNIT IV FINITE
AUTOMATA AND LEXICAL ANALYSIS: (18Hours)**

The Role of the lexical analyzer – A simple approach to the design of lexical analyzers – Regular expressions – Finite automata.

UNIT V

FINITE AUTOMATA AND LEXICAL ANALYSIS: (18 Hours) From regular expressions to finite automata – Minimizing the number of states of a DFA – A language for specifying lexical analyzers – Implementation of a lexical analyzer.

Text Books:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	John E. Hopcroft and Jeffrey D. Ullman	Introduction to Automata theory, Languages and Computations	Narosa Publishing House Pvt. Ltd	1979
2	Alfred V. Aho and Jeffrey D. Ullman	Principles of Compiler Design	Narosa Publishing House	2002

Chapters and Sections:

Unit	Chapter	Sections
I	2 [1]	2.1 - 2.4
II	2 [1]	2.5
	4 [1]	4.1-4.3, 4.5, 4.6
III	5 [1]	5.2, 5.3
IV	3 [2]	3.1 – 3.4
V	3 [2]	3.5– 3.8

Reference Books:

S.No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	John E. Hopcroft, Rajeev Motwani and Jeffrey D. Ullman	Introduction to Automata Theory, Languages and Computation	Pearson Education	2009
2	Bakhadyr Khoussainov and Anil Nerode	Automata Theory and its Applications	Springer (India) Pvt Ltd	2001

Web links

1. <https://youtu.be/58N2N7zJGrQ>
2. <https://youtu.be/TpIBUeyOuv8>
3. https://youtu.be/Qa6csfkK7_I
4. <https://youtu.be/40i4PKpM0cI>
5. <https://youtu.be/WrzaPNj9OZ4>
6. <https://youtu.be/6aRJONYYz4s>

Pedagogy

Power point presentation, Group Discussion, Seminar, Assignment.

ANNEXURE - N

**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
B.SC., PHYSICS COURSE STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM**

(For the candidates admitted from the academic year 2019-2020 onwards)

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;	19ULT1	6	3	3	25	75	100		
			Story,Novel,Hindi Literature –1 & 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)	Properties of Matter, Waves and Acoustics	19UPH1CC1	6	5	3	25	75	100		
				Core Practical –I (CP)	Physics Practical– I	19UPH1CC1P	3	3	3	40	60	100
				First Allied Course- I (AC)	Mathematics – I	19UPH1AC1	4	3	3	25	75	100
				First Allied Course- II (AC)	Mathematics – II	19UPH1AC2	3	-	-	-	-	-
	IV	Value Education	Value Education	19UGVE	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,Dramma,Hindi Literature -2 & Grammer –II	19ULH2								
			Poetry Textual Grammar&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)	Mechanics & Relativity	19UPH2CC2	6	5	3	25	75	100		
				Core Practical –II (CP)	Physics Practical–II	19UPH2CC2P	3	3	3	40	60	100
				First Allied Course- II (AC)	Mathematics – II	19UPH1AC2	3	3	3	25	75	100
				First Allied Course- III(AC)	Mathematics – III	19UPH2AC3	4	3	3	25	75	100
	IV	Environmental Studies	Environmental Studies	19UGES	2	2	3	25	75	100		
	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																								
			Prose,Textual Grammar & Vakyarachana	19ULS3																								
			Communication in French-III	19ULF3																								
	II	English Language Course-III (ELC)	Writing for General and Specific Purposes-I	19UE3	6	3	3	25	75	100																		
	III	Core Course-III (CC)	Thermal Physics & Statistical Mechanics	19UPH3CC3	6	5	3	25	75	100																		
											Core Practical –III (CP)	Physics Practical-III	19UPH3CC3P	3	3	3	40	60	100									
																				Second Allied Course-I (AC)	Chemistry –I	19UPH3AC4	4	3	3	25	75	100
	IV	Non Major Elective –I For those who studied Tamil Under Part-I a)Basic Tami for other language students. b)Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree program	Troubleshooting of Electrical Appliances	19UPH3NME1	2	2	3	25	75	100																		
Basic Tamil											19ULC3BT1																	
												Special Tamil	19ULC3ST1															
V	Swayam Online Course	Experimental Physics-I	*	12 Weeks	3	*	*	*	*																			
Total					30	22				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&Pharases,Hindi Literature-4	19ULH4																								
			Drama,History of Drama Literature	19ULS4																								
			Communication in French-IV	19ULF4																								
	II	English Language Course –IV (ELC)	Writing for General and Specific Purposes-II	19UE4	6	3	3	25	75	100																		
	III	Core Course-IV (CC)	Electricity, Magnetism and Electro Magnetism	19UPH4CC4	5	5	3	25	75	100																		
											Core Practical –IV (CP)	Physics Practical- IV	19UPH4CC4P	3	3	3	40	60	100									
																				Second Allied Course-I (AP)	Chemistry Practical I	19UPH3AC1P	3	3	3	40	60	100
	IV	Non Major Elective –II For those who studied Tamil Under Part-I a)Basic Tami for other language students. b)Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree program	Audio and Video System	19UPH4NME2	2	2	3	25	75	100																		
											Basic Tamil	19ULC4BT2																
													Special Tamil	19ULC4ST2														
	Skill Based Elective-I	Biomedical Instrumentation	19UPH4SBE1 A	2	2	3	25	75	100																			
										Photography and Videography	19UPH4SBE1 B																	
	V	Swayam Online Course	As per UGC Recommendations	*	*	*	*	*	*	*																		
Total					30	24				800																		

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 Simulation	19UPH5SBE2A	2	2	3	25	75	100	
			Cell Phone Servicing	19UPH5SBE2B							
		Skill Based Elective-III	Web Designing	19UPH5SBE3A	2	2	3	25	75	100	
			Electrical Wiring	19UPH5SBE3B							
	Soft skill Development	Soft Skills Development	19UGSD	2	2	3	25	75	100		
	Total					30	29				800
	VI	III	Core Course-VIII (CC)	Digital Electronics & Microprocessor Fundamentals	19UPH6CC8	6	5	3	25	75	100
Core Course-IX(CC)			Classical and Quantum Physics	19UPH6CC9	6	5	3	25	75	100	
Core Practical- VI (CP)			Physics Practical – VI	19UPH6CC6P	5	3	3	40	60	100	
Major Based Elective-II			Communication Physics	19UPH6MBE2A	5	5	3	25	75	100	
			Computational Physics	19UPH6MBE2B							
Major Based Elective-III			Medical Physics	19UPH6MBE3A	5	5	3	25	75	100	
			Astrophysics and Cosmology	19UPH6MBE3B							
Project		Project	19UPHPW	2	2	-	-	-	100		
IV		Gender studies	Gender Studies	19UGGS	1	1	3	25	75	100	
		Extension Activities	Extension Activities	19UGEA	-	1	-	-	-	-	
Total					30	27				700	
Grand Total					180	143				4200	

Project: 100 Marks

Dissertation: 80 Marks

Viva voce : 20 Marks

Core Papers : 09

Core Practical: 06

List of Allied Courses:

Allied Course I - Mathematics

Allied Course II - Chemistry

List of Skill Based Electives:

Skill Based Elective I – Biomedical Instrumentation/ Photography and Videography

Skill Based Elective II – Physics concepts through simulation/ Cell Phone Servicing

Skill Based Elective III – Web Designing/ Electrical Wiring

List of Major Based Electives:

MBE I - Material Science/Laser Physics

MBE II - Communication Physics/Computational Physics

MBE III - Medical Physics/Astrophysics and Cosmology

Swayam Online Course: Semester III- Experimental Physics-I (Credits-3)

(For the candidates admitted from the academic year 2020-2021 onwards)

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;	19ULT1	6	3	3	25	75	100
			Story,Novel,Hindi Literature -1 & 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)	Properties of Matter, Waves and Acoustics	19UPH1CC1	6	5	3	25	75	100
		Core Practical –I (CP)	Physics Practical– I	19UPH1CC1P	3	3	3	40	60	100
		First Allied Course- I (AC)	Mathematics – I	19UPH1AC1	4	3	3	25	75	100
		First Allied Course- II (AC)	Mathematics – II	19UPH1AC2	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,Dramma,Hindi Literature -2 & Grammer –II	19ULH2						
			Poetry Textual Grammar&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)	Mechanics & Relativity	19UPH2CC2	6	5	3	25	75	100
		Core Practical –II (CP)	Physics Practical–II	19UPH2CC2P	3	3	3	40	60	100
		First Allied Course- II (AC)	Mathematics – II	19UPH1AC2	3	3	3	25	75	100
		First Allied Course- III(AC)	Mathematics – III	19UPH2AC3	4	3	3	25	75	100
	IV	Environmental Studies	Environmental Studies	19UGES	2	2	3	25	75	100
	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								
			Prose,Textual Grammar & Vakyarachana	19ULS3								
			Communication in French-III	19ULF3								
	II	English Language Course-III (ELC)	Writing for General and Specific Purposes-I	19UE3	6	3	3	25	75	100		
	III	Core Course-III (CC)	Thermal Physics & Statistical Mechanics	19UPH3CC3	6	5	3	25	75	100		
				Core Practical –III (CP)	Physics Practical-III	19UPH3CC3P	3	3	3	40	60	100
				Second Allied Course-I (AC)	Chemistry –I	19UPH3AC4	4	3	3	25	75	100
				Second Allied Course-I (AP)	Chemistry Practical I	19UPH3AC1P	3	-	-	-	-	-
	IV	Non Major Elective –I For those who studied Tamil Under Part-I a)Basic Tami for other language students. b)Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree program	Troubleshooting of Electrical Appliances	19UPH3NME1	2	2	3	25	75	100		
Basic Tamil				19ULC3BT1								
Special Tamil				19ULC3ST1								
V	Swayam Online Course	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&Pharases,Hindi Literature-4	19ULH4								
			Drama,History of Drama Literature	19ULS4								
			Communication in French-IV	19ULF4								
	II	English Language Course –IV (ELC)	Writing for General and Specific Purposes-II	19UE4	6	3	3	25	75	100		
	III	Core Course-IV (CC)	Electricity, Magnetism and Electro Magnetism	19UPH4CC4	5	5	3	25	75	100		
				Core Practical –IV (CP)	Physics Practical- IV	19UPH4CC4P	3	3	3	40	60	100
				Second Allied Course-I (AP)	Chemistry Practical I	19UPH3AC1P	3	3	3	40	60	100
				Second Allied Course-II (AC)	Chemistry –II	19UPH4AC5	3	3	3	25	75	100
	IV	Non Major Elective –II For those who studied Tamil Under Part-I a)Basic Tami for other language students. b)Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree program	Audio and Video Signal Processing	19UPH4NME2	2	2	3	25	75	100		
				Basic Tamil	19ULC4BT2							
				Special Tamil	19ULC4ST2							
	Skill Based Elective-I	Biomedical Instrumentation	19UPH4SBE1A	2	2	3	25	75	100			
			Photography and Videography	19UPH4SBE1B								
	V	Swayam Online Course	As per UGC Recommendations	*	*	*	*	*	*			
Total					30	24				800		

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	Material Science	19UPH5MBE1A	5	5	3	25	75	100	
	Laser Physics		19UPH5MBE1B								
	IV	Skill Based Elective-II	Physics concepts through simulation	19UPH5SBE2A	2	2	3	25	75	100	
			Cell Phone Servicing	19UPH5SBE2B							
		Skill Based Elective-III	Web Designing	19UPH5SBE3A	2	2	3	25	75	100	
			Electrical Wiring	19UPH5SBE3B							
		Soft skill Development	Soft Skills Development	19UGSD	2	2	3	25	75	100	
		Total				30	29				800
	VI	III	Core Course-VIII (CC)	Digital Electronics & Microprocessor Fundamentals	19UPH6CC8	6	5	3	25	75	100
Core Course-IX(CC)			Classical and Quantum Physics	19UPH6CC9	6	5	3	25	75	100	
Core Practical- VI (CP)			Physics Practical – VI	19UPH6CC6P	5	3	3	40	60	100	
Major Based Elective-II			Communication Physics	19UPH6MBE2A	5	5	3	25	75	100	
			Computational Physics	19UPH6MBE2B							
Major Based Elective-III			Medical Physics	19UPH6MBE3A	5	5	3	25	75	100	
			Astrophysics and Cosmology	19UPH6MBE3B							
Project		Project	19UPHPW	2	2	-	-	-	100		
IV		Gender studies	Gender Studies	19UGGS	1	1	3	25	75	100	
		Extension Activities	Extension Activities	19UGEA	-	1	-	-	-	-	
	Total				30	27				700	
Grand Total					180	140				4200	

Project: 100 Marks

Dissertation: 80 Marks

Viva voce : 20 Marks

Core Papers : 09

Core Practical: 06

List of Allied Courses:

Allied Course I - Mathematics

Allied Course II - Chemistry

List of Skill Based Electives:

Skill Based Elective I – Biomedical Instrumentation/ Photography and Videography

Skill Based Elective II – Physics concepts through simulation/ Cell Phone Servicing

Skill Based Elective III – Web Designing/ Electrical Wiring

List of Major Based Electives:

MBE I - Material Science/Laser Physics

MBE II - Communication Physics/Computational Physics

MBE III - Medical Physics/Astrophysics and Cosmology

Swayam Online Course: Extra Credit Course

SEMESTER IV

Semester-IV	ELECTRICITY , MAGNETISM AND ELECTROMAGNETISM	Hours/Week-5	
Core Course - IV		Credits-5	
Course Code-19UPH4CC4		Internal 25	External 75

Objectives

- To develop knowledge in electrostatics and magneto statics so that students would apply theories of static and moving charges.
- To extend the understanding of its applications to instruments involving electric and magnetic fields.

Course Outcomes

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

CO Number	CO Statement	Knowledge level
CO1	Demonstrate a mastery of Coulomb's law for the electric field, and apply it to systems of point charges. Use the principle of superposition and law of Gauss to calculate the electrical forces and the intensity of the electric field in various electricity problems	K2
CO2	Understand the implications of Kirchhoff's rules . To calculate the magnetic forces that act on moving charges and the magnetic fields due to currents	K2
CO3	Identify the laws of magneto statics and the various properties of magnetic materials	K3
CO4	Build up strong problem solving skills by effectively formulate a circuit problem using Inductance, Resistance and capacitance.	K3
CO5	Develop the understanding of Dynamo and DC Motor using magnetization principle.	K3

Mapping with programme outcomes

Cos	PO1	PO2	PO3	PO4
CO1	S	S	M	M
CO2	S	M	M	M
CO3	S	M	L	M
CO4	S	M	L	M
CO5	S	M	L	S

S – Strong; M – Medium; L – Low

Unit - I: Electrostatics**15hrs**

Point charge - Rest charge - charge distributions - coulomb's law - vector form - Principle of superposition - Gauss's Law and its applications - Electric Field due to a uniformly charged sphere, -hollow cylinder -solid cylinder)– Electric Potential – Potential at a point due to a uniformly charged conducting sphere – Principle of a capacitor– Capacity of a spherical and cylindrical capacitors – Energy stored in a charged capacitor–Loss of energy on sharing of charges between two capacitors.

Unit - II: Current Electricity**15hrs**

Current and current density - equation of continuity - combination of resistance star and Delta transformations - grouping of cells - Ampere's circuital law and its applications - Field along the axis of a circular coil and Solenoid – Theory of Ballistic Galvanometer – Figure of merit – Damping Correction - Kirchhoff's laws - Wheatstone Bridge - Carry - Foster's Bridge- Potentiometer Calibration of ammeter and voltmeter- Comparison of resistance and capacitance.

Unit - II: Magneto statics**15hrs**

Biot-Savart's law & its applications- straight conductor, circular coil, solenoid carrying current. Divergence and curl of magnetic field. Magnetic vector potential. Ampere's circuital law. Intensity of magnetization - Susceptibility – Types of magnetic materials – Properties Para, dia and ferro magnetic materials – Cycle of magnetization – Hysteresis – B-H curve – application of BH curve– Magnetic energy per unit volume

Unit - IV: Electro Magnetic Induction**15hrs**

Laws of electromagnetic induction– Self and mutual induction– Self-inductance of a solenoid– Mutual inductance of a pair of solenoids–Coefficient of coupling– Experimental determination of self (Rayleigh's method) and mutual inductance– Growth and decay of current in a circuit containing L and R–Growth and decay of charge in a circuit containing C and R– Measurement of High resistance by leakage.

Unit V: AC Circuits**15hrs**

Alternating EMF applied to series circuits containing LC, LR and CR– Alternating EMF applied to circuits containing L, C and R–Series and Parallel resonance circuits– Sharpness of resonance–Q factor– Comparison between Series and Parallel resonant circuits –Power in AC circuits (R, L-R, L-C-R only) – Power factor– Wattless current – Choke Coil – Transformer – Uses of Transformers – Skin Effect.

S.No	Authors	Title of the book	Year of Publication	Publishers	Edition
1	Brijlal and Subramaniam	Electricity and Magnetism	1990	S.Chand& Co.	18th edition
2	R.Murugesan	Electricity and Magnetism	2013	S.Chand& Co.	5 th edition
3	Sehgal - Chopra - Sehgal	Electricity and magnetism	2004	Sultan Chand and Sons Ltd,	6 th edition

Reference books

S.No	Authors	Title of the book	Year of Publication	Publishers	Edition
1	K K.Tewari	Electricity and magnetism	2007	S. Chand & Co. Ltd., NewDelhi	3 rd edition

Pedagogy:

Lecture, Seminar, Assignment, Power point Presentation, Animation video and Quiz

Course Designer:

Dr.R.Gayathri

Semester-IV	PHYSICS PRACTICAL- IV	Hours/Week-3	
Core Practical - IV		Credits-3	
Course Code-19UPH4CC4P		Internal 40	External 60

Objectives

- To introduce the various method of experimental physics
- To gain the knowledge of physics principles
- To impart the creative skills among the industrial applications

Course Outcomes

On the successful completion of the course,the student will be able to

CO Number	CO Statement	Knowledge Level
CO1	Recall the principles of Wheatstone bridge and apply with P.O box.	K1
CO2	Understand the experimental knowledge of Potentiometer and its applications	K2
CO3	Apply the theoretical ideas of Ballistic Galvanometer	K3
CO4	Understand the applications of Spectrometer.	K2
CO5	Develop the understanding of resonance circuits	K3

Mapping with program outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	S	S	M
CO3	S	S	M	M	M

List of experiments

1. P.O.Box – Temperature coefficient.
2. Carey Foster’s Bridge – R and p
3. Spectrometer i-d curve
4. Potentiometer – Temperature coefficient of R
5. Spectrometer – Grating – Normal incidence
6. Potentiometer – x of thermistor.
7. Potentiometer – High range voltmeter calibration.
8. Series and Parallel resonance circuits
9. Ballistic Galvanometer – Figure of merit.
10. B.G. – Absolute capacity of condenser.

Text Books

S.No	Authors	Title of the book	Publishers	Year of publication	Edition
1.	Dr.S.Somasundaram	Practical Physics	Apsara publications, Tiruchirappalli	2012	Revised
2.	R. Sasikumar	Practical Physics	PHI Learning Pvt. Ltd, New Delhi	2011	Revised

Reference Books

S.No	Authors	Title of the book	Publishers	Year of publication	Edition
1.	S.Srinivasan	A Text Book of Practical physics	S.Sultanch and publications	2001	Revised edition
2.	Department of Physics	Practical Physics,	St.Joseph's College, Tiruchirapalli	2011	Revised edition

Pedagogy

Demonstration and practical sessions

Course Designer

Dr R. Meenakshi

Semester-IV	AUDIO AND VIDEO SYSTEM	Hours/Week-2	
Non Major Elective - II		Credits-2	
Course Code-19UPH4NME2		Internal 25	External 75

Objectives

- The state of the art in Audio and Video system will enable the students to comprehend concepts of modern electronic system.
- The knowledge acquired by students will help them to become familiar with concepts of audio and video systems.

Course Outcomes

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

CO number	CO Statement	Knowledge Level
CO 1	Describing the basic idea in audio and video.	K1
CO 2	Identifying the audio devices.	K2
CO 3	Identifying the types of signals, correction in signals and know the transmission techniques.	K2
CO 4	Understanding the video section fundamentals.	K2
CO 5	Understanding the Gain and noise cancelling.	K2

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4
CO1	S	L	L	M
CO2	S	L	L	M
CO3	S	L	L	M
CO4	S	L	L	M
CO5	S	L	L	M

S – Strong; M – Medium; L – Low

Syllabus

UNIT I: Characteristics of Sound**6hrs**

Nature of Sound - Pressure and Intensity of sound waves - Sensitivity of human ear for sound Frequency of Sound waves-Resonance effect in sound systems-Helmholtz resonator-Reflection and diffraction of sound waves.

UNIT II: Audio Devices**8 hrs**

Microphones: Introduction-Characteristics of a Microphone - Requisites of a Good Microphone- Moving Coil Microphone-Ribbon Microphone-Carbon Microphone-Comparisons of Various Types of Microphones- Precautions while Using Microphones.

Loudspeakers: Characteristics of Loudspeakers-Moving Coil Cone Type Loudspeaker- Electrodynamic Loudspeaker.

UNIT III: Digital Transmission And Coding Techniques**5 hrs**

Introduction-Return to Zero and Non-Return to Zero- Unipolar and Bipolar Signals- ASK Format-PSK Format-FSK Format.

UNIT IV: Video Section Fundamentals**5 hrs**

Picture Reproduction - Video amplifier Requirements - Video amplifiers - Basic Video Amplifier Operation.

UNIT V: Automatic Gain Control and Noise Cancelling Circuits**6 hrs**

Advantages of AGC-Types of AGC-Variou AGC Systems-Peak AGC Systems- Keyed AGC Systems-Delayed AGC Systems- AGC adjustments- Noise cancellation.

S.No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	N Subrahmanyam & Brijlal	A Text book of Sound	Vikas Publication House	2018	2 nd
2.	R.L.Saighal	A Text book of Sound	S.Chand & Co	2005	Revised Edition
3.	V.K. Meta Rohit Meta	Principles of electronics	S.Chand & Co	1995	Revised Edition
4.	R.R.Gulati	Monochrome And Colour Television	New Age International	1983	Reprint, 2001

Reference

S.No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	R.G.Gupta	Audio and Video Systems	Mc Graw Hill Education Limited	2011	2 nd

Pedagogy:

Chalk and talk, Assignment, power point presentation

Course Designer:

Ms. R.A.KIRUTHIKA

Semester-IV	BIOMEDICAL INSTRUMENTATION	Hours/Week-2	
Skill Based Elective - I		Credits-2	
Course Code-19UPH4SBE1A		Internal 25	External 75

Objectives

- To provide fundamental ideas of Biomedical instrumentation
- To acquire knowledge in medical imaging systems

Course Outcomes

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

CO number	CO Statement	Knowledge Level
CO 1	Tell the fundamental principle and working of the biomedical instruments system	K1
CO 2	Explain about types of electrodes	K2
CO 3	Illustrate about Instrumentation recording and monitoring.	K2
CO 4	utilize knowledge in electrical safety in medical environment	K3
CO 5	outline the basic principles in imaging techniques	K2

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	M	S
CO2	M	S	M	M	M
CO3	S	M	S	M	S
CO4	M	M	M	S	M
CO5	M	M	S	M	S

S – Strong; **M** – Medium; **L** – Low

Syllabus

UNIT I: Fundamentals of Medical Instrumentation

6 hrs

Role of Technology in Medicine – Basic medical instrumentation system – Performance requirements of medical instrumentation systems – PC-based medical instruments – Consumer and portable medical equipment – Micro-Electro-Mechanical Systems (MEMS) – General constraints in design of medical instrumentation systems.

UNIT II: Electrodes and Transducers

6hrs

Origin of Bioelectric signals – ECG – EEG – EMG – Limb electrodes – Floating electrodes – Pregelled disposable electrodes – Electrodes for EEG and EMG – Micro electrodes – Transducer – Classification of Transducers (basic ideas only)

UNIT III: Biomedical Recorder and Foetal Monitoring Instruments

6 hrs

Electrocardiograph – Block diagram description of an Electrocardiograph – The ECG leads – Effects of artefacts on ECG recordings – Major challenges in Electrocardiograph design – Multi-channel ECG machine – Cardiotocograph – Medical Ultrasound – Basic Pulse-Echo apparatus

UNIT IV: Patient Safety

6 hrs

Electric shock hazards – Gross shock – Effects of electric current on the human body – Microcurrent shock – Leakage currents – Types of leakage current – Precautions to minimize electric hazards – Testing of biomedical equipment

UNIT V: Modern Imaging Systems

6hrs

Computed Tomography – Basic principle – Contrast scale – Magnetic Resonance Imaging (MRI) system – Basic NMR components – Biological effect of NMR imaging – Advantages of NMR imaging system

Textbooks

S.No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	R.S.Khandpur	Handbook of Biomedical Instrumentation	McGraw Hill Education	2014	3 rd

Reference

S.No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Leslie Cromwell, Fred J. Weibell, Erich Pfeiffer A	Biomedical Instrumentation and Measurement	Prentice hall of India	1997	2 nd
2.	M.Arumugam	Bio-Medical Instrumentation	Anuradha Agencies	2003	-

Pedagogy:

Chalk and talk, Assignment, power point presentation

Course Designer:

Ms. N.Manopradha

Semester-IV	PHOTOGRAPHY AND VIDEOGRAPHY	Hours/Week-2	
Skill Based Elective - I		Credits-2	
Course Code-19UPH4SBE1B		Internal 25	External 75

Objectives

- To acquire knowledge in modern cameras, and find a recommendation for which one you should buy, if you are in the market for one.
- To provide fundamental ideas about camera lenses, exposure, and lighting

Course Outcomes

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

CO number	CO Statement	Knowledge Level
CO 1	Knowledge and skills in the use of basic tools, techniques, technologies and able to acquaint with basic camera operations.	K1
CO 2	Understanding of special features and utility purposes of various types of lenses and able to choose an appropriate lens for the job concerned	K1
CO 3	Demonstrate uses of cameras and lighting/digital technologies.	K2
CO 4	Utilize the concept of correct exposure and identify correct and incorrect exposure in photographs.	K3
CO 5	Apply understanding of aesthetics related to shooting and editing.	K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	M
CO2	M	S	M	M	M
CO3	M	M	S	M	S
CO4	M	M	M	S	S
CO5	M	M	S	S	S

S – Strong; M – Medium; L – Low

Syllabus

UNIT I: Introduction

3 hrs

Digital Photography – Advantages and Disadvantages – SLR – Aperture – Shutter Speed – ISO Sensitivity

UNIT II: Lenses

6hrs

Specialized Lenses – Telephoto Lens – Wide-Angle Lens – Lens Multiplication Factor - Zoom Lens – Prime Lens –

Macro (or Close-Up) Lens – Fish-Eye Lens – Tilt And Shift Lenses

UNIT III: Composing the Picture: Light, Framing, Focus

9 hrs

Composing the Picture – Lighting – Framing – Focus – Downloading and Storing Your Photos

UNIT IV: Shooting video with DSLR

6 hrs

Fundamentals of the shoot – Exposure – Keeping the camera steady – Shooting to edit – Shooting Just Enough

Variations – Watching and Learning from the Movies – Varying Focal Length – Mastering Shot Structure –

Maintaining continuity between shots

UNIT V: Getting Creative with Shoot

6hrs

Controlling Aperture for Effect – Finding the Best Angle – Using Camera Filters – Tooling with Camera Effects –

Using Time-Lapse Photography

Textbooks

S.No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Brian Black	DSLR Photography for Beginners	Independently Published	2013	1 st
2.	John Carucci	Digital SLR Video & Filmmaking for Dummies	John Wiley & Sons, Inc.	2013	-

Reference

S.No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Tom Clark	Digital Photography Composition for Dummies	John Wiley & Sons, Inc.	2011	-

Pedagogy:

Chalk and talk, Assignment, power point presentation

Course Designer:

Ms. N.Manopradha

M.Sc Physics Syllabus (2019-2021)

M.Sc (PHYSICS)

PROGRAMME OUTCOMES

PO1: To intensify the student's academic capability, unique qualities and transferable skills which will give them an opportunity to evolve as responsible citizens.

PO2: To interpret the laws hypothesis and basic concept in Physics.

PO3: To apply the concept based problem - solving approach in various field of Physics

PO4: To excel in research and development

PO5: To apply the theories and skills acquired to solve the existing problem.

PROGRAMME EDUCATIONAL OBJECTIVES

PEO1: To empower the students with an aptitude for creative learning and multiple learning, independent thinking and synergetic action that will equip them to meet the global challenges.

PEO2: To ignite the research thrust among the students.

PEO3: To acquire placement in various educational institutions, software companies and research laboratories

PEO4: To enhance the students with analytical skills for the sustainable development of the nation

**CAUVERY COLEGE FOR WOMEN (AUTONOMOUS)
M.SC PHYSICS COURSE STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2019-2020)**

Sem	Course	Title	Course Code	Ins. Hrs / Week	Credit	Exam Hrs	Marks	
							Int	Ext
I	Core course -I	Mathematical Physics	19PPH1CC1	6	4	3	25	75
	Core course -II	Classical Dynamics and Relativity	19PPH1CC2	5	4	3	25	75
	Core course -III	Electronics	19PPH1CC3	5	4	3	25	75
	Core course -IV	Quantum Mechanics-I	19PPH1CC4	6	4	3	25	75
	Core Practical -I	Physics Practical – I (General and Electronics)	19PPH1CC1P	8	4	3	40	60
	TOTAL				30	20	-	-
II	Core course -V	Electromagnetic Theory	19PPH2CC5	6	5	3	25	75
	Core course –VI	Quantum Mechanics – II	19PPH2CC6	6	5	3	25	75
	Core Practical -II	Physics Practical – II (Microprocessor and C++ Programming)	19PPH2CC2P	8	4	3	40	60
	Elective Course -I	Microprocessor and Microcontroller	19PPH2EC1A	5	5	3	25	75
		Non- Destructive Evaluation Techniques	19PPH2EC1B					
	Elective Course -II	Numerical Methods and C++ programming	19PPH2EC2A	5	5	3	25	75
		Biomechanics and BioPhysics	19PPH2EC2B					
TOTAL				30	24	-	-	-
III	Core course –VII	Statistical Mechanics	19PPH3CC7	6	5	3	25	75
	Core course –VIII	Solid State Physics	19PPH3CC8	6	5	3	25	75
	Core course –IX	Physics for competitive examinations	19PPH3CC9	5	5	3	25	75
	SWAYAM COURSE	Semiconductor Optoelectronics	noc20-ph24	12 weeks	3	-	25	75
	Core Practical -III	Physics Practical – III (General and Electronics)	19PPH3CC3P	8	4	3	40	60
	Elective Course -III	Crystal Growth and Thin Film Physics	19PPH3EC3A	5	5	3	25	75
		Material Characterization and Measurement Techniques	19PPH3EC3B					
TOTAL				30	27	-	-	-
IV	Core course –X	Nuclear and Particle Physics	19PPH4CC10	5	5	3	25	75
	Core Practical -IV	Physics Practical – IV (Electronics)	19PPH4CC4P	8	4	3	40	60
	Elective Course -IV	Nonlinear Optics	19PPH4EC4A	5	5	3	25	75
		Space Physics	19PPH4EC4B					

Elective Course -V	Nanophysics	19PPH4EC5A	5	4	3	25	75
	Astrophysics	19PPH4EC5B					
	Project	19PPH4PW	7	4	-	-	-
TOTAL			30	22	-	-	-
TOTAL			120	93	-	-	-

Project : 100 Marks

Dissertation : 80 Marks

Viva Voice : 20 Marks

Core Papers - 10

Core Practical - 4

Elective Papers - 5

Project - 1

Note:

1. Theory Internal 25 marks External 75 marks

2. Practical ” 40 marks ” 60 marks

3. Separate passing minimum is prescribed for Internal and External

a) The passing minimum for CIA shall be 40% out of 25 marks (i.e. 10 marks)

b) The passing minimum for University Examinations shall be 40% out of 75 marks (i.e. 30 marks)

c) The passing minimum not less than 50% in the aggregate.

SEMESTER IV

Semester - IV	Internal Marks : 25	External Marks : 75				
Course Code	Course Title	Category	L	T	P	Credit
19PPH4CC10	NUCLEAR AND PARTICLE PHYSICS	CC - X	75	5	-	5

Objectives

- To demonstrate knowledge and understanding of the fundamental concepts of nuclear physics
- To learn the basics of nuclear models and elementary particles

Course Outcomes

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

CO Number	CO statement	Knowledge Level
CO 1	Outline the models of nucleus	K2
CO 2	Explain the properties of elementary particles	K2
CO 3	Analyze the nuclear radioactivity and reactions	K4
CO 4	Estimate the different kind of reactors	K5
CO 5	Determine the classification of elementary particles	K5

Mapping with programme outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO 1	S	S	M	M	M
CO 2	S	M	S	S	S
CO 3	S	S	S	S	M
CO 4	S	M	S	S	S
CO 5	S	S	S	S	S

S – Strong; M – Medium; L – Low

Syllabus

UNIT – I: BASIC PROPERTIES OF NUCLEUS

15 hrs

Nuclear mass and binding energy - atomic masses - systematics of nuclear binding energy - nuclear size - spin and parity - statistics of nucleus – magnetic dipole moment - electric moments - electric quadrupole moments - isospin - nuclear forces - ground state of the deuteron - wave equation for the deuteron and solution - low energy proton neutron scattering - spin dependence of n-p interaction - charge symmetry – charge independence – repulsion at short distances – exchange forces – meson theory.

UNIT – II: NUCLEAR DECAY AND RADIOACTIVITY

20 hrs

Theory of alpha disintegration-Geiger-Nuttal law – Gamow theory- neutrino hypothesis - Fermi theory of beta decay - selection rules -Sargent diagram - orbital electron capture-non conservation of -parity - double beta decay – gamma ray spectra and nuclear energy level - radio active transition in nuclei - Nuclear isomerism - internal conversion - resonance fluorescence - angular correlation.Gamma ray spectroscopy – Mossbauer effect- Interaction of charged particles and X-rays with matter – Types and basic principles of particle detectors.

UNIT – III: NUCLEAR REACTIONS AND NUCLEAR MODELS

15 hrs

Types of nuclear reactions - conservation laws - reaction energetics – Q value - threshold energy- nuclear reaction cross section - level width - compound nuclear theory -Reciprocity theorem – Breit-Wigner formula – Resonance theory – Liquid drop model – Shell model -- Evidences for shell model -- Magic numbers - Harmonic oscillator – Square-well potential -- Spin-orbit interaction – Collective model of a nucleus.

UNIT – IV: FISSION AND FUSION REACTORS

10 hrs

Characteristics of fission – Mass distribution of fragments – Radioactive decay processes – Fission cross-section – Energy in fission – Bohr-Wheeler’s theory of nuclear fission – Fission reactors – Thermal reactors – Homogeneous reactors – Heterogeneous reactors – Basic fusion processes -- Characteristics of fusion –Solar fusion – Controlled fusion reactors.

UNIT – V: PARTICLE PHYSICS

15 hrs

Production of new particles in high energy reaction- classification of elementary particle -fundamental interaction - quantum numbers - anti particles - resonances - law in production anddecay process - symmetry and conservation laws -special symmetric groups –Gelman Neeman theory - Quark model – SU(3) symmetry - unification of fundamental interactions - CPT invariance and applications of symmetry arguments to particle reaction, parity non conservation in weak interaction.

Textbooks

S. No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1	K. S. Krane	Introductory of Nuclear Physics	John-Wiley, New York.	1987	Revised
2	S. B. Patel	Nuclear Physics: An Introduction	New Age, New Delhi.	2009	Revised
3	D. C. Cheng and G. K. O'Neill	Elementary Particle Physics: An Introduction	Addison-Wesley, New York.	1979	Revised
4	D.C. Tayal	Nuclear Physics	Himalaya House, New Delhi	2011	Revised
5	S.L. Kakani and S. Kakani	Nuclear and Particle Physics	Anshan Publication, New Delhi.	2009	Revised

Reference books

S. No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1	R.C. Sharma	Nuclear Physics	K. Nath and Co, Meerut.	2004	Revised
2	B. L. Cohen	Concepts of Nuclear Physics	Tata McGraw Hill, New Delhi.	1988	Revised

Pedagogy

Lecture, Seminar, Assignment, Power Point Presentation

Course Designer

Dr. V. Chithika Ruby and Ms. M. Kavimani

Semester - IV	Internal Marks : 40	External Marks : 60				
Course Code	Course Title	Category	L	T	P	Credit
19PPH4CC4P	CORE PRACTICAL IV PHYSICS PRACTICALS -IV (ELECTRONICS)	CP-IV	-	-	120	4

Objectives

- To understand the different types electronic devices.
- To acquire knowledge about combinational logic circuits.

Course Outcome

After successive completion of the course student will be able to,

CO Number	CO Statement	Knowledge level
CO 1	Acquire basic knowledge of digital logic levels and its application.	K2
CO 2	Analyse and construct combinational logic circuits	K4
CO 3	Demonstrate practical skills in functioning and testing the digital system.	K5
CO 4	Take projects in electronics relevant to industrials.	K6

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	M	M
CO2	S	M	S	M	M
CO3	S	M	S	M	S
CO4	M	M	S	S	S

S – Strong; M – Medium; L - Low

LIST OF EXPERIMENTS

1. Verification of Demorgan's theorems and Boolean expressions.
2. FET amplifier (CD and CS Configuration)
3. Phase Shift Oscillator using IC 741.
4. Digital to Analog converter (R-2R and Weighted method)
5. Study the function of Multiplexer and Demultiplexer
6. Study the function of Encoder and Decoder.
7. Study the function of Flip Flops.
8. Half Adder and Full Adder using only NAND& NOR Gates.
9. Half Subtractor and Full Subtractor using only NAND& NOR Gates.
10. BCD to Seven segment display.
11. Characteristics of LED and Photodiode.
12. Design and study of Schmitt trigger using IC 555.

Text books

S.NO	Author Name	Year of Publication	Title of the book	Publisher Name
1	C.C. Ouseph, U.J. Rao, V.Vijayendran	May 30, 2009	Practical Physics and Electronics	S.Viswanathan, Printers & Publishers Pvt Ltd
2	Dr.S.Somasundaram	2012	Practical Physics	Apsara Publications
3	Department of Physics, St.Joseph's College.		Practical Physics,(M.sc)	

Pedagogy

Demonstration and Practical sessions

Course Designer

Ms.D.Devi

Semester - IV	Internal Marks : 25	External Marks : 75				
COURSE CODE	Course Title	CATEGORY	L	T	P	CREDIT
19PPH4EC4A	NONLINEAR OPTICS	EC-IV	75	5	-	4

Objectives

- To develop the underlying concepts from the perspectives of classical electrodynamics and advanced quantum mechanics.
- To understand nonlinear phenomena from the fundamental perspective of quantum mechanics.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Explain sources and propagation of optical electromagnetic waves.	K2
CO2	Illustrate nonlinear phenomena from the fundamental perspective of quantum mechanics.	K2
CO3	Develop a detailed physical and mathematical understanding of a variety of systems and processes in a range of advanced topics in physics	K3
CO4	Analyze basic concepts and applications effectively.	K4
CO5	Appraise the ability to perform research and development projects using advanced theoretical and experimental skills and tools.	K5

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	M
CO2	S	S	M	M	M
CO3	M	S	S	M	M
CO4	M	M	S	S	M
CO5	M	M	S	S	S

S – Strong; M – Medium; L - Low

Syllabus

UNIT I: The Nonlinear Optical Susceptibility

15 hrs

Introduction to Nonlinear Optics – Description of Nonlinear Optical Processes –Second- Harmonic Generation – Sum- and difference- frequency generation – Sum- frequency generation – Difference- frequency generation – Optical parametric oscillation – Third-order nonlinear optical processes – Third-Harmonic generation – Intensity dependent Refractive Index

UNIT II: Wave-Equation Description of Nonlinear Optical Interactions

15 hrs

The wave equation for nonlinear optical media – The coupled-wave equation for Sum-Frequency generation – phase matching – Quasi-phase-matching – The Manley-Rowe relations – Sum-Frequency generation.

UNIT III: Second-Order Optical Nonlinearities

15 hrs

Second-harmonic generation –difference-frequency generation and parametric amplification – Optical parametric oscillators – Nonlinear optical interactions with focused Gaussian beams – Nonlinear optics at an Interface

UNIT IV: Third-Order Optical Nonlinearities

15 hrs

Third harmonic generation –Optical Kerr effect - Self Phase modulation – Self focusing – Spatial solitons – Raman Gain – Four wave mixing – Degenerate four-wave mixing as a form of Real-time holography – Use of phase conjugators in wave restoration

UNIT V: Applications

15 hrs

Optical Solitons – Differential equation for the wave envelope – Solitons – Soliton lasers – Optical Phase Conjugation – Optical bistability – Optical switching

Textbooks

S.No.	Author Name	Title of the book	Publisher Name	Year of Publication	Edition
1.	Robert W Boyd	Nonlinear Optics	Academic Press	2015	3 rd
2.	N. Bloembergen	Nonlinear Optics	World Scientific Pub Co Inc	1996	4 th

Reference books

S.No.	Author Name	Title of the book	Publisher Name	Year of Publication	Edition
1.	Shanmuganathan Rajasekar, Juan C Vallejo	Nonlinear Resonances	Springer International Publishing	2016	1 st
2.	Y Guo, C K Kao, E.H.Li, K. S.Chiang	Nonlinear Photonics	Springer	2002	1 st
3.	Y R Shen	Principles of Nonlinear Optics	Wiley-Interscience	2002	1 st
4.	H S Nalwa and S Miyata	Nonlinear Optics of Organic Molecules and Polymers	CRC Press	1997	1 st
5.	RA Fischer	Optical Phase Conjugation	Academic Press	1983	1 st
6.	A Yariv	Quantum Electronics	John Wiley & Sons	1989	3 rd
7.	Richard L. Sutherland	Handbook of Nonlinear Optics	CRC Press	2003	2 nd

Pedagogy

Chalk and talk, Assignment, power point presentation, Group discussion, Seminar

Course Designers:

1. Ms.D.Devi
2. Ms.N.Manopradha

Semester - IV	Internal Marks : 25	External Marks : 75				
Course Code	Course Title	Category	L	T	P	Credit
19PPH4EC4B	SPACE PHYSICS	EC-IV	75	5	-	5

Objectives

- To develop the underlying concepts of solar system and planetary atmospheres.
- To understand quantitative behaviour of different space physics phenomena using various analysis method

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Explain principal environments of the solar system.	K2
CO2	Illustrate the physical theories that control the qualitative properties of different space plasma phenomena.	K2
CO3	Develop an understanding of how space physics has a practical impact on everyday life in the field of space weather.	K3
CO4	Calculate the quantitative behaviour of different space physics phenomena using various analysis method.	K4
CO5	Identify ways in which experimental studies of space physics phenomena have advanced our understanding of basic plasma physics in the field of research.	K5

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	M
CO2	S	S	M	M	L
CO3	M	S	S	M	S
CO4	M	M	S	S	M
CO5	M	M	S	S	M

S – Strong; M – Medium; L – Low

Syllabus

UNIT I: Sun and Planetary System

15 hrs

Solar atmosphere-Solar corona-Solar Electromagnetic radiation-Solar cycles and solar variability-Solar Energetic particles-Magnetic field energy-Planetary exploration-Characteristics of the planets-Bulk atmospheric composition-Planetary magnetic fields.

UNIT II: Solar wind interaction with planets

15 hrs

Equations of Magnetohydrodynamics-Formation of Bow shock-Interaction with magnetized planets-Interaction with non-magnetized planets-Motion of charged particles in electromagnetic field and ring current.

UNIT III: Plasma Waves

15 hrs

Plasma waves in planetary magnetospheres-Plasma environment and waves in outer planets-plasma waves at Venus,Mars,Mercury-Wave particle interaction-Magnetohydrodynamics (MHD) waves-Plasma instabilities-Applications of Plasma.

UNIT IV: Energy deposition by Charged particles

15 hrs

Collision cross section-Time dependent perturbation theory- The Born Approximation-Semi-empirical electron impact cross section-Energy deposition techniques-CSDA and Loss function-Analytical yield Spectrum-Charge transfer-Electronic Recombination.

UNIT V: Planetary atmosphere and cosmic rays

15 hrs

Hydrostatic Equation-Eddy molecular diffusion-Thermal structure-Radiative transfer-Occultation technique-Atmospheric dynamics-Atmospheric temperature of planets-Cosmic rays-Bethe-Bloch formula-Ionization rate-Cosmic ray ionization in planetary atmosphere.

Textbooks

S.No.	Author Name	Title of the book	Publisher Name	Year of Publication	Edition
1.	R.P.Singhal	Elements of Space Physics	PHI Learning Private Limited	2015	2 nd
2.	BaidyanathBasu	An introduction to Astrophysics	PHI Learning Private Limited	2013	2 nd

Reference books

S.No	Author Name	Title of the book	Publisher Name	Year of Publication	Edition
	Margaret G.Kivelson Chrostopher T.Russell	Introduction to Space Physics	Cambridge University press	1995	2 nd
	Steven Weinberg	Gravitation and cosmology	Wiley	2008	1 st
	A.K.Raychaudhuri, S.Banerji, A.Banerjee	General Relativity, Astrophysics and Cosmology	Springer	2003	1 st

Pedagogy

Chalk and talk, Assignment, power point presentation, Group discussion, Seminar

Course Designers:

3. Ms.D.Devi
4. Ms.N.Manopradha

Semester - IV	Internal Marks : 25	External Marks : 75				
Course Code	Course Title	Category	L	T	P	Credit
19PPH4EC5A	NANO PHYSICS	EC-V	75	5	-	4

Objectives

- To understand the material physics on the nano scale and the application aspects of nanoscience and technology
- To understand the carbon nanostructures and their properties

Course Outcome

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

CO Number	CO statement	Knowledge level
CO1	Classify the dimensional nanostructure materials	K2
CO2	Identify the carbon nanostructures and their properties	K3
CO3	Analyze the synthesis of nanomaterials	K4
CO4	Explain the characterization techniques used for nanomaterials	K5
CO5	Discuss the applications of nanomaterials	K6

Mapping with Program Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	M	S	S	S
CO4	S	M	S	S	S
CO5	S	M	S	S	S

S-Strong; M-Medium; L-Low

Syllabus

UNIT-I Introduction to Nanomaterials

13hrs

Need and origin of Nano-Nano and energetic-Top-down and bottom-up approaches-Introductory ideas of 1D, 2D and 3D nanostructured materials-Quantum dots -Quantum wire -Quantum well-Exciton confinement in Quantum dots.

UNIT-II Carbon Nanostructures and Properties

14hrs Carbon molecules-

Carbon bond-C₆₀: Discovery and structure of C₆₀ and its crystal-Superconductivity in C₆₀-Carbon nanotube-Fabrication-Structure-Electrical Properties-Vibrational properties-Mechanical properties-Applications-Field Emission and Shielding-Fuel Cells-Chemical sensors-Catalysis.

UNIT-III Synthesis of Nanomaterials

18hrs

Physical Method: High energy ball milling- Laser Ablation-Chemical Vapour Deposition (CVD)-Molecular Beam Epitaxy (MBE)-Chemical Methods: Sol-Gel method-Solvothermal synthesis-Hydrothermal Synthesis-Sonochemical Synthesis-Microwave Synthesis-Co-Precipitation.

UNIT-IV Characterization of Nanomaterials

15hrs

Characterization of materials Optical characterization (UV-Vis, Photoluminescence, Raman), phenomena of diffraction radiation, X-ray diffraction, phase identification, Scherrer formula, strain and grain size determination, scanning electron microscope (SEM)-Energy dispersive X-ray analysis (EDX)-Transmission electron microscope (TEM).

UNIT-V Applications

15hrs

Energy-Dye Sensitized Photovoltaic solar cell-Fuel cell-Hydrogen Generation and Storage-Medical Field-Drug Delivery-Cancer Therapy-Tissue repair-Agricultural and Food.

Text Books

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	M.A. Shah and Tokeer Ahmad	Principles of Nanoscience and Nanotechnology	Narosa	2010	Revised Edition
2.	T. Pradeep	A Textbook of Nanoscience and Nanotechnology	Tata McGraw Hill	2014	10 th Reprint
3.	C.P. Poole and F.J.Ownes	Introduction to Nanotechnology	Wiley	2003	Reprint (2014)
4.	Sulbha.K Kulkarni	Nanotechnology: Principles and Practices	Springer	2015	3 rd Edition

Reference Books

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	R.W.Kelsall, I.W. Hamley and M. Geoghegan	Nanoscience and Nanotechnology	John-Wiley	2005	1 st Edition

Pedagogy

Lecture, Lecture with discussion, Group Discussion

Course Designer

1. Dr. B. Anitha
2. Ms. J. Aarthi

Semester - IV	Internal Marks : 25	External Marks : 75				
Course Code	Course Title	Category	L	T	P	Credit
19PPH4EC5B	ASTROPHYSICS	EC-V	75	5	-	4

Objectives

- To provide the basic concepts of Astrophysics.
- To understand the physics of the formation of White Dwarfs and Neutron stars. Dynamics of Binary stars

Course Outcome

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

CO Number	CO statement	Knowledge level
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. Dynamics of Binary stars	K4
CO5	Explain the Types of Galaxies, Dynamics of stars in a galaxy and its implication for dark matter.	K5
CO4	Discuss the Expansion of the Universe and evolution of temperature in the Universe. 21 cm Cosmology.	K6

Mapping with Program Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	M	S	S	S	S
CO2	M	S	S	S	S
CO3	M	S	S	S	S
CO4	M	S	S	S	S
CO5	M	S	S	S	S

S-Strong; M-Medium; L-Low

Syllabus

UNIT-I Distance measurements

15hrs

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 – Concept of Zenith and Nadir.

UNIT-II Stellar structure

15hrs

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 – Star clusters.

UNIT-III Compact Objects

15hrs

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 – types of binaries – Lagrangian points – Qualitative aspects of mass transfer and accretion disk formation.

UNIT-IV Galaxies

15hrs

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 – the Discovery of Dark Matter – Problems on density profile calculation using different rotation curves.

UNIT-V Basic Cosmology

15hrs

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 – The importance of CMB radiation.

Text Books

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Frank H. Shu	The physical universe –An introduction to astronomy	University science books	1982	First Edition
2.	V. B. Bhatia	A Textbook of Astronomy and Astrophysics with Elements of Cosmology	Narosa Publishing House	2001	Revised Edition
3.	K.D.Abhyankar	Astrophysics: Stars and Galaxies	Universities Press	1999	First Edition

Reference Books

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	S.L. Shapiro and S. A. Teukolsky	Black holes, white dwarfs and neutron stars	John Wiley	1983	First Edition
2.	S. Chandrasekhar	An introduction to the study of stellar structure	Dover publications	2003	First Edition

Pedagogy

Lecture, Lecture with discussion, Technical quiz

Course Designer

1. Ms. J. Aarathi
2. Dr. B. Anitha

Semester-III & IV	ALLIED PHYSICS PRACTICAL I	Hours/Week-3	
Second Allied Course- I (AP)		Credits-3	
Course Code-19UCH3AC1P		Internal 40	External 60

Objectives

- To acquire basic skills about modulus of elasticity and specific heat capacity of liquids.
- To study about light experiments involving Newtons rings and airwedge.
- To gain practical knowledge in gates and its applications.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Find applications of physics experiments in real world appliances.	K1
CO2	Build practical hands on experience by various techniques.	K2
CO3	Compare the experimental values with standard values.	K3
CO4	Apply the theory to design basic electrical circuits.	K3

Mapping with program outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	S	S	M	M
CO2	S	S	S	S	M	M
CO3	S	S	M	M	M	M
CO4	S	S	S	S	M	S

S-Strong, M-Medium, L- Low

List of experiments (Any Twelve Experiment)

1. Young's Modulus Non Uniform Bending – Pin & Microscope

2. Acceleration due to gravity – Compound Pendulum
3. Viscosity of highly viscous liquid – Stoke's Method
4. Surface Tension – Drop Weight Method
5. Specific Heat Capacity of liquid – Newton's law of Cooling
6. Refractive index of prism – Spectrometer
7. Refractive index of Liquid – Spectrometer
8. Concave lens – Determination of Focal length and Refractive index
9. Newton's Rings – Radius of curvature
10. Air wedge – Thickness of wire
11. Junction diode Characteristics
12. Zener diode Characteristics
13. Meter Bridge – Specific Resistance of a coil
14. Carey Foster's Bridge - Specific Resistance of a coil
15. Post office Box- Determination of Temperature Coefficient
16. Potentiometer – Low range voltmeter Calibration
17. Basic Logic Gates
18. Verification of NAND and NOR as universal gates
19. Verification of De – Morgan's Theorem
20. Verification of Boolean algebra (any five)

Text Books

S.No	Authors	Title of the book	Publishers	Year of publication	Edition
1.	Dr.S.Somasundaram	Practical Physics	Apsara publications, Tiruchirappalli	2012	Revised
2.	R. Sasikumar	Practical Physics	PHI Learning Pvt. Ltd, New Delhi	2011	Revised

Reference Books

S.No	Authors	Title of the book	Publishers	Year of publication	Edition
1.	S.Srinivasan	A Text Book of Practical physics	S.Sultanch and publications	2001	Revised edition
2.	Department of Physics	Practical Physics,	St.Joseph's College, Tiruchirappalli	2011	Revised edition

Pedagogy

Demonstration and practical sessions

Course Designer

Ms.P.Saranya

Semester-IV	ALLIED-II PHYSICS – II	Hours/Week-3	
Allied Course - II		Credits-3	
Course Code-19UCH4AC5		Inter nal 25	Extern al 75

Objectives

- To introduce the basic concepts of electro statics & magneto statics.
- To impart the knowledge in nuclear, atomic physics, fiber optics and digital electronics.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Recall the basic concepts of electrostatics, magneto statics, nuclear and atomic physics.	K1
CO2	Summarize about atom, nucleus and working of nuclear reactors.	K2
CO3	Explain the behavior of laser and fiber optic communication system.	K2
CO4	Apply the concepts of magnetism to day to day life	K3
CO5	Construct digital circuits for simple real world problems.	K3
CO6	Make use of the knowledge of physics in day to day life.	K3

Mapping with program outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	S	S	S	M
CO2	S	S	M	S	S	M
CO3	S	S	S	S	S	M
CO4	S	S	S	S	S	M
CO5	S	S	S	S	S	M
CO6	S	S	S	S	S	M

S-Strong, M-Medium, L- Low

Syllabus

Unit – I: Electrostatics

7 hrs

Basic concepts - Coulomb's inverse square law – Electric Dipole – Electric lines of force - Gauss theorem and its applications (Intensity at a point due to a charged sphere & cylinder) – Principle of a capacitor – Capacity of a spherical and cylindrical capacitors –Capacitance of Parallel Plate Capacitor–Capacitance of Parallel plate capacitor filled with dielectric Slab - Energy stored in a capacitor – Loss of energy due to sharing of charges - Types of capacitors.

Unit – II: Magnetism

7 hrs

Intensity of magnetization – Susceptibility – Types of magnetic materials – Properties of para, dia and ferromagnetic materials — ferrimagnets and their applications– Hysteresis – B-H curve — Experiment to draw M-H curve (Horizontal Method) –energy loss in hysteresis – Applications of B-H curve.

Unit – III: Modern Physics

9hrs

Wave Mechanics:

De Broglie concept of matter waves –Wave particle duality-Experimental verification of particle nature-Photoelectric effect-Experimental verification of wave nature- G.P.Thomson experiment.

Atomic & Nuclear Physics:

Fundamentals of Atom - Vector atom Models – Pauli's exclusion Principle – Various quantum numbers and quantization of orbits. – Classification of Nucleus- Basic Properties of Nuclei – Nuclear Forces –Liquid drop model of Nucleus – Nuclear Fission & Fusion – Nuclear Reactor and its applications.

Unit – IV: Lasers and Fiber Optics

9 hrs

Lasers:

Basics of Lasers- Stimulated Absorption-Stimulated Emission-Spontaneous Emission-Pumping-Ruby laser - He-Ne laser-applications of lasers.

Fiber Optics:

Construction of an optical fiber- Total internal reflection-numerical aperture –Acceptance Angle-Classification of Optical fibers-Advantages of fiber optic communication System.

Unit –V: Digital electronics

13 hrs

Decimal – Binary – Octal and Hexa Decimal number systems and their Mutual Conversions – 1's and 2's complement of a Binary number and Binary arithmetic (Addition, Subtraction) – Binary Subtraction by 1's and 2's complement method – Basic logic gates – AND, OR, NOT gates – NAND and NOR as universal building gates – Boolean Algebra – Laws of Boolean Algebra – De Morgan's Theorems – Their verifications using truth tables.

S.No	Authors	Title of the book	Publishers	Year of publication	Edition
1.	R. Murugesan	Electricity and Magnetism	S. Chand & Co. Pvt. Ltd	2001	Third edition
2.	1.R. Murugesan, 2.Kiruthiga Sivaprasath	Modern Physics	S. Chand & Co. Pvt. Ltd	2017	Sixteenth Revised color edition
3.	R. S. Sedha,	A text book of Digital Electronics	S. Chand & Co. Pvt. Ltd	2004.	First edition

Reference Books

S.No	Authors	Title of the book	Publishers	Year of publication	Edition
1.	R.Narayanamurthi	Electricity and Magnetism	The National Publishing Company	1988	First edition
2.	J. B. Rajam	Atomic Physics	S. Chand & Co. Pvt. Ltd	1990	First edition
3.	B. N. Srivastava	Basic Nuclear Physics,	S. Chand & Co. Pvt. Ltd	2005	Revised edition
4.	Albert Paul Malvino	Digital principles and Applications	McGraw-Hill International Editions, New York	2002.	Revised edition
5.	1.V.Vijayendran, 2.S.Viswanathan	Digital Fundamentals	S. Viswanathan Printers Pvt. Ltd	2004	Revised edition

Pedagogy

Lecture, Lecture with discussion, Power point Presentation, group discussion, seminar, Interaction, Problem solving, Demonstration, Debate, Quiz

Course Designer

Ms.P.Saranya

Semester-III & IV	DIGITAL AND MICROPROCESSOR LAB	Hours/Week-3	
Second Allied Course-I(AP)		Credits-3	
Course Code – 19UCS3AC1P		Internal 40	External 60

Objectives

- To enable the student to gain practical knowledge
- To acquire basic understanding of laboratory technique
- To understand the theory and develop practical application skills

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Recall the principles of electronics.	K1
CO2	Interpret findings using the correct physical scientific framework.	K2
CO3	Develop skills in handling equipment.	K3
CO4	Design electronic circuits.	K3
CO5	Build hands on experience using various techniques.	K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	S	S	S	S
CO2	M	S	S	M	M
CO3	S	M	S	M	M
CO4	S	S	M	S	M
CO5	S	M	M	S	S

S – Strong; **M** – Medium; **L** – Low

Syllabus

List of experiments

Section A: Digital Electronics

1. Verification of Logic gates.
2. Construction of Half and Full adder.
3. Construction of Half and Full subtractor.
4. K-Map.
5. NAND as UBB.
6. NOR as UBB.

Section B: Microprocessor 8085

1. 8-bit addition and 8-bit subtraction.
2. 8-bit multiplication and 8-bit division.
3. Conversion from decimal to hexadecimal.
4. Conversion from hexadecimal to decimal system.
5. Find the sum of series.
6. 1's compliment and 2's compliment subtraction.

Text Books

S. No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	V.Vijayendran	Introduction to Integrated Electronics: Digital and Analog	Viswanathan S., Printers & Publishers Pvt Ltd	2009	Revised Edition
2.	B.Ram	Fundamental of Microprocessor and microcontroller	Dhanpat Rai Publications (P) Ltd, New Delhi	2013	8 th Edition

Pedagogy

practical sessions.

Demonstration and

Course Designer:

Ms.N.Manopradha

Semester-IV	MICROPROCESSOR AND MICROCONTROLLERS	Hours/Week-3	
Allied Course – II		Credits-3	
Course Code- 19UCS4AC5		Internal 25	External 75

Preamble

- To understand the architecture of 8085& 8051.
- To impart the knowledge about the instruction set.
- To develop skill in writing simple program for 8085 and its interfacing applications.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO 1	Understand the architecture of 8085 and 8051	K2
CO 2	Illustrate the knowledge about the instruction sets of 8085 & 8051	K2
CO 3	Distinguish between 8085 and 8051 architecture	K2
CO 4	Outline the functions of peripheral devices	K4
CO 5	Develop skill in simple program writing for 8085 and 8051 based systems	K6

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4
CO1	S	S	L	S
CO2	S	M	M	S
CO3	S	S	M	S
CO4	M	M	M	S
CO5	S	S	S	S

S – Strong; M – Medium; L – Low

Syllabus

Unit-I : 8-bit Microprocessor (8085)

9 hrs

Microprocessor evolution and types, Microprocessor architecture and operations of its components, addressing modes, Interrupts, data transfer schemes, instruction and data flow, timer and timing diagram.

Unit-II : Microprocessor Programming

9 hrs

Assembly language programming based on Intel 8085. Instructions, data transfer, arithmetic, logic, branch operations, looping, counting, indexing, programming techniques, counters and time delays, stacks and subroutines, conditional call and return instructions.

Unit-III: Simple Programs

10 hrs

8-bit Addition – 8-bit Subtraction – Multiplication and Division - BCD to Binary and Binary to BCD conversions – BCD to HEX and HEX to BCD conversions – Finding the largest and smallest number in a data array- sorting-sum of a series –Ascending and descending order – Subtraction using 1's complement and 2's complement.

Unit - IV: Peripheral Interfacing

9 hrs

Peripheral Devices: 8237 DMA Controller - 8255 programmable peripheral interface - 8253/8254 programmable timer/counter - 8259 programmable interrupt controller - 8251 USART and RS232C.

Unit - IV: Microcontroller (8051)

8 hrs

Comparison between microprocessor and microcontroller - Features of 8051 - Architecture - Pin configuration - Memory organization - External data and program memory - Addressing modes.

Textbooks

S. No.	Author name	Title of the book	Publishers	Year of Publication	Edition
1.	Gaonkar,Ramesh S	Microprocessor Architecture, Programming and Applications with 8085	Pearson Education	1984	5 th Edition
2.	B.Ram	Fundamental of Microprocessor and microcontroller	Dhanpat Rai Publications(P) Ltd, New Delhi	2013	8 th Edition
3.	Muhammad Ali Mazidi,Janice Gillispie Mazidi, Rolin D. McKinlay	The 8051 Microcontroller and Embedded Systems	Prentice Hall of India, New Delhi.	2005	2 nd Edition

Reference books

S.No.	Author name	Title of the book	Publishers	Year of Publication	Edition
1.	A.Nagoorkani	Microprocessors & Microcontrollers	RBA Publications, Chennai	2012	2 nd Edition
2.	A.P. Godse and D.A. Godse.	Microprocessors and Microcontrollers	Technical Publications,Pune	2017	4 th Revised Edition

Pedagogy

Lecture, Seminar, Interaction, Assignment, Debate, power point presentation.

Course Designer

Ms.R.Ilavarasi
Ms. D.Devi

ANNEXURE - O
CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
ANNAMALAI NAGAR
TIRUCHIRAPPALLI -620 018
DEPARTMENT OF CHEMISTRY

B.SC CHEMISTRY PROGRAMME EDUCATION OBJECTIVE

- ❖ Impart functional knowledge of all basic areas of chemistry which continue to develop throughout the life time.
- ❖ Profitable Employment in Private/Government/professional sectors\ appropriate to their interest, education and become a dynamic individual.
- ❖ Interdisciplinary approach helps in creating innovative ideas for the sustainable development.
- ❖ Develop leadership qualities in multi disciplinary setting through ethical manner.
- ❖ Ability to identify and find the solutions to socio-economic environmental problems for the development of the country.

PROGRAMME OUTCOMES

- ❖ Curriculum enhances the basic concepts, skills in problem solving, critical thinking and analytical reasoning in chemistry.
- ❖ Explore the new area of research with innovative ideas in novel chemistry and other scientific fields.
- ❖ Specific placement in R &D, chemical, pharmaceuticals, food products and life oriented material industries.
- ❖ Crop up all the competitive group examinations.
- ❖ Imbibe ethical, moral and social values in personal life leading to highly cultured and civilized personality.

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
B.SC., CHEMISTRY COURSE STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2019-2020)

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;	19ULT1	6	3	3	25	75	100
			Story, Novel, Hindi Literature-1 & Grammar-I	19ULH1						
			History of popular Tales Literature and Sanskrit story	19ULS1						
			Communication in French-I	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	-	-	-	-	-
		Value Education	Value Education	19UGVE	2	2	3	25	75	100
Total					30	19				600
II	I	Language Course II (LC)	,dlf;fhy ,yf;fpaOk; GjpdOk;	19ULT2	6	3	3	25	75	100
			Prose, Drama, Hindi Literature-2 & Grammar-II	19ULH2						
			Poetry Textual Grammer 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	19UCH2CC2P	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	Environmental Studies	Environmental Studies	19UGES	2	2	3	25	75	100

			Total		30	22				700
III	I	Language Course III (LC)	fhg;gpaOk; ehlfOk	19ULT3	6	3	3	25	75	100
			Medieval, Modern Poetry & History of Hindi Literature-3	19ULH3						
			Poetry Textual Grammer and Vakyarachana	19ULS3						
			Communication in French-III	19ULF3						
	II	English Language Course –III (ELC)	Writing for General and Specific Purposes-I	19UE3	6	3	3	25	75	100
	III	Core Course-III (CC)	General Chemistry-III	19UCH3CC3	6	5	3	25	75	100
			Semi-micro Analysis (P)	19UCH3CC3P	3	3	3	40	60	100
			Physics –I	19UCH3AC4	4	3	3	25	75	100
			Physics Practical	19UCH3AC1P	3	-	-	-	-	-
	IV	Non Major Elective –I	Chemistry in Everyday life/ (Part I Tamil)/Basic Tamil (Part I-other Language)	19UCH3NME1/ 19ULC3BT1/ 19ULC3ST1	2	2	3	25	75	100
V	Swayam Online Course	Colloids and Surfaces	*	*	2	*	*	*	*	
			Total		30	21				600
IV	I	Language Course IV (LC)	gz;dla ,yf;fpak;	19ULT4						
			Letter writing, General Essays, Technical Terms, Proverbs, Idioms & Phrases, Hindi Literature-4	19ULH4	6	3	3	25	75	100
			Drama, History of Drama Literature	19ULS4						
			Communication in French-IV	19ULF4						
	II	English Language Course –IV (ELC)	Writing for General and Specific Purposes-II	19UE4	6	3	3	25	75	100
	III	Core Course-IV (CC)	General Chemistry-IV	19UCH4CC4	5	5	3	25	75	100
			Organic Qualitative Analysis (P)	19UCH4CC4P	3	3	3	40	60	100
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	Food Nutrition and Health Care/ (Part I Tamil)/Basic Tamil (Part I-Other Language)	19UCH4NME2/ 19ULC4BT2/ 19ULC4ST2	2	2	3	25	75	100
		Skill Based Elective-I	Forensic Chemistry	19UCH4SBE1A	2	2	3	25	75	100
	Food Chemistry		19UCH4SBE1B							
	V	Swayam Online Course	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	Analytical Chemistry/ Chemistry of Biomolecules	19UCH5MBE1A/ 19UCH5MBE1B	5	5	3	25	75	100
	IV	Skill Based Elective-II	Chemistry of Consumer Products	19UCH5SBE2A	2	2	3	25	75	100
			Dye Chemistry	19UCH5SBE2B						
		Skill Based Elective-III	Water Treatment Technology	19UCH5SBE3A	2	2	3	25	75	100
			Biofuels	19UCH5SBE3B						
	Soft Skills Development	Soft Skills Development	19UGSD	2	2	3	25	75	100	
	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 Analytical Techniques (P)	19UCH6CC6P	6	5	3	40	60	100
		Major Based Elective-II	Nuclear, Industrial Chemistry/ Basics of Nanoscience and Technology	19UCH6MBE2A/ 19UCH6MBE2B	6	5	3	25	75	100
		Major Based Elective-III	Polymer Chemistry/ Pharmaceutical Chemistry	19UCH6MBE3A/ 19UCH6MBE3B	5	5	3	25	75	100
	V	Extension Activities (EA)	Extension Activities (EA)	19UGEA	-	1	-	-	-	-
		Gender Studies	Gender Studies	19UGGS	1	1	1	25	75	100
	Total				30	27				600
	Grand Total				180	142				4100

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

Swayam Online Courses

** 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

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;	19ULT1	6	3	3	25	75	100
			Story, Novel, Hindi Literature-1 & Grammar-I	19ULH1						
			History of popular Tales Literature and Sanskrit story	19ULS1						
			Communication in French-I	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)	இடைக்கால இலக்கியமும் புதினமும்	19ULT2	6	3	3	25	75	100
			Prose, Drama, Hindi Literature-2 & Grammar-II	19ULH2						
			Poetry Textual Grammer 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
	Core Course-II (CC)	General Chemistry-II	19UCH2CC2	6	5	3	25	75	100	

III	Core Practical –II (CP)	Organic Chemistry Practical –I	19UCH2CC2P	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	Environmental Studies	Environmental Studies	19UGES	2	2	3	25	75	100		
Total				30	22				700		
III	I	Language Course III (LC)	காப்பியமும் நாடகமும்	19ULT3	6	3	3	25	75	100	
			Medieval, Modern Poetry & History of Hindi Literature-3	19ULH3							
			Poetry Textual Grammer and Vakyarachana	19ULS3							
			Communication in French-III	19ULF3							
	II	English Language Course –III (ELC)	Writing for General and Specific Purposes-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	Chemistry in Everyday life/ (Part I Tamil)/Basic Tamil (Part I-other Language)	19UCH3NME1/ 19ULC3BT1/ 19ULC3ST1	2	2	3	25	75	100	
V	Swayam Online Course	Colloids and Surface	*	*	2	*	*	*	*		
Total				30	21				600		
IV	I	Language Course IV (LC)	பண்ணடய இலக்கியம்	19ULT4							
			Letter writing, General Essays, Technical Terms, Proverbs, Idioms & Phrases, Hindi Literature-4	19ULH4	6	3	3	25	75	100	

		Drama, History of Drama Literature	19ULS4							
		Communication in French-IV	19ULF4							
II	English Language Course –IV (ELC)	Writing for General and Specific Purposes-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	Food Nutrition and Health Care/ (Part I Tamil)/Basic Tamil (Part I-Other Language)	19UCH4NME2/ 19ULC4BT2/ 19ULC4ST2	2	2	3	25	75	100	
	Skill Based Elective-I	Forensic Chemistry	19UCH4SBE1A	2	2	3	25	75	100	
		Food Chemistry	19UCH4SBE1B							
V	Swayam Online Course	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	Analytical Chemistry/ Chemistry of Biomolecules	19UCH5MBE1A/ 19UCH5MBE1B	5	5	3	25	75	100
	IV	Skill Based Elective-II	Chemistry of Consumer Products	19UCH5SBE2A	2	2	3	25	75	100
			Dye Chemistry	19UCH5SBE2B						
		Skill Based Elective-III	Water Treatment Technology	19UCH5SBE3A	2	2	3	25	75	100
			Biofuels	19UCH5SBE3B						
	Soft Skills Development	Soft Skills Development	19UGSD	2	2	3	25	75	100	
	Total				30	29				800
	Core Course- VIII (CC)	Organic Chemistry-II	19UCH6CC8	6	5	3	25	75	100	

VI	III	Core Course-IX (CC)	Physical Chemistry-II	19UCH6CC9	6	5	3	25	75	100
		Core Practical-VI (CP)	Gravimetric Analysis and Analytical Techniques (P)	19UCH6CC6P	6	5	3	40	60	100
		Major Based Elective-II	Nuclear, Industrial Chemistry/ Basics of Nanoscience and Technology	19UCH6MBE2A/ 19UCH6MBE2B	6	5	3	25	75	100
		Major Based Elective-III	Polymer Chemistry/ Pharmaceutical Chemistry	19UCH6MBE3A/ 19UCH6MBE3B	5	5	3	25	75	100
	V	Extension Activities	Extension Activities (EA)	19UGEA	-	1	-	-	-	-
		Gender Studies	Gender Studies	19UGGS	1	1	1	25	75	100
Total					30	27				600
Grand Total					180	142				4100

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

Universal Human Values -1

Soft Skill Development – 1

Gender Studies – 1

Extension Activities – 1

Swayam Online Courses

** 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

**CORE COURSE – IV
GENERAL CHEMISTRY-II
2019-2020 ONWARDS**

Semester-IV	GENERAL CHEMISTRY-IV	Hours/Week-6	
Core Course-IV		Credit-5	
Course Code- 19UCH4CC4		Internal	External
		25	75

Objectives

- To compare the characteristics of d- and f- elements.
- To classify acids and bases and to learn about hydroxyl derivatives and thermodynamics laws.
- To understand the chemical kinetics.

COURSE OUTCOMES

CO	CO Statement	Knowledge Level
CO1	Compare the different characteristics of d- and f- block elements	K2
CO2	Classification of acids and bases	K2
CO3	Understand preparation, properties and reactions of hydroxyl derivatives.	K2
CO4	Apply the first and second law of thermodynamics	K3
CO5	Analyze the terms of chemical kinetics	K4

MAPPING OF CO WITH PO

CO	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	S	M
CO2	M	M	S	M	S
CO3	M	M	M	S	S
CO4	M	M	S	S	M
CO5	M	M	M	M	M

S- Strong; M- Medium

SEMESTER -IV
GENERAL CHEMISTRY-IV
2019 -2020 ONWARDS

UNIT I: TRANSITION ELEMENTS AND INNER TRANSITION ELEMENTS (18Hrs)

General characteristics of d-block elements-relative stabilities of their oxidation states - comparative treatment with their 3d analogues in respect of ionic radii - oxidation states - magnetic behavior- Lanthanides- position in the periodic table - characteristics of lanthanides- occurrence - electronic configuration - oxidation states - atomic and ionic radii - lanthanide contraction -causes & consequences - color - magnetic properties and complex formation - Actinides - characteristics occurrence - electronic configuration- oxidation states- ionic radii - color - magnetic properties and complex formation- Comparison between lanthanides and actinides.

UNIT II: ACIDS, BASES & NON-AQUEOUS SOLVENTS (18Hrs)

Acids and bases - Arrhenius - Lowry - Bronsted - Lewis concept of acids and bases - strengths -heterogeneous acid base reactions - hard-soft acids and bases (HSAB) classification Pearson's HSAB concept - acid base strength - hardness and softness - physical properties of solvent - types of solvents - their characteristics reactions in non-aqueous solvents with reference to liq NH₃ - liq SO₂ - THF.

UNIT III: HYDROXY DERIVATIVES (18Hrs)

Aliphatic alcohols: preparation by hydroboration - oxidation - reduction of carbonyl compounds- epoxidation - Grignard synthesis - haloform reaction- reactions with reference to C-OH and O-H bond cleavage- phenol - preparation - physical properties -hydrogen bonding - reactions - acidity -ether and ester formation- mechanism of ring substitution - nitration - sulphonation – halogenation -Friedel-Craft's reaction - Kolbe's reaction - Riemer-Tiemen reaction

UNIT IV: THERMODYNAMICS II (18Hrs)

Application of first law of thermodynamics -standard state - standard enthalpy of formation - Hess's law of constant heat summation - enthalpy of solution - enthalpy of dilution - enthalpy of neutralization - enthalpy of ionization and enthalpy of formation - bond dissociation energy - Kirchoff's equation - relation between ΔH and ΔU spontaneous processes - heat engine - Carnot cycle and its efficiency - statements of second law - refrigeration cycle - thermodynamic scale of temperature -entropy as a state function

UNIT V: CHEMICAL KINETICS**(18Hrs)**

Rate of reaction- rate equation- order and molecularity of reaction - rate laws - rate constants: derivation of first order rate constant - characteristics of zero order - first order, pseudo first order and second order reactions - derivation of time for half change ($t_{1/2}$) - Methods of determination of order of reactions: experimental methods and determination of rate constant of a reaction by volumetry - colorimetry - polarimetry - effect of temperature on reaction rate- concept of activation energy- energy barrier - Arrhenius equation

TEXT BOOKS

S. No	Author name	Year of Publication	Title of the book	Publisher name
1.	B.R. Puri, L.R. Sharma, K.K. Kalia	1993	Principles of Inorganic Chemistry	23rd edition, New Delhi, Shoban Lal Nagin Chand & Co.,
2.	M.K Jain, S.C. Sharma	2017	Modern organic Chemistry	Vishal Publishing Co; Golden Jubilee Year edition
3.	Gurtu J. N. and Amit Gurtu	2016	Physical Chemistry-I	Pragati Prakashan, Meerut
4.	Morrison R.T. and Boyd R.N., Bhattacharjee S. K	2017	Organic Chemistry	7th edition, Pearson India
5.	Puri B.R. Sharma L.R. and Pathania M.S.	2013	Principles of Physical Chemistry	35th edition, New Delhi: Shoban Lal Nagin Chand and Co.

REFERENCE BOOKS

S.No	Author name	Year of Publication	Title of the book	Publisher name
1.	J.D. Lee	2000	Concise Inorganic Chemistry	20th revised edition Sultan Chand & Sons
2.	Gurdeep Raj	2000	Advanced Inorganic Chemistry	20th revised edition Sultan Chand & Sons
3.	Glasstone S. and Lewis D	2009	Elements of Physical Chemistry	London, Mac Millan Co Ltd.
4.	Samuel Glasstone	1974	Thermodynamics for Chemists	(3rd printing), East- West Edn.
5.	Paula Yurkanis Bruice	2001	Organic Chemistry	Eighth Edition

Pedagogy

Lecture, Lecture with discussion, Demonstrations, Group discussion, Debate, Seminar, Quiz, Video clippings, Flip learning, and E-Content

Course Designers

- ❖ **Dr. M. Letticia**, Assistant Professor, Department of Chemistry
- ❖ **Ms. A. Sharmila**, Assistant Professor, Department of Chemistry

CORE COURSE – IV
ORGANIC QUALITATIVE ANALYSIS
2019-2020 ONWARDS

Semester-IV	ORGANIC QUALITATIVE ANALYSIS	Hours/Week-3	
Core Course-IV		Credit-3	
Course Code- 19UCH4CC4P		Internal	External
		40	60

Objectives

- To learn the techniques of methods of different organic compounds through functional group identification with elemental analysis
- To exhibit the derivative for functional group

COURSE OUTCOMES

CO	CO Statement	Knowledge Level
CO 1	Differentiate the aromatic and aliphatic nature of organic sample	K4
CO 2	Identification of special element in organic compound	K2
CO 3	Analyze the functional group of organic compounds	K4
CO 4	Demonstrate the derivative for functional group	K3

MAPPING OF CO WITH PO

CO	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	S	S	M	S
CO3	S	S	M	S
CO4	S	S	S	S

SEMESTER -IV
ORGANIC QUALITATIVE ANALYSIS
2019-2020 ONWARDS

Analysis of Simple Organic compounds :

- Identification of acidic, basic, phenolic and neutral organic compounds
- Test for aliphatic/aromatic nature of the compound
- Test for saturation / unsaturation
- Detection of element present
- Identification of functional groups
- Confirmation by preparation of solid derivatives / characteristic color reactions

Note: Mono –functional compounds are given for analysis. (Carboxylic acid, phenols, carbohydrates, amides, amines, aldehydes, ketones and esters)

TEXT BOOKS

S. No	Author Name	Year of publication	Title of the book	Publishers Name
1.	Venkateswaran V, Veeraswamy R., KulandaivelyA.R	1997	Basic principles of practical chemistry, 2nd edition	Sultan Chand & sons, New Delhi
2.	Gnanapragasam N.S and Ramamurthy G	1998	Organic Chemistry- Lab Manual	Viswanathan Co., PVT Ltd

REFERENCE BOOKS

S.No	Author Name	Year of Publication	Title of the book	Publisher Name
1.	Gurtur .J.R and Kapoor, R	1997	Advanced Experimental Chemistry;	S. Chand and Co. Ltd, New Delhi,

Pedagogy

Hands on training

Course Designers

❖ **Dr. K. Uma Sivakami**, Assistant Professor, Department of Chemistry

❖ **Ms. S. Jeevitha**, Assistant Professor, Department of Chemistry

SECOND ALLIED COURSE – II
ALLIED CHEMISTRY-II
2019-2020 ONWARDS

Semester-IV	ALLIED CHEMISTRY – II	Hours/Week-4	
Second Allied Course-II		Credit-4	
Course Code- 19UPY4AC5		Internal	External
		25	75

Objectives

- To stimulate the concepts in basic chemistry and apply them in real world problems.
- To learn the fundamental concepts of nuclear chemistry and photochemistry
- To study the structure and properties of carbohydrates.

COURSE OUTCOMES

CO	CO statement	Knowledge level
CO 1	Recall the properties and applications of carbohydrates, amino acids and proteins	K1
CO 2	Understand the basics of nuclear chemistry	K2
CO 3	Apply the basic concepts of photochemistry	K3
CO4	Analyze the concepts of electrochemistry and material science	K4

MAPPING OF CO WITH PO

CO	PO1	PO2	PO3	PO4	PO5

CO1	S	M	M	M	S
CO2	S	S	M	M	S
CO3	S	M	S	S	S
CO4	S	M	M	M	S

S-Strong; M-Medium

SEMESTER_IV

ALLIED CHEMISTRY – II

2019-2020 ONWARDS

UNIT I: NUCLEAR CHEMISTRY

(12Hrs)

Nuclear chemistry : Fundamental particles of nucleus- isotopes – isobars - isotones - isomers- distinction between chemical and nuclear reactions - nuclear stability - n/p ratio - nuclear forces- nuclear fission - fusion reaction- radioactive series- units of radioactivity - half life and average life - types of nuclear reactor - safe handling of radio isotopes - atomic energy programmes in India - applications of radio isotopes

UNIT II: CARBOHYDRATES, AMINOACIDS AND PROTEINS

(12Hrs)

Carbohydrates: classification - glucose and fructose - preparation and properties - structure of glucose only - Fischer and Haworth cyclic structures- amino acids and proteins: - classification based on structure - essential and non - essentials amino acids -preparation - properties and uses - peptides-proteins-classification based on physical properties and biological functions - structure of proteins - primary and secondary structure (elementary treatment).

UNIT III: PHOTO CHEMISTRY

(12Hrs)

Photochemistry: Introduction - Photosynthesis - comparison between thermal and photochemical reactions - Beer-Lamberts law - Grotthus-Draper law - Einstein's law of photochemical equivalence - Quantum Yield - Hydrogen-chlorine reaction (elementary idea only) - Jablonski diagram - photo process – phosphorescence – fluorescence – photosensitization – quenching - thermo luminescence - bio-luminescence - chemiluminescence- significances of photochemical process

UNIT IV: ELECTROCHEMISTRY & MAGNETIC PROPERTIES OF MATERIALS (12Hrs)

Galvanic cells - emf - standard electrode potential - reference electrodes - electrochemical series and its applications - corrosion and methods of prevention-galvanization, electroplating and cathodic protection. Magnetic properties of molecules: Types of magnetic behavior- dia, para, ferro and antiferro magnetism - Magnetic susceptibility - determination of magnetic moment using Guoy Balance-applications of magnetic measurements.

UNIT V: MATERIAL SCIENCE

(12Hrs)

Ferrous and non-ferrous alloys- composition of glass and ceramics - Conductive polymers-types-synthesis and application- Biomedical applications of polymers- contact lens- dental polymers -artificial heart - kidney - skin and blood cell - water absorbing polymers- fiber reinforced composites - applications of grapheme - quantum dots - gold nano particles.

TEXT BOOKS

S.No	Author name	Year of publication	Title of the book	Publisher name
1.	Puri B R, Sharma L R, Kalia K K,	1993	Principles of Inorganic chemistry	Shoban Lal Nagin Chand&Co.,
2.	Madan R D	2000	Modern Inorganic Chemistry	S.Chand and Company Ltd.,
3.	Soni P.L.	2006	Text Book of organic Chemistry	S. Chand & Co, New Delhi
4.	Bahl B S and Arun Bahl	1997	Advanced Organic Chemistry	Sulthan Chand and Co
5.	Puri B.R. Sharma L.R. and Pathania M.S.	2013	Principles of Physical Chemistry	35 th edition, New Delhi: Shoban Lal Nagin Chand
6.	Arnikar	1995	Elements of nuclear chemistry	New Age Publication

REFERENCE BOOKS

S.No.	Author name	Year of Publication	Title of the book	Publisher name
1	Gopalan. R	2012	Text Book of Inorganic Chemistry	2nd Edition, Hyderabad, Universities Press, (India)
2	Morrison R.T. and Boyd R.N., Bhattacharjee S. K.	2011	Organic Chemistry	7th edition, Pearson India,

Pedagogy

Chalk and Talk, Power point Presentation, Group discussion, Seminar, Interaction, Problem solving

Course Designers

- ❖ Ms. N.Anusuya, Assistant Professor, Department of Chemistry
- ❖ Dr. K.Shenbagam, Assistant Professor, Department of Chemistry

FOOD ADULTERANTS AND HEALTH CARE

2019-2020 ONWARDS

Semester-IV	FOOD ADULTERANTS AND HEALTH CARE	Hours/Week-2		
Non –Major Elective Course-II		Credit-2		
Course		Code-	Internal	External
19UCH4NME2			25	75

Objectives

- To provide an understanding of food and nutrition
- To provide an understanding of the chemical basis of food preservation and the effects of processing and storage on food quality
- To familiarize the student with common experimental methods used in the study of the major food adulterant
- To know various types of health care and drugs

COURSE OUTCOMES

CO	CO statement	Knowledge level
CO1	Understand food and nutrition	K2
CO2	Identify various food additives, antioxidants and preservatives	K2
CO3	Learn about food adulterants and contaminations.	K2
CO4	Illustrate role of Health care	K3
CO5	Classify the common drugs	K3

MAPPING OF CO WITH PO

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	M
CO2	S	S	S	M	M
CO3	S	S	S	M	M
CO4	S	S	S	M	M
CO5	S	S	S	M	M

SEMESTER -IV

FOOD ADULTERANTS AND HEALTH CARE

2019-2020 ONWARDS

UNIT I: FOOD AND FOOD POISONING

(6Hrs)

Sources of food - types - advantages and disadvantages - constituents of food - carbohydrate - protein -fats and oils - vitamins and minerals - natural toxicants - food Poisoning: sources - causes and remedy - causes and remedies for acidity- gastritis- indigestion and constipation.

UNIT II: FOOD ADULTERANTS

(6Hrs)

Adulterants: common adulterants in different foods - milk and dairy products - vegetable oils – fats - spices – condiments -cereals pulses - sweetening agents and beverages- contamination with toxic chemicals - pesticides and insecticides - Laws of prevention of food adulteration - Methods for detection of common adulterants in milk- milk products- oils and fats -sweetening agents - grains - spices - coriander powder - turmeric powder - coffee powder - tea dust and asafetida

UNIT III: FOOD ADDITIVES

(6Hrs)

Food additives: artificial sweeteners- saccharin - cyclamate and aspartame- food flavors: esters - aldehydes and heterocyclic compounds- antioxidants: permitted - non-permitted food colors- stabilizers - thickeners and emulsifiers - toxicology-other functional additives- soft drinks: formulation health drinks- preservatives- leavening agents: baking powder - yeast.

UNIT IV: HEALTH

(6Hrs)

Definition of Health: WHO standard - balanced diet- Primary health care - secondary and tertiary health care-Primitive health care: preventive health care - curative health care and rehabilitative health care - spiritual health care- Concepts of social medicine -preventive medicine and community medicine

UNIT V DRUGS

(6Hrs)

Classification of drugs: biological & chemical (Structure not required) - Definition and two examples each (Structure not required) Anesthetics (General and local) - analgesics - antipyretics and anti-inflammatory agents-Antibiotics: Penicillin – Streptomycin – SARS- Covid-19- causes and prevention measurements.

TEXT BOOKS

S.No	Author Name	Year of publication	Title of the Book	Publication Name
1	Seema Yadav,	2006	Food Chemistry	Anmol publishing (P) Ltd., New Delhi
2	Alex Ramani,	2009	Food Chemistry	MJP publishers, Chennai.
3	Jayashree Gosh	2003	Text book of Pharmaceutical Chemistry	S. Chand & Company Ltd, New Delhi
4	S.Lakshmi,	2004	Pharmaceutical Chemistry	S.Chand& Sons, New Delhi,

REFERENCE BOOKS

S.No	Author Name	Year of publication	Title of the Book	Publication Name
1	Thomas M. Devlin	2010	Textbook of Biochemistry with Clinical Correlations	John Wiley & Sons; 7th edition
2	AshutoshKar	2007	Medicinal Chemistry	New Age International
3	Joshi A.S.	1998	Nutrition & Dietetics	Tata Mcgraw hill, New Delhi.

Pedagogy

E-content, Lecture, Power point presentation, Seminar, Assignment, Quiz, Group Discussion, Video / Animation

Course Designers

- ❖ **Dr. C. Rajarajeswari**, Assistant Professor, Department of Chemistry
- ❖ **Dr. M. Letticia**, Assistant Professor, Department of Chemistry

SKILL BASED ELECTIVE-I**FORENSIC CHEMISTRY****2019-2020 ONWARDS**

Semester-IV	FORENSIC CHEMISTRY	Hours/Week	
Skill Based Elective – I		Credit-2	
Course Code-19UCH4SBE1A		Internal	External
		25	75

Objectives

- To introduces fundamental principles and functions of forensic science
- To covers concepts such as fingerprinting and forensic toxicology
- To provide various techniques involved in forensic science

COURSE OUTCOMES

CO	CO Statement	Knowledge Level
CO 1	Identify the fundamental principles and functions of forensic science	K3
CO 2	Explain the characteristic features of Indian currency notes, passports	K3
CO 3	Analyze the techniques involved in the field of forensics	K4
CO 4	Appraise the role of chemistry and other branches in forensics	K5
CO 5	Describe the study of Chromatographic techniques	K6

MAPPING OF CO WITH PO

CO	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	M	S
CO2	S	S	M	M	S
CO3	S	M	S	S	S
CO4	S	M	M	M	S
CO5	S	S	S	S	S

S-Strong; M-Medium

SEMESTER -IV FORENSIC CHEMISTRY 2019-2020 ONWARDS

UNIT I: INTRODUCTION TO FORENSIC SCIENCE

(6Hrs)

Definition - scope of forensic science - Historical aspects of Forensic Science - development of forensic science - basic principles of forensic science - branches of forensic science -Forensic science in Indian scenario

UNIT II: TECHNOLOGICAL METHODS

(6Hrs)

Spectroscopic and chromatographic applications in forensic chemistry - identification and comparison of drugs - testing dyes and inks - using thin layer chromatography - applications of Gas chromatography in forensic pathology - crime scene testing - Arson investigation -forensic applications of Ultraviolet- visible spectroscopy (narcotics, drug testing) - infrared spectroscopy (crime prevention, paint, ink, sweat, fuels, and hair) - atomic absorption spectroscopy (toxicological examination) - atomic emission spectroscopy (trace elements detection)-colorimetric analysis and Lamberts-Beer law.

UNIT III: FINGERPRINTS EXAMINATION**(6Hrs)**

Fundamental principles of fingerprints - classification of fingerprints - automated fingerprint identification systems - methods of detecting fingerprints - document and voice examination - collection of handwriting exemplars – typescript comparisons - inks and papers - voice examination.

UNIT IV: COUNTERFEIT**(6Hrs)**

Forgery - Definition - types and sections involved - alterations in documents - including erasures - additions- over-writings and obliterations - characteristic features of Indian currency notes - passports - visas and stamp papers and their examination- detecting gold plated jewels.

UNIT V: EMERGING TRENDS IN FORENSIC SCIENCE**(6Hrs)**

DNA as excellent polymorphic marker - basis of DNA typing - Narco analysis and its significance in forensic science - Polygraph analysis-toxicology of alcohol - breath test instruments (breath analyzer) - Forensic serology - blood typing - forensic characterization of bloodstains - detecting steroid consumption among athletes and race horses.

TEXT BOOKS

S.No	Author name	Year of publication	Title of the book	Publishers Name
1	Eckert G. William	1996	Introduction to Forensic Sciences	Newyork, Washington, CRC, Press,
2	Richard. S	2018	Criminalistics An Introduction to Forensic Science	12 th edition, Boston : Pearson Education
3	Jamieson A., and Moenssens A	2009	Encyclopedia of Forensic Science.	Wiley Encyclopedia
4	Tessarolo, A.A. and Marignani, A.,	1996	Forensic Science and the Internet	The Canadian Society of Forensic Science Journal

REFERENCE BOOKS

S.No.	Author's Name	Year of Publication	Title of the Book	Publisher Name
1	B.B. Nanda and R.K. Tiwari	2001	Forensic Science in India: A Vision for the Twenty First Century	Select Publishers, New Delhi
2	M.K. Bhasin and S.Nath	2002	Role of Forensic Science in the New Millennium	University of Delhi, Delhi.
3	S.H. James and J.J. Nordby	2005	Forensic Science: An Introduction to Scientific and Investigative Techniques	2nd Edition, CRC Press, Boca Raton

Pedagogy

E-content, Lecture, Power point presentation, Seminar, Assignment, Quiz, Group Discussion, Video / Animation

Course Designers

- ❖ Dr. P. Poornima Devi, Assistant Professor, Department of Chemistry
- ❖ Dr.G. Sivasankari, Assistant Professor, Department of Chemistry

SKILL BASED ELECTIVE-I
FOOD CHEMISTRY
2019-2020 ONWARDS

Semester-IV	FOOD CHEMISTRY	Hours/Week	
Skill Based Elective –I		Credit-2	
Course Code- 19UCH4SBE1B		Internal 25	External 75

Objectives

- To attain knowledge on chemical properties of food materials
- To analyses the technological method in food process
- To enrich the importance of enzyme, protein & food preservatives

COURSE OUTCOMES

CO	CO Statement	Knowledge Level
CO1	Classify components of food by chemical structure.	K4
CO2	Describe the function of lipids, protein, cellulose in daily food intake	K3
CO3	Understand how the chemical components of a food impact the functionality of the overall food product	K2
CO4	Explain the major reactions that occur in foods.	K4
CO5	Apply the fundamental structure/function relationships to how they impact the overall food product quality, safety, and shelf life	K3

MAPPING OF CO WITH PO

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	M	S	S	M	S
CO3	S	M	S	S	M
CO4	M	M	S	S	M
CO5	S	S	M	M	M

S-Strong; M-Medium

SEMESTER –IV

FOOD CHEMISTRY

2019-2020 ONWARDS

UNIT I: FOOD AND WATER

(6Hrs)

Defining food - classification – constituents of food -food processing - food preservation - food spoilage - food poisoning - food - borne intoxication & infection - Water's importance in food chemistry - role of waters as a solvent in food systems - solute effects on water: State of water in foods - kinetic principles - water activity: principles – measurement - control effects related concept.

UNIT II: LIPIDS

(6Hrs)

Lipid classification and role in foods - analytical methods – physical - chemical - nutritional properties – processing of fats - oil - reactions of lipids (hydrogenation - oxidation) - lipids as emulsifiers - lipid processing: isolation - purification - modification – functionality of triacylglycerols in foods - food lipids and health.

UNIT III: CARBOHYDRATES AND PROTEINS

(6Hrs)

Carbohydrate classification – carbohydrate reactions (isomerization, caramelization and Mail lard Browning) – starch gelatinization and staling process- modified starches and other polysaccharides used in foods - Amino acid and protein interaction - external factors that influence protein systems in foods egg, meat, milk and cheese – basic properties: hydration - ionization and colloidal behavior – amino acids in meat – silks.

UNIT IV: ENZYMES**(6Hrs)**

Enzyme kinetics - Important enzymes in food - role of the enzyme in the food system (role of enzymes in baking, brewing, HFCS production and cheese making) – deleterious enzymes in foods systems: phenoloxidase - reaction catalyzed by enzyme - non- enzymatic formation of melanin - effect and safety concerns of sulfating agent in foods.

UNIT V: FOOD PRESERVATION**(6Hrs)**

Food preservation - necessary - principle and methods food preservation - high temperature preservation - low temperature preservation - preservation by use of chemicals natural and artificial colorants - acid base chemistry of foods and common additives - roles of commonly used food preservatives.

TEXT BOOKS

S. No.	Author's Name	Year of Publication	Title of the Book	Publisher's Name
1.	S. Damordaran, K. Parkin, O. Fennema	2007.	Fennema's Food Chemistry, 4 th Edition,	Eds. CRC Press.
2.	John deMan	1999	Principles of Food Chemistry, 3 rd Edition.	Aspen Publishers, New York

REFERENCE BOOKS

S. No.	Author's Name	Year of Publication	Title of the Book	Publisher's Name
1.	John W. Brady, Cornell University	2013	Introductory Food Chemistry, 1st Edition.	Press, Ithaca, NY. ISBN

Pedagogy

E-content, Lecture, Power point presentation, Seminar, Assignment, Quiz, Group Discussion, Video /Animation

Course Designer

- ❖ **Ms. S. Jeevitha**, Assistant Professor, Department of Chemistry
- ❖ **Dr.C. Rajarajeswari**, Assistant Professor, Department of Chemistry

M.Sc CHEMISTRY PROGRAMME EDUCATION OBJECTIVE

- ❖ Develop firm foundation in distinct area of Chemistry.
- ❖ Impart quality education to make the students globally competitive chemist by nurturing the needs.
- ❖ Inspire to pursue their doctoral research programme in reputed institutions
- ❖ Interdisciplinary approach helps in creating innovative ideas for the sustainable development.
- ❖ Develop leadership qualities in multi-disciplinary setting through ethical manner.
- ❖ Ability to identify and find the solutions to socio-economic environmental problems for the development of the country.

PROGRAMME OUTCOMES

- ❖ Curriculum imparts firm foundation in all areas of Chemistry and enhances the skills in problem solving and analytical reasoning.
- ❖ Inculcate research interest in emerging areas of chemical sciences and transform it to the benefit of society.
- ❖ Ability to use technologies and instrumentation to collect and analyse the data.
- ❖ Capable to nurture the needs of R &D laboratories and industries and make them to cope with all the competitive examinations.
- ❖ Imbibed ethical, moral and social values in personal life leading to highly cultured and civilized personality.

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
M.SC., CHEMISTRY COURSE STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2019-2020)

Sem	Course	Title	Subject code	Inst Hrs/Week	Credit	Exam	Marks		Total
						Hrs	Int	Ext	
I	Core course-I	Organic Chemistry-I	19PCH1CC1	6	6	3	25	75	100
	Core course-II	Inorganic Chemistry-I	19PCH1CC2	6	5	3	25	75	100
	Core course-III	Physical Chemistry-I	19PCH1CC3	6	5	3	25	75	100
	Core Practical-I	Organic Chemistry Practical-I	19PCH1CC1P	6	3	6	40	60	100
	Core Practical-II	Inorganic Chemistry Practical-I	19PCH1CC2P	6	3	6	40	60	100
	Total				30	22			
II	Core Course-IV	Physical Methods in Chemistry-I	19PCH2CC4	6	6	3	25	75	100
	Core Course-V	Organic Chemistry – II	19PCH2CC5	6	5	3	25	75	100
	Core Practical-III	Organic Chemistry Practical-II	19PCH2CC3P	6	3	6	40	60	100
	Core Practical-IV	Inorganic Chemistry Practical-II	19PCH2CC4P	6	3	6	40	60	100
	Elective Course-I	Green Chemistry/ Forensic Chemistry	19PCH2EC1A/ 19PCH2EC1B	6	4	3	25	75	100
	Total				30	21			
	Core Course-VI	Physical Chemistry-II	19PCH3CC6	6	6	3	25	75	100

III	Core Course-VII	Chemistry for Competitive Examaminations	19PCH3CC7	6	5	3	25	75	100
	Core Practical V	Physical Chemistry Practical-I	19PCH3CC5P	6	3	6	40	60	100
	Elective Course-II	Pharmaceutical Chemistry /Bioorganic Chemistry	19PCH3EC2A/ 19PCH3EC2B	6	5	3	25	75	100
	Elective Course-III	Instrumentation techniques/Intellectual Property Rights	19PCH3EC3A/ 19PCH3EC3B	6	5	3	25	75	100
	Swayam Online Course	Introduction to Polymer Science	*	*	2	*	*	*	*
Total				30	26				500
IV	Core Course-VIII	Physical Methods in Chemistry-II	19PCH4CC8	6	6	3	25	75	100
	Core Practical-VI	Physical Chemistry Practical-II	19PCH4CC6P	6	3	6	40	60	100
	Elective Course-IV	Industrial Chemistry / Selected Topics in Chemistry	19PCH4EC4A/ 19PCH4EC4B	6	5	3	25	75	100
	Elective Course-V	Chemistry of Nanoscience / Bio fuels	19PCH4EC5A/ 19PCH4EC5B	6	5	3	25	75	100
	Project	Dissertation = 80 Marks Viva = 20 Marks	19PCHPW	6	4	-			
Total				30	23				500
Grand Total				120	92				2000

Core Papers

- 8

Core Practical - 6

Elective Papers - 5

Swayam Online Course

Project - 1

Note :

1. Theory	Internal	25 Marks	External	75 Marks
2. Practical	Internal	40 Marks	External	60 Marks

3. Separate passing minimum is prescribed for Internal and External
 - a) The passing minimum for CIA shall be 40% out of 25 marks (i.e. 10 marks)
 - b) The passing minimum for University Examinations shall be 40% out of 75 marks (i.e. 30 marks)
 - c) The passing minimum not less than 40% in the aggregate.

CORE COURSE-VIII
PHYSICAL METHODS IN CHEMISTRY-II
2019-2020 ONWARDS

Semester IV	PHYSICAL METHODS IN CHEMISTRY- II	Hours/Week 6	
Core Course VIII		Credit 6	
Course code 19PCH4CC8		Internal 25	External 75

Objectives

- To understand electronic spectroscopy of metal complexes
- To study in detail IR, Raman and NMR of inorganic compounds
- To learn the Mossbauer and magnetic properties of metal complexes

Course Outcomes

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

CO	CO Statement	Knowledge Level
CO1	Explain the principles of NMR, IR, Raman, Mossbauer and electronic spectroscopy.	K2
CO2	Identify the applications of electronic spectroscopy to study the structure of molecules.	K3
CO3	Solve Δ_0 and β for metal complexes.	K3
CO4	Analyze the spectrum of certain chemical compounds in qualitative.	K4
CO5	Assess the structure of a compound by various spectral data.	K5

Mapping with Programme Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	M
CO2	S	S	M	M	M
CO3	S	S	S	M	M
CO4	S	S	S	S	S
CO5	S	S	S	S	M

S-Strong; M-Medium

SEMESTER - IV

PHYSICAL METHODS IN CHEMISTRY-II

2019-2020 ONWARDS

UNIT I ELECTRONIC SPECTROSCOPY

(18Hrs)

Electronic configuration – terms and microstates of atoms and ions – term symbols (p^n and d^n) - spectroscopic terms – L-S coupling and jj coupling– effect of inter-electronic repulsion and spin-orbit coupling– selection rules – Orgel diagram - Tanabe– Sugano diagram– prediction and assignment of transitions for weak field and strong field d^n systems - calculation of β and $10 Dq$ for simple octahedral complexes of Co and Ni- charge transfer spectra.

UNIT II IR AND RAMAN SPECTROSCOPY

(18Hrs)

Introduction to IR spectroscopy– IR active and IR inactive vibrations - compare the intensity of M-O, M-N, M-X, and M-S stretching vibrations– factors affecting metal-ligand vibrations - Raman spectroscopy– theory of Raman effect– applications of Raman spectroscopy for inorganic chemistry - combined uses of IR and Raman Spectroscopy in the structural elucidation of simple molecules like H_2O , ClF_3 , NO^3- and ClO^3- - applications of IR to identify terminal and bridging carbonyl group.

UNIT III NMR SPECTROSCOPY

(18Hrs)

Introduction to NMR spectroscopy – one dimensional NMR of ^{13}C , ^{15}N , ^{31}P , ^{19}F – structural determination of molecules by 2D NMR (Peptides-I & II) – chemical exchange – hydrogen or deuterium exchange - Diffusion ordered spectroscopy (DOSY)– use of chemical shift reagents – NMR of paramagnetic compounds (contact & pseudo-contact shift) - magnetic resonance imaging (MRI).

UNIT IV NRF AND NQR SPECTROSCOPY**(18Hrs)**

Basic principle of NRF spectroscopy– Mossbauer experiment– isomer shift– quadrupole splitting – magnetic interactions – applications to iron and tin compounds - NQR– basic principle– characteristics of quadrupolar nucleus- electric field gradient (EFG)– magnetic field upon quadrupolar energy levels - NQR transitions of ${}^7\text{N}^{14}$, ${}^5\text{B}^{11}$, ${}^{17}\text{Cl}^{36}$, ${}^{13}\text{Al}^{27}$ and ${}^{55}\text{Cs}^{132}$ - applications of NQR spectroscopy.

UNIT V MAGNETIC PROPERTIES AND PHOTOELECTRON SPECTROSCOPY**(18 Hrs)**

Magnetic properties- types of magnetism– Magnetic domain – magnetic hysteresis – loop – variant in hysteresis – magnetic properties of free ions - determination of magnetic moments (problems) applications of magnetic material in mass spectrometer – magnetic resonance imaging- magnetic resonance angiogram - magnetic properties of lanthanides and actinides - PES– principle, instrumentation and applications of photoelectron spectroscopy.

TEXT BOOKS

S.No	Author Name	Year of Publication	Title of the book	Publishers name
1.	Wahid.U.Malik, Tuli G.D., and Madan R.D.,	2009	Selected Topics in Inorganic Chemistry	7th edition, S.Chand, New Delhi.
2.	Abdul Jameel, A.	2003	Application of Physical Methods to Inorganic compounds	JAN publication, Trichy.
3.	Pathania, V.B.	2002	Spectroscopy,	Campus Books, New Delhi.

REFERENCE BOOKS

S.No	Author Name	Year of Publication	Title of the Book	Publishers name
1.	Drago, R.S.	1965	Physical Methods in Inorganic Chemistry	East West Publishers, New Delhi.
2.	Ebsworth, EAV	1988	Structural Methods in Inorganic Chemistry	ELBS, Oxford.
3.	Kaur, H.	2001	Spectroscopy	Pragati Publications, Meerut.
4.	James Huheey, E.	1993	Inorganic Chemistry	Addison Wesley.

Pedagogy

Lecture, Lecture with discussion, Demonstrations, Group discussion, Debate, Seminar, Quiz, Mini Project and e-Content.

Course Designers

- ❖ **Mrs. P.Thamizhini**, Assistant Professor, Department of Chemistry
- ❖ **Dr. V. Sangu**, Assistant Professor, Department of Chemistry

CORE PRACTICAL - VI

Semester-IV	PHYSICAL CHEMISTRY PRACTICALS – II	Hours/Week-6	
Core Practical-VI		Credit-3	
Course Code-19PCH4CC6P		Internal	External
		40	60

PHYSICAL CHEMISTRY PRACTICALS – II 2019-2020 ONWARDS

Objectives

- This course helps to perform various electrical experiments.
- To know the difference between conductometric and potentiometric titration.

Course outcomes

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

CO	CO Statement	Knowledge level
CO 1	Analyze the electrical data	K4
CO 2	Estimate the concentration of ions using Potentiometer	K5
CO 3	Estimate the concentration of ions using Conductometer	K5

Mapping with Programme Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	S	M	M
CO3	S	S	S	S	M

S- Strong; M-Medium

SEMESTER - IV

PHYSICAL CHEMISTRY PRACTICALS – II 2019-2020 ONWARDS

Any ten experiments (to be decided by the course teacher) out of the following experiments.

A) Conductometry

- 1) Acid-alkali titrations.
- 2) Precipitation titration
 - 3) Displacement titrations.
 - 4) Determination of dissociation constant of weak acids
 - 5) Solubility product of sparingly soluble salts like Barium chromate and Lead sulphate.
 - 6) Verification of Onsager equation for a strong electrolyte like NaCl and KCl.
 - 7) Determination of relative strength of two acids.
 - 8) Determination of degree of hydrolysis and hydrolysis constant of a substance.

B) Potentiometry

- 1) Acid- alkali titrations.
- 2) Precipitation titrations.
- 3) Redox titrations.
- 4) Determination of dissociation constant of weak acids
- 5) Determination of solubility product of silver salts.
- 6) Determination of activity and activity coefficient of ions.

C) pH-metry

- 1) Titration of ortho-phosphoric acid.
- 2) To determine the pH of a buffer solution using a quinhydrone electrode-Henderson's equation.

REFERENCES BOOKS

S.No.	Author Name	Year of Publication	Title of the Book	Publishers Name
1	Yadav J. B	2001	Advanced Practical Physical Chemistry; 20th Ed.,	GOEL Publishing House
2	Levitt B. P	1985	Findlay's Practical Physical Chemistry; 9th Ed.,	Longman
3	Gurtur J. N and Kapoor R	1997	Advanced Experimental Chemistry; Vol. 1-Physical	S. Chand and Co.
4	Das R.C and Behera	1983	Experimental Physical Chemistry	Tata McGraw - Hill
5	Shoemaker and Gerland	2009	Advanced Physical Chemistry Experiments	McGraw –Hill Higher Education

Course Designers

- ❖ **Ms. Pungayee Alias Amirtham**, Assistant Professor and Head, Department of Chemistry
- ❖ **Ms. A. Sharmila**, Assistant Professor, Department of Chemistry

ELECTIVE COURSE-IV

Semester-IV	INDUSTRIAL CHEMISTRY	Hours/Week-6	
Elective Course-VI		Credit-5	
Course Code-19CH4EC4A		Internal	External
		25	75

INDUSTRIAL CHEMISTRY

2019-2020 ONWARDS

Objectives

- To create an awareness of applications of industrial chemistry.
- To teach the students the essential role of petrochemicals.
- To study the applications of various industrial manufacturing processes of pulp, paper, leather, glass, ceramic industry, cosmetics, perfumes and milk products.

Course Outcomes

On successful completion of the course, the student will be able to

CO	CO Statement	Knowledge level
CO 1	Classify the fuels as saturated hydrocarbon, unsaturated hydrocarbons and aromatic hydrocarbons	K2
CO 2	Outline the steps involved in the manufacturing of pulp, paper, glass and ceramics.	K2
CO 3	Illustration the structure and properties of the materials used in the cosmetics and perfumes	K3
CO 4	Analyze the milk products, composition and processing of milk	K4

Mapping with Programme Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5
CO 1	S	S	M	S	S
CO 2	S	M	M	S	S
CO3	S	M	M	S	S
CO4	S	M	M	S	S

S-Strong M-Medium

SEMESTER -IV
INDUSTRIAL CHEMISTRY
2019-2020 ONWARDS

UNIT I PETROLEUM AND PETROCHEMICALS (18 Hrs)

Introduction– saturated hydrocarbons from natural gas– uses of saturated hydrocarbon– unsaturated hydrocarbons– acetylene –ethylene – propylene – butylene – aromatic hydrocarbons – toluene and xylene - preparation of rectified spirit from beat– methylated spirit – preparation of absolute alcohol from rectified spirit – petrochemicals in India.

UNIT II PAPER AND LEATHER INDUSTRIES (18 Hrs)

Introduction – manufacture of pulp – types of pulp – sulphate or craft pulp - soda pulp - rag pulp – beating – refining – filling - sizing and coloring - calendaring – uses – paper industries in India. Leather Industry: curing -preservation - tanning of hides and skins- process of dehairing- dyeing -treatment of tannery effluents.

UNIT III GLASS AND CERAMICS (18 Hrs)

Glass– manufacture of glass – physical and chemical properties– formation of batch – melting – chemical reaction inside furnace – shaping or forming– Foucault process of shaping sheet – window glass – shaping of plate glass– annealing– finishing – some special glass. Ceramics: Definition – basic raw materials– manufacturing of ceramics – general properties and types.

UNIT IV COSMETICS AND PERFUMES (18 Hrs)

Cosmetics and perfumes- general study including preparation and uses of the following: Hair dye- hair spray- shampoo- sun-tan lotions -face powder- lipsticks- talcum powder- nail enamel- creams (cold, vanishing and shaving creams), antiperspirants and artificial flavors. Essential oils and their importance in cosmetic industries with Eugenol- Geraniol- sandalwood oil- eucalyptus- rose oil- ethyl alcohol- Jasmone- Civetone - Muscone.

UNIT V DAIRY PRODUCTS (18 Hrs)

Milk and milk products -chemical composition - processing of milk- types of milk - analysis of milk and composition - uses and manufacturer of various milk products- cream – butter- ghee- cheese - condensed milk – casei- khoa- milk powder- infant milk food - malted milk powder- ice-cream - fermented milk products.

TEXT BOOKS

S.No	Author name	Year of publication	Title of the Book	Publishers Name
1	Sharma. B.K	1997	Industrial Chemistry,8 th edition	Goel Publishing House, New Delhi
2	Gopala Rao. M. and Sittig. M	1997	Outlines of Chemical Technology – For the 21st Century	East-West Press Pvt Ltd
3	Shreve. R.N and Brink. J.A	1977	Chemical Process Industries,4 th edition	McGraw Hill, Toronto.
4	Brain. A.C.S.	1989	Production and Properties of Industrial Chemicals	Reinhold, New York.
5	Edgar Spreer Axel Mixa	1995	Milk and dairy product technologies	Marcel Dekker, INC.

REFERENCE BOOKS

S. NO.	Author Name	Year of Publication	Title of the book	Publisher Name
1.	Stocchi. E	1990	Industrial Chemistry, Vol-I	Ellis Horwood Ltd. UK.
2.	Felder R.M., Rousseau. R.K	2017	Elementary Principles of Chemical Processes,	Wiley Publishers, New Delhi.
3.	Kingery. W.D., Bowen H.K Uhlmann. D.R,	1976	Introduction to Ceramics	Wiley Publishers, New Delhi
4.	Kent. J.A , Riegel's	2008	Handbook of Industrial Chemistry	CBS Publishers, New Delhi.

5.	Jain. P.C, Jain. M.	2013	Engineering Chemistry, sixth edition	Dhanpat Rai & Sons, Delhi.
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Pedagogy

E-content, Lecture, Power point presentation, Seminar, Assignment, Quiz, Group Discussion, Video /

Semester-IV	SELECTED TOPICS IN CHEMISTRY	Hours/Week-6	
Elective Course-IV		Credit-5	
Course Code-19PCH4EC4B		Internal 25	External 75

Animation
Course
Designers

❖ Mrs.A.Sharmila, Assistant Professor, Department of Chemistry

❖ Dr. P. Poornima Devi, Assistant Professor, Department of Chemistry

ELECTIVE COURSE-IV
SELECTED TOPICS IN CHEMISTRY
2019-2020 ONWARDS

Objectives

- To understand the chemistry of pesticides and leather processing.
- To know the applications of selective reactions.
- To understand the importance of clinical chemistry.
- To learn the principles of radiation chemistry.

Course Outcomes

On successful completion of the course, the student will be able to

CO	CO Statement	Knowledge level
CO 1	Discussing about chemistry of pesticides	K2
CO 2	Discussing about the various Naming Reactions in Organic Synthesis	K3
CO 3	Appraise the essentials of clinical chemistry	K4
CO 4	Explain the different steps in leather processing and analyze the effluent problems in tanneries	K6
CO 5	Discuss about Fundamentals of Radio chemistry	K6

Mapping with Programme Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5
CO 1	S	M	M	L	S
CO 2	S	S	M	L	S
CO3	S	M	S	S	S
CO4	S	M	M	M	S
CO5	S	S	S	S	S

S-Strong; M-Medium

SEMESTER -IV SELECTED TOPICS IN CHEMISTRY 2019-2020 ONWARDS

UNIT I CHEMISTRY OF PESTICIDES

(18 Hrs)

Pesticides - classification in terms of chemical nature and generation wise. mode of action of insecticides- bio-accumulation- bio magnification of pesticides - fate of insecticides in environment-environmental hazards - major disasters with pesticides-herbicides - toxicity of DDT, gammexenemalathion - comparison of organochlorine-organophosphate-carbamate insecticides - detoxification of pesticides- allied chemicals - safer pesticides - IPM - environmental hazards arising from fertilisers - minimisation of environmental problems caused by fertilisers

UNIT II SELECTIVE REACTIONS IN ORGANIC SYNTHESIS

(18 Hrs)

Bamford-Stevens reaction (alkene preparation) – Barton-McCombie reaction (de-oxygenation) – Baylis-Hillman reaction (C-C bond forming from alkene) – Biginelli reaction (pharmaceutical synthesis of dihydropyrimidones) – Corey-Chaykovsky reaction (carbonyl compound preparation) – Henry reaction (base catalysed C-C bond formation) – Hosomi-Sakurai reaction Lewis acid alkylation reaction) – Hunsdiecker reaction (synthesis of organic halides) – Julia olefination (preparation of alkenes).

UNIT III CLINICAL CHEMISTRY

(18 Hrs)

Blood Analysis-serum electrolytes-serum proteins-blood glucose- blood urea nitrogen- uric acid-blood gas analysis-enzyme analysis- assay of alkaline phosphate- isoenzyme of acetate dehydrogenase- aldolase- metal deficiency – disease- estimation of copper-iron-calcium.

UNIT IV LEATHER CHEMISTRY

(18 Hrs)

Introduction -structure of hides and skin -leather processing – process before tanning- flaying and curing (drying, salt curing and brine curing and pickling) - soaking – liming - fleshing – unhairing – delimiting - bathing - tanning processes – vegetable - synthetic - chrome -aldehyde tanning -tannery effluents - byproducts – primary - secondary treatments.

UNIT V RADIATION CHEMISTRY

(18 Hrs)

Alpha decay- theory of emission - alpha ray energy spectra.- beta decay - decay theory - electron capture-double beta decay - gamma ray – theory of emission - internal conversion - Auger effect- nuclear resonance absorption- principles of mossbauer spectroscopy -radio chemistry yield- applications of radio chemistry- dangers of radiation.

TEXT BOOKS

S.No.	Author's Name	Year of Publication	Title of the Book	Publishers Name
1.	AllaAppaRao	2010	Engineering Chemistry and Environmental Studies	New Age International Publishers
2.	Bansal.R.K	1975	Organic Reaction Mechanisms	Tata McGraw Hill.
3.	Jagdambasingh	2016	Organic synthesis	PragatiPrakashan
4	Skoog, West and Holler	1992	Fundamentals of analytical Chemistry	Saunders College.
5.	B.K.Sharma	2013	Industrial Chemistry	Goel Publishing House
6.	D. K. Asthana and MeeraAsthana,	2012	“Environment - Problems and Solutions”,	S.Chand& Co Ltd.
7.	RashmiSanghi, M.M.Srivastava	2012	Green Chemistry: Environment Friendly Alternatives	Narosa Publishing House
8.	H.J.Arnikaar	2005	Essentials of Nuclear Chemistry	New Age International

				Publishers, New Delhi,
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REFERENCE BOOKS

S.No.	Author's Name	Year of Publication	Title of the Book	Publishers Name
1.	V.Kumar	2007	Introduction to Green Chemistry	Vishal publishers
2.	F. A. Carey and R. J. Sundberg	2007	Advanced Organic Chemistry, Parts A and B, 5th Ed.,	Springer, Germany,
3.	V. K. Ahluwalia and R.S Varma	2009	Green Solvents	Narosa Publishers
4.	K.BagavathiSundari	2006	Applied Chemistry	MJP Publishers, Chennai
5.	A.K. Srivatsava and P. Jain	1989	Essentials of Nuclear chemistry	S. Chand, New Delhi,

Pedagogy

E-content, Lecture, Power point presentation, Seminar, Assignment, Quiz, Group Discussion, Video/ Animation.

Course Designers

- ❖ **Dr. K. Uma Sivakami**, Assistant Professor, Department of Chemistry.
- ❖ **Mrs. A. Sharmila**, Assistant Professor, Department of Chemistry.

Semester-IV	CHEMISTRY OF NANOSCIENCE	Hours/Week-6	
Elective Course-V		Credit-5	
Course Code-19PCH4EC5A		Internal	External
		25	75

ELECTIVE COURSE-V
CHEMISTRY OF NANOSCIENCE
2019-2020 ONWARDS

Objectives

- To know the basic concepts of nanoscience and synthetic methods of various nano particles.
- To know the ideas of nano clusters, reactions as semiconductors and its social applications like agriculture and food technology.

Course Outcomes

On successful completion of the course, the student will be able to

CO	CO Statement	Knowledge level
CO 1	Classify different types of concerted methods of synthesis of nanomaterials.	K2
CO 2	Identify the nanoparticles by characterization.	K3
CO 3	Distinguish between clusters and nanostructures.	K4
CO 4	Discuss the applications in electrochemical field.	K6

CO 5	Predict the applications of nanoscience in the agricultural and food processing field.	K6
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Mapping with Programme Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	L	S
CO2	S	S	M	L	S
CO3	S	M	S	S	S
CO4	S	M	M	M	S
CO5	S	S	S	S	S

S-Strong; M-Medium

SEMESTER -IV
CHEMISTRY OF NANOSCIENCE
2019-2020 ONWARDS

UNIT I SYNTHETIC METHODS

(18 HRS)

Nanodimensional materials – unique properties- quantum dots – classification-properties and applications - classification of nanomaterials - synthesis – hydrothermal synthesis- solvo thermal synthesis – microwave irradiation– sol-gel - precipitation technologies – chemical vapour condensation process – sonochemical synthesis – hydrodynamic cavitation.

UNIT II CHARACTERISATION OF NANOSCALE MATERIALS

(18 Hrs)

Principles of Atomic Force Microscopy (AFM) – Transmission Electron Microscopy (TEM) Resolution and Scanning Transmission Electron Microscopy (STEM) – Scanning Tunneling Microscopy (STM) – Scanning Nearfield Optical Microscopy (SNOM)- Scanning ion conductance microscope-Scanning thermal microscope- scanning probe microscopes and surface Plasmon Resonance spectroscopy (SPR).

UNIT III CARBON CLUSTERS AND NANOSTRUCTURES

(18 Hrs)

Nature of carbon bond– new carbon structures – carbon clusters – discovery of C₆₀–alkali doped C₆₀–superconductivity in C₆₀–larger - smaller fullerenes - carbon nanotubes – synthesis – single walled carbon nanotubes – structure and characterization – mechanism of formation – chemically modified carbon nanotubes – doping – functionalizing nanotubes – applications of carbon nanotubes. Nanowires –synthetic strategies – gas phase and solution phase growth – growth control– properties.

UNIT IV CHEMICAL AND BIOSENSORS

(18 Hrs)

Biosensor and nanobiosensor - basic concepts – characterization – perception - Enzyme– metal NP hybrids for biosensing - generation of nanostructures- Biomolecule – different types of nanobiosensors - nano biosensors for medical diagnostics -nanoprobes for analytical applications.

UNIT V NANOTECHNOLOGY IN AGRICULTURE AND FOOD TECHNOLOGY (18 Hrs)

Nanotechnology in agriculture- precision farming, smart delivery system– nanofertilizers: nanourea and mixed fertilizers - nanofertigation – nanopesticides - nanoseed science. Nanotechnology in food industry – nano packaging for enhanced shelf life - smart/intelligent packaging - food processing and food safety and biosecurity– Electrochemical sensors for food analysis and contaminant detection.

TEXT BOOKS

S.No.	Author's Name	Year of Publication	Title of the Book	PublisherName
1.	C. N. R. Rao, A. Muller and A. K. Cheetham	2004	The Chemistry of Nanomaterials: (Eds), Vol. 1 and 2	Wiley-VCH; Germany, Weinheim
2.	C. P. Poole, Jr: and F. J. Owens	2003	Introduction to Nanotechnology; Wiley Interscience	New Jersey
3.	T. Pradeep, Nano:	2007	The Essentials in Understanding Nanoscience and Nanotechnology; 1st Ed.,	Tata McGraw Hill, New York, 2007

4.	A. A Balandin, K. L. Wang	2006	Handbook of Semiconductor Nanostructures and Nanodevices Vol 1-5.	American scientific publishers
5.	Lynn J. Frewer, Willehm Norde, R. H. Fischer and W. H. Kampers	2011	Nanotechnology in the Agri-food sector	Wiley-VCH Verlag,

REFERENCE BOOKS

S.No.	Authors Name	Year of Publication	Title of the Book	Publishers Name
1.	K. J. Klabunde	2009	Nanoscale Materials in Chemistry; 2nd Ed.,	Wiley-Interscience, New York
2.	H. Fujita	2003	Micromachines as Tools in Nanotechnology	Springer-Verlag, Berlin
3.	W. Kain and B. Schwederski	2013	Bioinorganic Chemistry: Inorganic Elements in the Chemistry of Life; 2nd Ed.,	John-Wiley R Sons, New York
4.	Q. Chaudry, L. Castle and R. Watkins	2010	Nanotechnologies in Food	RSC Publications

Websites

Home page of Prof. Ned Seeman - <http://seemanlab4.chem.nyu.edu/>

Nanoletters - <http://pubs.acs.org/journals/nalefd/index.html>

Nanotation - <http://www.acsnanotation.org/>

Pedagogy

E-content, Lecture, Power point presentation, Seminar, Assignment, Quiz, Group Discussion, Video/ Animation.

Course Designers

❖ **Dr. G.Sivasankari**, Assistant Professor, Department of Chemistry

❖ **Dr.K. Shenbagam**, Assistant Professor, Department of Chemistry

Semester-IV	BIOFUELS	Hours/Week-6	
Elective Course-V		Credit-5	
Course Code-19PCH4EC5B		Internal	External
		25	75

ELECTIVE COURSE-V

BIOFUELS

2019-2020 ONWARDS

Objectives

- To understand basic concepts about biomass derived energy
- To acquire the concept of 1st generation, 2nd generation and advance biofuels
- To understand terminologies related to biomass conversion and biofuel production
- To describe techno-economic analyses of biofuel conversion technologies
- To apply biomass-derived energy in different applications

Course outcome

CO	CO statement	Knowledge level
CO1	Implentation of technologies for the production of biofuels by developing innovative ideas.	K2
CO2	Stabilize the knowledge on digestion and fermentation process for gaseous fuels from organic substrates of different origin	K3

CO3	Diagnose global impacts of biofuels on food and energy supplies	K4
CO4	Compile the regulations limits with Indian Standards	K5

Mapping with Programme Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	S	S	S
CO3	S	S	M	S	M
CO4	S	S	S	S	M

SEMESTER -IV
BIOFUELS
2019-2020 ONWARDS

UNIT I BIOFUELS

(18 Hrs)

Classification of biofuels- solid-liquid - gaseous fuels- production processes - raw materials – products – Generation – first – second - third - fourth generation of biofuels Concepts of biorefinery - alternative energies - environmental - economic and regulatory issues- value added processing of biofuel residues - co-products.

UNIT II SOLID BIOFUELS

(18 Hrs)

Structure - properties of cellulose - isolation and applications of lignin -pretreatment/fractionation by dilute acid - steam explosion - organosolvent and ammonia fiber explosion (AFEX) methods - biochemical conversion of

lignocellulosic to alcohols by separate hydrolysis and fermentation (SHF) - simultaneous saccharification and fermentation (SSF) process - thermal conversion of biomass to liquid fuels by gasification - pyrolysis.

UNIT III LIQUID BIOFUELS

(18 Hrs)

Characteristics - significance of liquid biofuels - production - refined oils as fuel hydrogenation of unsaturated lipids - Fischer-Tropsch process for the production of hydrocarbons from syngas - bioethanol- raw materials - pretreatment processes- enzymatic hydrolysis and fermentation – recovery - uses – regulations - production of Ethyl ter-butyl ether (ETBE) biodiesel- trans esterification - raw materials - pretreatment process- separation – purification - quality- uses - regulations.

UNIT IV GASEOUS BIOFUELS I

(18 Hrs)

Characteristics and scope of gaseous biofuels- Energy conversion process- anaerobic digestion- acidogenesis – acetogenesis – methanogenesis - disintegration – hydrolysis - environmental and optimization conditions for production of gaseous biofuels – temperature –pH – alkalinity- nutrients - organic loading rate - solid and hydraulic retention time - granulation of anaerobic biomass.

UNIT V GASEOUS BIOFUELS II

(18 Hrs)

Composition and uses of biogas- pretreatment and post treatment to anaerobic digestion- production - batch reactor - Continuous Stirrer Tank Reactor (CSTR) with recirculation of biomass - conversion of solid substrates (cattle manure, municipal organic waste, sewage sludge, industrial organic waste) into biogas - economic regulatory issues - conversion of wastewater with high organic content into biogas- environmental, energy, economic and regulation issues.

TEXTBOOKS

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	B.K.Sharma	2014	Environmental chemistry	Krishanan publications
2	Rao, M.N and Datta, A.K	2007	Wastewater treatment	Oxford and IBH publishers

3	Robert C.Brown	2003	Biorenewable resources: Engineering products from Agriculture new	Wiley Publishers
4	Mousdale	2008	Biofuels: Biotechnology, chemistry & Sustainable development	CRC Press

REFERENCE BOOKS

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Mark Hammer	1975	Water and Wastewater Technology	Pearson
2	Sharma,B.K	2001	An Introduction to Environmental pollution	Krishna Prakashan media
3	Caye Drapcho, Terry Walker	2008	Biofuels Engineering Process Technology	Mc Graw Hill
4.	Sunggyu Lee & Y.T. Shah	2013	Biofuels and Bioenergy Process Technologies	CRC Press

Pedagogy: Lecture, Powerpoint Presentation, Videos, OHP Presentation, Seminar, Group Discussion, Assignment and Quiz.

Course Designers

- ❖ **Ms. Pungayee Alias Amirtham**, Assistant Professor and Head, Department of Chemistry
- ❖ **Dr. R. Subha**, Assistant Professor, Department of Chemistry

ANNEXURE – P
Cauvery College for Women(Autonomous), Trichy-18
PG & Research Department of Computer Science
B.Sc Computer Science

(For the Candidates admitted from the **Academic year 2020-2021 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	,f;fhy ,yf;fpak; Story,Novel,Hindi Literature-I & Grammar-I	19ULT1	6	3	3	25	75	100
			Communication in French-I	19ULF1						
			History of Popular Tales Literature and Sanskrit Story	19ULS1						
			English Language Course- I(ELC)	Functional Grammar for Effective Communication-I						
	III	Core Course – I(CC)	Programming in C	19UCS1CC1	6	6	3	25	75	100
		Core Practical - I (CP)	Programming in C Lab	19UCS1CC1P	3	3	3	40	60	100
		First Allied I	Essential Mathematics	19UCS1AC1	4	4	3	25	75	100
		First Allied II	Numerical Analysis and Statistics	19UCS1AC2	3	-	-	-	-	-
	IV	UGC Jeevan Kaushal Life Skills	Universal Human Values	20UGVE	2	2	3	25	75	100
	TOTAL					30	21			

Note:

Part – I - Language – Tamil/Hindi/French/Sanskrit

Part –II - English

List of Allied Courses

Allied Course I - Mathematics

Allied Course II – Physics

Cauvery College for Women(Autonomous),Trichy-18
PG & Research Department of Computer Science
B.Sc Computer Science

(For the Candidates admitted from the Academic year 2019-2020 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	,f;fhy ,yf;fpak;	19ULT1	6	3	3	25	75	100
			Story,Novel,Hindi Literature-I & Grammar-I	19ULH1						
			Communication in French-I	19ULF1						
			History of Popular Tales Literature and Sanskrit Story	19ULS1						
	II	English Language Course-I(ELC)	Functional Grammar for Effective Communication-I	19UE1	6	3	3	25	75	100
	III	Core Course – I(CC)	Programming in C	19UCS1CC1	6	6	3	25	75	100
		Core Practical - I (CP)	Programming in C Lab	19UCS1CC1P	3	3	3	40	60	100
		First Allied I	Essential Mathematics	19UCS1AC1	4	4	3	25	75	100
	First Allied II	Numerical Analysis and Statistics	19UCS1AC2	3	-	-	-	-	-	
IV	Value Education	Value Education	19UGVE	2	2	3	25	75	100	
TOTAL					30	21				600
II	I	Language Course-II(LC) Tamil/Other Languages	,ilf;fhy ,yf;fpaKk; GjpdKk;	19ULT2	6	3	3	25	75	100
			Prose,Drama,Hindi Literature-2 & Grammar-II	19ULH2						
			Communication in French-II	19ULF2						
			Poetry Textual Grammar and Alakara	19ULS2						
	II	English Language Course-II(ELC)	Functional Grammar for Effective Communication-II	19UE2	6	3	3	25	75	100
	III	Core Course – II (CC)	Java Programming	19UCS2CC2	6	6	3	25	75	100
		Core Practical - II (CP)	Java Programming Lab	19UCS2CC2P	3	3	3	40	60	100
		First Allied II	Numerical Analysis and Statistics	19UCS1AC2	3	3	3	25	75	100
		First Allied III	Operations Research	19UCS2AC3	4	2	3	25	75	100
	IV	Environmental Studies	Environmental Studies	19UGES	2	2	3	25	75	100
TOTAL					30	22				700

III	I	Language Course-III (LC)- Tamil*/Other Languages**#	fhg;gpaKk; ehlfKk;	19ULT3	6	3	3	25	75	100	
			Medieval,Modern Poetry & History of Hindi Literature-3	19ULH3							
			Communication in French-III	19ULF3							
			Prose,Textual Grammar and Vakyarachana	19ULS3							
	II	English Language Course- III(ELC)	Writing for General and Specific Purposes-I	19UE3	6	3	3	25	75	100	
	III	Core Course– III(CC)		Database Management Systems	19UCS3CC3	6	6	3	25	75	100
		Core Practical - III(CP)		SQL & PL/SQL Lab	19UCS3CC3P	3	3	3	40	60	100
		Second Allied I		Digital Computer Fundamentals	19UCS3AC4	4	3	3	25	75	100
		Second Allied II		Digital & Microprocessor Lab	19UCS3AC1P	3	-	-	-	-	-
	IV	Non Major Elective I	Office Automation Lab	19UCS3NME1P	2	2	3	40	60	100	
Basic Tamil-I			19ULC3BT1	25				75			
Special Tamil-I			19ULC3ST1								
V	SWAYAM ONLINE COURSE	Google Cloud Computing Foundation Course	To be Fixed Later	-	2	As per UGC Recommendation					
TOTAL					30	20				600	
IV	I	Language Course - IV (LC) - Tamil */Other Language**#	gz;ila ,yf;fpak;	19ULT4	6	3	3	25	75	100	
			Letter writing, General Essays, Technical Terms, Proverbs, Idioms &Phrases, Hindi Literature-4	19ULH4							
			Communication in French-IV	19ULF4							
			Drama,History of Drama Literature	19ULS4							
	II	English Language Course - IV(ELC)	Writing for General and Specific Purposes-II	19UE4	6	3	3	25	75	100	
	III	Core Course – IV(CC)		Data Structures & Algorithms	19UCS4CC4	5	5	3	25	75	100
		Core Practical - IV (CP)		Data Structures Lab using C	19UCS4CC4P	3	3	3	40	60	100
		Second Allied II		Digital & Microprocessor Lab	19UCS3AC1P	3	3	3	40	60	100
		Second Allied III		Microprocessor & Microcontrollers	19UCS4AC5	3	3	3	25	75	100
	IV	Non Major Elective II	Multimedia Lab	19UCS4NME2P	2	2	3	40	60	100	
Basic Tamil-II			19ULC4BT2	25				75			
Special Tamil-II			19ULC4ST2								
Skill Based Elective – I		PC Packages & Multimedia Lab	19UCS4SBE1AP								

		Computer Hardware and Trouble Shooting Lab	19UCS4SBE1BP	2	2	3	40	60	100	
V	SWAYAM ONLINE COURSE	As per UGC Recommendation	To be Fixed Later	As per UGC Recommendation						
	TOTAL			30	24				800	
V	III	Core Course – V(CC)	Python Programming	19UCS5CC5	5	4	3	25	75	100
		Core Practical – V(CP)	Python Programming Lab	19UCS5CC5P	3	3	3	40	60	100
		Core Course - VI(CC)	Computer Graphics	19UCS5CC6	5	4	3	25	75	100
		Core Course – VII(CC)	Data Communication Networks	19UCS5CC7	6	5	3	25	75	100
		Major Based Elective – I	Computer Architecture	19UCS5MBE1A	5	5	3	25	75	100
			Software Engineering	19UCS5MBE1B						
			Cyber Security	19UCS5MBE1C						
	IV	Skill Based Elective – II	Mobile Application Development Lab	19UCS5SBE2AP	2	2	3	40	60	100
			Computer Networks Lab Using JAVA	19UCS5SBE2BP						
		Skill Based Elective – III	Software Testing Tool – Selenium	19UCS5SBE3AP	2	2	3	40	60	100
			Computer Graphics Lab Using C	19UCS5SBE3BP						
		Soft Skills	Soft Skills	19UGSD	2	2	3	25	75	100
	TOTAL				30	27				800
	VI	III	Core Course – VIII(CC)	Operating Systems	19UCS6CC8	6	6	3	25	75
Core Course – IX(CC)			Web Technology	19UCS6CC9	6	5	3	25	75	100
Core Practical – VI(CP)			Web Technology Lab	19UCS6CC6P	6	3	3	40	60	100
Major Based Elective – II			Cloud Computing	19UCS6MBE2A	6	5	3	25	75	100
			Fundamentals of Bigdata & IoT	19UCS6MBE2B						
			Artificial Intelligence	19UCS6MBE2C						
Major Based Elective – III		Shell Programming Lab	19UCS6MBE3AP	5	5	3	40	60	100	
		R Programming Lab	19UCS6MBE3BP							
		Mini Project	19UCS6MBE3CP							
V		Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100
	Extension activity		19UGEA	0	1	0	-	-	-	
TOTAL				30	26				600	
				180	140				4100	

Note:

Part – I - Language – Tamil/Hindi/French/Sanskrit

Part –II - English

List of Allied Courses

Allied Course I - Mathematics

Allied Course II – Physics

Total No. of :

Core Papers - 9

Core Practicals - 6

Allied Paper - 5

Allied Practical - 1

Part I Language - 4

Part II English - 4

Non-Major Elective - 2

Skill Based Elective - 3

Extra Credit Course -2

Major Based Elective - 3

Value Education - 1

Environmental Studies - 1

Soft Skill Development - 1

Gender Studies - 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:

- 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)

III SEMESTER

Semester III	Internal Marks: 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS3CC3	DATABASE MANAGEMENT SYSTEMS	CORE	90	6	-	6

Objective

- To study the basic concepts of database systems, relational database and queries, object modeling and database design
- To understand the strategies for storing objects, transaction management, and security
- To inculcate knowledge on DBMS concepts

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Design ER model to represent simple database application scenario	K2
CO2	Apply normalization to improve the database design	K3
CO3	Explain the transaction processing and concurrency control	K2
CO4	Apply SQL commands to manipulate data	K3
CO5	Solve a data intensive application using PL/SQL	K3

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	S	M	S	M
CO3	S	M	S	M
CO4	S	M	S	S
CO5	S	M	S	M

S – Strong; M – Medium; L - Low

Syllabus

UNIT I

(20 HOURS)

Introduction to DBMS: Characteristics of Data in Database – Database Management system – Types of Database management system – Introduction to RDBMS : Introduction – RDBMS Terminology– The Relational Data structure – Relational Data Integrity – Relational Data Manipulation – Codd’s Rules – Database Architecture and Data Modeling: Introduction – Conceptual, physical and logical database models – Database Design – Design Constraints – Functional Dependencies.

UNIT II

(20 HOURS)

Entity – Relationship Modeling: Introduction – E – R model – Components of an E – R model – Entities – Attributes – E – R Diagram conventions – Relationships – ER modeling symbols – Data Normalization: Introduction – Keys – Relationships – First NF – Second NF – Third NF – Boyce Codd’s NF – Fourth NF – Fifth NF – Domain Key NF – Denormalization.

UNIT III

(20 HOURS)

Transaction management and concurrency control: Introduction – Transactions – Transaction properties – Database Structure – Transaction states – Concurrency control – Serializability – Recoverability – Concurrency Control Schemes – Transaction Management in SQL – Transactions and Recovery – User defined Transactions – The COMMIT command – The ROLLBACK command – The SAVEPOINT command – Data Integrity – Introduction – Types of Integrity Constraints – Restrictions on Integrity Constraints.

UNIT IV

(15 HOURS)

Introduction to SQL: Introduction – Characteristics of SQL – Advantages of SQL – SQL data types and Literals – Types of SQL Commands – SQL operators – Tables, Views and Indexes: Tables – Views – Indexes – Queries and Sub queries: Queries – Sub queries.

UNIT V

(15 HOURS)

Aggregate Functions – Insert , Update and Delete Operations – Cursors – Joins and Unions – Introduction to PL/SQL.

NOSQL: features of NoSQL-Types of NoSQL Databases-Why NoSQL-Advantages of NoSQL-NoSQL in industry-SQL Versus NoSQL.

Text Books

S.No.	AUTHOR	TITLE OF THE BOOK	PUBLISHER/ EDITION	YEAR OF PUBLICATION
1.	Alexis Leon & Mathews Leon	Database Management Systems	Vikas Publishing	2008
2.	Seema Acharya, Subhashini Chellappan	Bigdata and Analytics	Wiley India Pvt.Ltd	2015

Chapters:

Unit I	: 5, 7, 8
Unit II	: 9, 11
Unit III	: 28, 29
Unit IV	: 14, 15, 17
	: 18, 19, 20, 21, Page No.933 to 948, 952 to
Unit V	967
Unit V	: 4, Page No.58 to 63 (in TextBook2)

Reference Books

S.No	AUTHOR	TITLE OF THE BOOK	PUBLISHER/ EDITION	YEAR OF PUBLICATION
1.	Raghu Ramakrishnan & Johannes Gehrke	Database Management Systems	Tata McGraw Hill International Edition, Third Edition	2003
2.	Abraham Silberschatz, Henry F. Korth, S. Sudarshan	Database System Concepts	Tata McGraw Hill International Edition	2006

Web References

1. <https://www.tutorialspoint.com/>
2. <https://www.sausriengg.com/e-course-material>
3. <https://www.ntu.edu.sg/home/ehchua/programming/sql/>

Pedagogy

Quiz, Assignment, Chalk & Talk, Power point Presentations

Course Designer

Ms. M. Gowri Sudha

Semester III	Internal Marks: 40			External Marks:60		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS3CC3P	SQL & PL/SQL LAB	CORE	45	-	3	3

Objective

- To understand the concepts of basic query language
- Apply the fundamentals of DDL, DML, DCL and TCL
- Implement new developments and trends in developing a database

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Identify the operators, basic commands, built-in functions in MySQL	K1
CO2	Compute Aggregate functions, join operations and string functions	K2
CO3	Implement RDBMS concept in developing simple applications using MySQL	K3
CO4	Apply the techniques of Exception Handling using PL/SQL.	K3
CO5	Solve the various types of online applications	K3

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	S	M	S	M
CO3	S	M	S	M
CO4	S	M	S	S
CO5	S	M	S	M

S – Strong; M – Medium; L-Low

Syllabus

1. DDL & DML operations
2. Set operations
3. Aggregate functions
4. Join operations
5. Nested subqueries
6. Create a view and expand it

7. String operations
8. Create a database for a banking enterprise and generate suitable reports
9. Write a PL/SQL program to raise an user defined exception
10. Write a PL/SQL program to raise system defined exception
11. Write a PL/SQL program using function
12. Write a PL/SQL program using procedure

Web References

1. <https://www.w3resource.com/>
2. <https://www.ntu.edu.sg/home/ehchua/programming/sql/>
3. <https://www.tutorialride.com/>

Pedagogy

Power point Presentation, Demonstration

Course Designer

Ms. M. Gowri Sudha

Course Title : Google Cloud Computing Foundation Course

Course Link : https://swayam.gov.in/nd1_noc20_cs96/

The screenshot shows a web browser window with several tabs open. The active tab is the Swayam website page for the Google Cloud Computing Foundation Course. The page features the Swayam logo, navigation links, and a search bar. The main content area has a dark blue background with the course title in yellow. It includes the instructor's name, technical partner logo (Google Cloud), a description of the course, a video player for the course introduction, and a 'JOIN' button. A disclaimer is also present at the bottom of the main content area.

COURSE LAYOUT

- Week 0 : Introduction to the course
- Week 1 : So, What's the Cloud anyway? Start with a Solid Platform
- Week 2 : Use GCP to build your Apps
- Week 3 : Where do I store this stuff?
- Week 4 : There's an API for that! You can't secure the Cloud right?
- Week 5 : It helps to network!
- Week 6 : It helps to network (continued)
- Week 7 : Let Google keep an eye on things. You have the data, but what are you doing with it?
- Week 8 : Let machines do the work

BOOKS AND REFERENCES

- <https://cloud.google.com/docs/>
- <https://www.qwiklabs.com/>

INSTRUCTOR BIO

SUMMARY

Course Status :	Upcoming
Course Type :	Elective
Duration :	8 weeks
Start Date :	17 Aug 2020
End Date :	09 Oct 2020
Exam Date :	17 Oct 2020
Enrollment Ends :	17 Aug 2020
Category :	Computer Science and Engineering
Level :	Undergraduate
This is an AICTE approved FDP course	



Semester IV	Internal Marks : 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS4CC4	DATA STRUCTURES & ALGORITHMS	CORE	75	5	-	5

Objective

- Understanding basic concepts of various data structures and the different ways of organizing them
- To articulate the essential components and operations of the data structures
- To familiarize knowledge in designing algorithms using the data structures

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Understand storage organization & operations of data structure	K1
CO2	Demonstrate problems to represent the linear and nonlinear structures	K3
CO3	Analyse the various types of data structure	K4
CO4	Discuss various sorting and searching techniques	K2

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	S	M	M	M
CO3	S	S	S	S
CO4	S	S	M	S

S-Strong, M-Medium, L- Low

Syllabus

UNIT I : BASIC TERMINOLOGY

(12 HOURS)

Overview of Data Structures- Abstract Data Types - Definition and an example – Arrays -Axiomatization – Ordered Lists - Sparse Matrices-Representation of arrays.

UNIT II: STACK & QUEUES

(15 HOURS)

Overview of Stacks and Queues-Operations on Stack-PUSH and POP-Operation on Queue-INSERT and DELETE- application of stack – Evaluation of Expressions-Recursion- Circular Queue, Deque, Priority Queue an overview.

UNIT III: LINKED LISTS

(16 HOURS)

Overview of Linked list – Representation of Linked List in Memory –Operations: Traversing a Linked list ,Searching a Linked List-Insertion into a Linked List – Deletion from a Linked List-application of linked list-Polynomial addition – Linked Stacks and Queues – Dynamic storage Management -Memory allocation- Garbage collection.

UNIT IV : TREES&GRAPHS

(16 HOURS)

Trees Terminology – Binary tree representations – Tree Traversal – Threaded Binary Trees – Graphs Terminology – Memory Representations of Graphs – Traversals, Connected Components and Spanning Trees

UNIT V: ALGORITHM: SORTING & SEARCHING

(16 HOURS)

Algorithm-Overview-Pseudocode-complexity of algorithm-Bubble Sort-Insertion Sort- Heap Sort-Quick Sort. Searching- Linear Search – Binary Search- Finding maximum and minimum.

Text Books

S.NO	AUTHOR	TITLE	PUBLICATION /EDITION	YEAR OF PUBLICATION
1	Ellis Horowiz, Sartaj Sahni	Fundamentals of Data Structure	Galgotia Publications	2010
2	Ellis Horowiz, Sartaj Sahni and Sanguthevar	Fundamentals of Computer Algorithms	Galgotia Publications	2009

Reference Books

S.NO	AUTHOR	TITLE	PUBLICATION /EDITION	YEAR OF PUBLICATION
1	Jean-Paul Tremblay and Paul G. Sorenson	An Introduction to Data Structures with Applications	Tata McGraw-Hill, Second Edition	2001
2	Alfred V. Aho, John E. Hopcroft and Jeffrey D. Ullman	Data Structures and Algorithms	Pearson Education	2006
3	Seymour Lipshutz	Data Structures with C	Tata McGraw Hill Education Pvt Ltd 3 rd Edition	2011

Web References

1. www.studytonight.com/data-structures

2. <https://lpuguidecom.files.wordpress.com/2017/04/fundamentals-of-data-structures-ellis-horowitz-sartaj-sahni.pdf>

3. <https://www.slideshare.net/canaokar/fundamentals-of-computer-algorithms-by-horowitz-sahni-rajsekar>

Pedagogy

Quiz, Assignment, Chalk-Talk, Power point Presentations, E-Content

Course Designer

Ms.K.Sangeetha

Semester IV	Internal Marks : 40			External Marks:60		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS4CC4P	DATA STRUCTURES LAB USING C	CORE	45	-	3	3

Objective

- To impart practical training on data structures using C
- To implement algorithms in real time environment
- To understand the efficiency of an algorithm based on the choice of data structure

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Identify the basic concepts of data structure	K2
CO2	Write and debug linear and non linear data structure programs to represent real world problems	K3
CO3	Apply suitable data structure to design an algorithm in real time problems	K3
CO4	Construct Programs step-wise by defining functions and calling them	K4

Mapping with Programme Outcomes

CoS	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	S	S	S	S
CO3	S	M	M	S
CO4	S	S	S	S

S-Strong;

M-Medium;

L-Low

Syllabus

1. Stack operations (PUSH & POP) using array
2. Queue operations (INSERT&DELETE) using array
3. Singly Linked list operations (INSERT,DELETE, SEARCH, COUNT) using pointer
4. Binary tree traversal using recursion
5. Sorting algorithms- Insertion sort, Bubble sort
6. Searching algorithms – Linear search, Binary search

Web References

1. <https://www.programiz.com/c-programming>
2. <https://sites.google.com/site/itstudentjunction/lab-programming-solutions/data-structures-programs/data-structures-lab-programs>
3. http://enggedu.com/implementation_of_stack_using_array/index.php

Pedagogy

Power point Presentations, E-Content

Course Designer

Ms.K.Sangeetha

Semester IV	Internal Marks: 40			External Marks:60		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS4NME2P	MULTIMEDIA LAB	NME-II	30	-	2	2

Objective

- To learn and understand technical aspect of Multimedia Systems
- To give an overall view of multimedia tools
- Explore various photo editing features, animation techniques and demonstrate proficiency in developing the multimedia presentations

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Identify the basic tools and components of a multimedia	K1
CO2	Create simple shapes using animation editing software and design simple animation by applying shape tweens and motion tweens	K4
CO3	Apply basic elements and principles of photo editing software to achieve a great photo effect by applying effects like color, shadows, alteration of backgrounds, cropping and collage making	K3

Mapping with Programme Outcomes

CoS	PO1	PO2	PO3	PO4
CO1	S	M	S	S
CO2	S	M	S	S
CO3	S	S	S	S

S – Strong; M – Medium; L – Low

Syllabus

1. Create an animation to represent the Growing Moon in Flash.
2. Create an animation for bouncing a ball in Flash.
3. Change a Circle into a Square in Flash.
4. Display the Background image given through your name using mask in Flash.
5. Create the animation using Flash with the following features:

WELCOME

- Letter should appear one by one.
 - The fill colour of the text should change to a different colour after the display of the full word.
6. Program to create an image and demonstrate basic image editing using photoshop.
 7. You are given a picture of a garden as background. Extract the image of a butterfly from another picture and organize it on the background.
 8. Given a picture, make three copies of this picture. On one of these pictures, adjust the brightness and contrast, so that it gives an elegant look. On the second picture, change it to grayscale and the third is the original one.
 9. Design a visiting card containing at least one graphic and text information in Photoshop.
 10. Convert the given image to a pencil sketch.
 11. Import two pictures, one that of sea and another of clouds. Morph, Merge and Overlap the images.

Web References

1. <http://tutorials4computer.blogspot.com/2015/02/procedure-to-create-animation-to.html>
2. <http://dte.kar.nic.in/STDNTS/CS%20IS/multimedia%20lab%20programs.pdf>
3. <https://www.adorama.com/alc/how-to-edit-your-photos-5-photoshop-editing-steps-for-beginners>

Pedagogy

Power point Presentation, e-content.

Course Designer

Ms. N.Agalya

Semester IV	Internal Marks: 40			External Marks:60		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS4SBE1AP	PC PACKAGES & MULTIMEDIA LAB	SBE-I	30	-	2	2

Objective

- To have a hands on experience in MS Office
- To give an overall view of multimedia tools
- To understand and differentiate text, image
- To perform documentation, accounting operations and presentation skills

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Explain / Outline the concepts of MS Office – Word, Excel, Power Point	K2
CO2	Analyze /Recognize when to use each of the Ms Office programs to create professional and academic documents	K4
CO3	Use MS Office programs to create personal, academic and business documents following current professional and/or industry standards	K3
CO4	Explain / Outline the concepts of Multimedia	K2
CO5	Design and implement an animation for various themes and edit the images with the use of Multimedia	K3

Mapping with Programme Outcomes

CoS	PO1	PO2	PO3	PO4
CO1	S	M	S	M
CO2	S	M	S	M
CO3	S	M	S	S
CO4	S	S	S	S
CO5	S	S	S	S

Syllabus

1. Open a new Ms Office document and perform the following operations in it.
 - i. Text Alignment
 - ii. Change type of font types and sizes
 - iii. Place a box to the entire text
 - iv. Add the bullets and numbering
 - v. Change line spacing to 1.5
2. Prepare an advertisement to a company with the following specifications
 - i. Attractive Page Border.
 - ii. Design the name of company using WordArt.
 - iii. Picture Insertion and Alignment
3. Perform Table Creation and Manipulation in Ms Word.
4. Perform mail merge in Ms Word.
5. Create the table in Ms Excel, Perform the Sorting, Filter and use formula editor.
6. Draw a line, XY, bar and pie chart for a given user data in Ms Excel
7. Create a presentation on Tourism of a place using different template, colour schema and text formats
8. Create a presentation about your college and department using animations and sound effects Add OLE object to your presentation..
9. Create an animation to represent the Growing Moon in Flash.
10. Change a Circle into a Square in Flash.
11. Display the Background image given through your name using mask in Flash.
12. Create the animation using Flash with the following features:

WELCOME

 - Letter should appear one by one.
 - The fill colour of the text should change to a different colour after the display of the full word.
13. Design a visiting card containing at least one graphic and text information in Photoshop.
14. Convert the given image to a pencil sketch.
15. Import two pictures, one that of sea and another of clouds. Morph, Merge and Overlap the images.

Web References

1. <http://dte.kar.nic.in/STDNTS/CS%20IS/multimedia%20lab%20programs.pdf>
2. <https://www.adorama.com/alc/how-to-edit-your-photos-5-photoshop-editing-steps-for-beginners>
3. <https://www.gfmer.ch/Informatics/Presentations/postgrad2005/presentation.pdf>
4. <https://hschmidt.public.iastate.edu/wordtutorial.html>

Pedagogy

Power point Presentation, e-content.

Course Designer

Ms. N.Agalya

Semester IV	Internal Marks: 40			External Marks:60		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS4SBE1BP	COMPUTER HARDWARE AND TROUBLE SHOOTING LAB	SBE -I	30	-	2	2

Objective

- To provide knowledge in basic components of computer System
- To identify common problems/failures in a Computers
- To provide knowledge in repair/maintain a computer

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Recall the fundamentals of computer components	K1
CO2	Explain the connection and functions of computer	K2
CO3	Predict the system problems	K3
CO4	Build the system with trouble shooting	K3

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4
CO1	S	M	S	S
CO2	S	S	S	S
CO3	S	S	S	S
CO4	S	S	S	S

S – Strong; M – Medium; L – Low

Syllabus

1. Identifying the basic components of a Computer
2. Identifying Power supply connection and its function
3. Identifying Input and output devices
4. Identifying storage devices
5. Assembling a PC
6. Disassembling a PC
7. Installation procedure of operating system
8. Installation procedure of software
9. Hardware troubleshooting – BIOS problems, power Supply problems, Mother board Problems
10. Hardware troubleshooting – I/O devices problems, peripheral devices problems

Web References

1. <https://www.your10.co.in/assemble-and-disassemble-computer-system/>
2. <https://youtu.be/PO7KBUHxrIU>
3. <https://www.computerhope.com/basic.htm>
4. <https://www.slideshare.net/mobile/katjeruls/computer-hardware-troubleshooting>

Pedagogy

Power point Presentation, workshop, e-content.

Course Designer

Ms. N.Girubagari

Cauvery College for Women(Autonomous)
PG & Research Department of Computer Science
M.Sc Computer Science
(For the Candidates admitted from the Academic year 2019-2020 onwards)

Semester	Course	Title	Course Code	Inst.Hrs/ week	Credits	Exam			Total
						Hrs	Mark		
							Int.	Ext.	
I	Core Course – I (CC)	Mathematical Foundation for Computer Science	19PCS1CC1	6	5	3	25	75	100
	Core Course – II (CC)	Design and Analysis of Algorithms	19PCS1CC2	6	5	3	25	75	100
	Core Course – III(CC)	Web Technologies	19PCS1CC3	6	5	3	25	75	100
	Core Practical – I(CP)	Web Technologies Lab	19PCS1CC1P	6	4	3	40	60	100
	Core Course –IV (CC)	Distributed Operating System	19PCS1CC4	6	5	3	25	75	100
Total				30	24				500
II	Core Course – V (CC)	Data Mining and Warehousing	19PCS2CC5	6	5	3	25	75	100
	Core Practical–II(CP)	Data Mining Lab and MatLab	19PCS2CC2P	6	4	3	40	60	100
	Core Course - VI (CC)	Artificial Intelligence	19PCS2CC6	6	5	3	25	75	100
	Elective Course-I(EC)	Network Security / Soft Computing/ Advanced Computer Architecture	19PCS2EC1A/ 19PCS2EC1B/ 19PCS2EC1C	6	4	3	25	75	100
	Elective Course-II(EC)	Bioinformatics/ Advanced Database System / Software Project Management	19PCS2EC2A/ 19PCS2EC2B/ 19PCS2EC2C	6	4	3	25	75	100
Total				30	22				500
III	Core Course –VII (CC)	Computer Science for Competitive Examinations	19PCS3CC7	6	5	3	25	75	100
	Core Course – III(CC)	Big Data Analytics	19PCS3CC8	6	5	3	25	75	100
	Core Practical–III(CP)	Python and R Lab	19PCS3CC3P	6	4	3	40	60	100
	Elective Course- III(EC)	Blockchain / Parallel Processing/ Compiler Design	19PCS3EC3A/ 19PCS3EC3B/ 19PCS3EC3C	6	4	3	25	75	100
	Elective Course- IV(EC)	Robotic Process Automation/ Machine Learning/ IoT	19PCS3EC4A/ 19PCS3EC4B/ 19PCS3EC4C	6	4	3	25	75	100
	SWAYAM ONLINE COURSE	Introduction to Research	To Be Fixed Later	-	2	As per UGC Recommendation			
Total				30	22				500
	Core Course –IX (CC)	Cloud Computing	19PCS4CC9	6	5	3	25	75	100
	Core Course – X (CC)	Digital Image Processing	19PCS4CC10	6	5	3	25	75	100
	Core Practical – IV CP)	FOSS Lab	19PCS4CC4P	6	4	3	40	60	100

IV	Elective Course- V(EC)	Wireless Sensor Networks/ MANET/ Mobile Computing	19PCS4EC5A/ 19PCS4EC5B/ 19PCS4EC5C	6	4	3	25	75	100
	Project	Project	19PCS4PW	6	4	-	-	-	100
TOTAL				30	22				500
				120	90				2000

Note:

Total No. of Core Papers - 10

Total No. of Practicals - 4

Total No. of Elective Papers – 5

Extra Credit Course -1

No. of Projects - 1

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)
- 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,

Marks for Dissertation : 80 Marks

Marks for Viva Voice : 20 Marks

Total Marks : 100 Marks

III SEMESTER

Semester III	Internal Marks : 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
19PCS3CC7	COMPUTER SCIENCE FOR COMPETITIVE EXAMINATIONS	CORE	90	6	-	5

Objective:

- To understand the need for preparing competitive exams
- To study the basic concepts of core subjects in computer science
- To inculcate the knowledge of implementation of various concepts

Syllabus:

UNIT I

(18 HOURS)

Mathematical Logic: Propositional and Predicate Logic - Normal Forms- Predicates and Quantifiers- Rules of Inference- Sets and Relations: Probability - Group Theory –Graph Theory – Optimization-**Digital Logic:** Number systems- Boolean Algebra and Minimization of functions- Combinational Circuits – Sequential Circuits.

UNIT II

(18 HOURS)

Computer Organization and Architecture: Machine Instruction and Addressing Modes – ALU & Data Path, CPU Control Design – Memory & I/O Interface – Instruction Pipeline – Cache and Main Memory, Secondary Storage – Microprocessor-Computer Graphics: **2-D Geometrical Transforms and Viewing- 3-D Object Representation, Geometric Transformations and Viewing- Software Engineering:** Software Process Models – Software Requirements – Software Design – Software Quality – Estimation and Scheduling of software projects – Software Testing – Software Configuration Management.

UNIT III

(18 HOURS)

Database Management Systems: Basic concepts – Data Modeling – SQL – Normalization- Data models – Data Warehousing and Data Mining-**Operating System :** Basics of operating system - Process Management – Threads – CPU Scheduling – Deadlocks – Memory Management – Storage Management – File and Input/output Systems – Security – Linux – Distributed Systems-**Data Structures and Algorithms:** Linked Lists, Stacks and Queues – Trees-Searching - Sorting – Hashing - Asymptotic Analysis – Algorithm design techniques: Greedy Approach, Dynamic Programming Divide and Conquer – Graph Search, Minimum Spanning trees, Shortest paths – Complexity Theory .

UNIT IV

(18 HOURS)

Theory of Computation: Finite Automata and Regular Languages–Context Free Languages and Push down Automata–Recursive Enumerable sets and Turing Machines – Syntax & Semantic Analysis-
Compiler Design: Lexical Analysis and Parsing – Syntax Directed Translation- Intermediate code generation – Code optimization-
Data Communication and Computer Networks: Concept of Layering – Network Types & Models – Functions of OSI & TCP/IP Layers - Flow and Error Control techniques, switching – IPV4/IPV6, routers and routing algorithms – TCP/UDP and sockets, congestion controls. Application Layer Protocols (WWW, DNS, SMTP, POP, FTP, and HTTP) -Network Security: authentication, basics of public key, cryptography, digital signatures and certificates, firewalls.

UNIT V

(18 HOURS)

Number Systems- Series Completion -Coding & Decoding- Problems on Ages - Blood Relation - Probability – Permutation & Combination - Data Interpretation - ICT (Information and Communications Technology-Logical Reasoning & Non – Verbal Reasoning .

Case Study: Programming Languages- Programming in C- Object Oriented Programming – Programming in C++/JAVA - Web Programming.

Reference Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER/ EDITION	YEAR OF PUBLICATION
1.	Dr.R.S.Aggarwal,	Quantitative Aptitude for Competitive Examinations	S.Chand Publishing	2017
2.	Dr.R.S.Aggarwal,	A modern Approach to verbal & Non-verbal Reasoning	S.Chand Publishing	2020
3.	R.Gupta	UGC – NET/SET Computer Science & Applications	R.Gupta	2015
4.	Surbhi Sharma, Kailasah Chandra Gurunani	UGC NET Computer Science and Applications	Arihant Publication	2018
5.	Trishna Knowledge Systems	GATE Computer Science and Information Technology- GATE 2020	Pearson	2019

Web References:

1. <https://www.careerbless.com/aptitude/qa/home.php>
2. <https://www.sawaal.com/aptitude-reasoning/quantitative-aptitude-arithmetic-ability-questions-and-answers.html>
3. <https://www.indiabix.com/non-verbal-reasoning/questions-and-answers/>
4. <https://www.geeksforgeeks.org/ugc-net-cs-preparation/>
5. <http://www.netugc.com/ugc-net-solved-question-papers-in-computer-science-and-applications>
6. <https://gatecse.in/>
7. <https://gateoverflow.in/>

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Explain concepts of computer science core subjects	K2
CO2	Apply the knowledge to solve various types of problems	K3
CO3	Examine various computer science concepts on real time applications	K4
CO4	Develop a scientific aptitude and sense of reasoning	K5

Mapping with Programme Outcomes:

Cos	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	S	S	S	S
CO3	S	S	S	M
CO4	S	S	S	M

S – Strong; M – Medium; L - Low

Pedagogy: Chalk and Talk, PPT, Discussion, Group discussion, Assignments, Workshops

Course Designer: Ms.R.Ramya

Semester III	Internal Marks : 25	External Marks:75
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COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
19PCS3CC8	BIG DATA ANALYTICS	CORE	90	6	-	5

Objective:

- To provide knowledge about Big data Analytics
- To study the basic concepts on Data Science & Analytical Technologies
- To understand about Hadoop & MAPREDUCE fundamentals
- To inculcate knowledge about MongoDB & Cassandra

Syllabus:

Unit I

(12 HOURS)

Types of Digital Data: Classification of Digital Data - Characteristics of Data-Evolution of Big Data- Definition of Big Data-Challenges with Big Data- Characteristics of Big Data-Other characteristics of data - Need for Big Data.

Unit II

(18 HOURS)

Big Data Analytics: Characteristics of Big Data analytics- Need for Big Data analytics-Classification of analytics-Greatest challenges that prevent businesses from capitalizing on Big Data –Importance of Big Data analytics – Data science-Data scientist- Terminologies used in Big Data environments-Analytics tools.

Unit III

(20 HOURS)

Big data Technology: NoSQL - Hadoop. Introduction to Hadoop: Introducing Hadoop- Need for Hadoop-Limitations of RDBMS -RDBMS versus HADOOP-History of Hadoop – Hadoop overview- Interacting with Hadoop ecosystem –HDFS - Processing Data with Hadoop MapReduce – Managing resources and applications with Hadoop YARN-**Introduction to MAPREDUCE programming**

Unit IV

(20 HOURS)

Introduction to MongoDB: Need for MongoDB -Terms used in RDBMS and MongoDB - Data types in MongoDB- MongoDB Query Language.

Unit V

(20 HOURS)

Introduction to Cassandra: An introduction -Features of Cassandra-CQL data types-CQLSH- Keyspaces-CRUD- Collections -Using a Counter – Time to live – Alter commands – Import and Export

Text Book:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER/ EDITION	YEAR OF PUBLICATION
1.	Seema Acharya, Subhashini Chellappan	Bigdata and Analytics	Wiley India Pvt.Ltd	2015

Reference Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER/ EDITION	YEAR OF PUBLICATION
1.	V.Bhuvaneswari T.Devi	Bigdata Analytics- A Practioner's Approach	Bharathiyar University, Coimbatore	2016
2.	Michael Minelli, Michele Chambers, Ambiga Dhiraj	Big data Big Analytics	Wiley	2013
3.	Bart Baesens	Analytics in a Big data World	Wiley	2014
4.	DT Editorial Services	Big data Black Book	Dreamtech Press	2016

Web References:

1. https://webopedia.com/TERM/B/big_data_analytics.html
2. <https://hadoop.apache.org/>
3. <https://www.mongodb.com/>
4. <https://www.tutorialspoint.com/cassandra/index.htm>
5. <https://www.edureka.co/blog/mapreduce-tutorial/>

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the fundamentals of Bigdata analytics	K2
CO2	Describe the Hadoop architecture and File system	K2
CO3	Apply the MapReduce Programming model for real-world problems	K3
CO4	Explore the concepts of NoSQL databases	K4
CO5	Develop a complete business data analytics solution	K6

Mapping with Programme Outcomes:

Cos	PO1	PO2	PO3	PO4
CO1	S	S	M	S
CO2	S	S	S	S
CO3	M	S	M	L
CO4	S	S	S	L
CO5	S	S	S	S

S – Strong; M – Medium; L - Low

Pedagogy: Chalk and talk, PPT, Discussion, Interactive Teaching, Group discussion and Workshops

Course Designer: Ms.A.Sahaya Jenitha

Semester III	Internal Marks : 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
19PCS3EC3A	BLOCKCHAIN	ELECTIVE	90	6	-	4

Objective:

- Allow the students to explore the driving force behind the cryptocurrency
- Inculcate knowledge about Bitcoin, along with the Decentralization and Cryptography provides alternative to Bitcoins
- Initiate Smart contracts and currencies

Syllabus:**UNIT I****(13 HOURS)**

Distributed systems- History of blockchain- Introduction to blockchain- Types of Blockchain - CAP theorem and blockchain- Benefits and limitations of blockchain.

UNIT II**(17 HOURS)**

Decentralization using blockchain- Methods of decentralization- Routes to Decentralization- Decentralized organizations-Cryptography and Technical Foundations: Cryptographic primitives-Asymmetric cryptography- Public and private keys.

UNIT III**(20 HOURS)**

Bitcoin –Transactions- Blockchain- Bitcoin payments. Alternative Coins -Theoretical foundations- Bitcoin limitations- Namecoin, Litecoin, Primecoin, Zcash.

UNIT IV**(20HOURS)**

Definition-Ricardian contracts: Smart contract templates-Deploying smart contracts on a blockchain.

UNIT V**(20 HOURS)**

Internet of Things- Government- Health- Finance- Media.

Text Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER/EDITION	YEAR OF PUBLICATION
1.	Imran Bashir	Mastering Blockchain	Packt, Birmingham, Mumbai	2018
2.	Andreas M.Antonopoulos	Mastering Bitcoin	O'REILLY,2 nd Edition	2019

Reference Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER/EDITION	YEAR OF PUBLICATION
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1.	Tiana Laurence	Blockchain for dummies	Wiley	2017
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Web References:

1. <http://nptel.ac.in/courses/106106168/27>
2. <https://www.edx.org/learn/blockchain-cryptography>
3. <https://www.class-central.com/tag/blockchain>
4. <https://cognitiveclass.ai/courses/blockchain-course/>
5. <https://www.skillshare.com/browse/blockchain>

Course Outcomes:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Define blockchain,types,applications &limitations	K1
CO2	Explore blockchain, cryptography concepts	K2
CO3	Enumerate bitcoin and other alternatives	K3
CO4	Differentiate various contracts	K4
CO5	Propose IoT in various sectors	K5

Mapping with Programme Outcomes:

COs	PO1	PO2	PO3	PO4
CO1	M	M	L	L
CO2	M	L	M	L
CO3	S	L	M	L
CO4	M	M	M	S
CO5	L	S	S	S

S – Strong; M – Medium; L - Low

Pedagogy : Chalk and Talk, Discussion, Lecture, Quiz, PPT

Course Designer: Ms.D.Radhika

Semester III	Internal Marks : 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
19PCS3EC3B	PARALLEL PROCESSING	ELECTIVE	90	6	-	4

Objective:

- To study how parallel computers work
- To analyze the correct designs of parallel architectures, especially within the technological constraints
- To prepare students for a career in designing the computer systems of the future

Syllabus:**UNIT I****(16 HOURS)**

Fundamentals of Parallel Processing – Evolution of Computer System- Trends towards parallel processing – Parallelism in Uniprocessor Systems – Parallel Computer Structures – Architectural Classification Schemes– Parallel Processing Applications.

UNIT II**(16 HOURS)**

Memory and Input-Output Subsystems: Hierarchical Memory Structure – Virtual Memory System – Memory Allocation and Management – Cache Memories and Management – Input-Output Subsystems.

UNIT III**(20 HOURS)**

Pipelining : An Overlapped Parallelism – Principles linear pipelining – classification of pipeline processors – general pipeline and reservation tables – arithmetic pipeline design examples – data buffering and bus Structure – internal forwarding and register tagging – hazard detection and resolution – job Sequencing and collision prevention – vector processing requirements – characteristics – Pipelined vector processing methods.

UNIT IV**(20 HOURS)**

Vectorization and Optimization Method- Language Features in Vector Processing – Design of Vectorizing Compilers-SIMD array processors – Organization – Masking and Data routing – Inter PE Communications – SIMD Interconnection Networks – Static vs Dynamic network– Mesh connected Illiac network– Cube Interconnection network – Barrel Shifter and Data Manipulator - Shuffle-exchange and Omega networks- GPU Basics-Architecture of a modern GPU-Evolution of Graphics Pipelines-GPGPU- An intermediate Step-GPU computing.

UNIT V**(18 HOURS)**

Multiprocessors Architecture and Programming - Functional Structures - Interconnection Networks – Time Shared or Common Buses- Crossbar Switch and Multiport Memories- Multistage Networks for Multiprocessors- Parallel Memory Organizations - Multiprocessor Operating Systems –Multiprocessor Scheduling Strategies.

Text Book:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER / EDITION	YEAR OF PUBLICATION
1.	Kai Hwang, Faye A. Briggs	Computer Architecture and Parallel Processing	McGraw Hill International Edition	2017

Reference Books:

S.N O	AUTHOR	TITLE OF THE BOOK	PUBLISHER / EDITION	YEAR OF PUBLICATION
1.	Sajjan G. Shiva	Advanced Computer Architecture	Taylor & Francis	2006
2.	Kai Hwang	Advanced Computer Architectures : Parallelism, Scalability, Programmability	Tata McGraw Hill	2003
3.	David B.Kirk, Wen-mei W.Hwu	Programming Massively Parallel Processors	MK Publications, Second Edition	2013

Web References:

- https://www.tutorialspoint.com/parallel_computer_architecture/index.htm
- <https://www.geeksforgeeks.org/introduction-to-parallel-computing/>
- <https://www.studytonight.com/computer-architecture/parallel-processing-and-data-transfer>
- <https://www.nlb.gov.sg/biblio/12672553>
- https://vincyjoseph.files.wordpress.com/2014/01/computer_architecture_hwang_brigg.pdf
- <http://digilib.stmikbanjarbaru.ac.id/data.bc/18.%20Programming/2013%20Programming%20Massively%20Parallel%20Processors%20A%20Hands-on%20Approach%202nd.pdf>

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level

CO1	Discuss the concepts of parallel processing including various kinds of system architectures	K2
CO2	Illustrate the issues and techniques in improving performance of SIMD Computers	K3
CO3	Compare the pipeline and parallel concepts	K4
CO4	Categorize the Multiprocessor systems, cache coherence and Interconnection networks	K5

Mapping with Programme Outcomes:

COs	PO1	PO2	PO3	PO4
CO1	S	S	M	S
CO2	S	M	M	S
CO3	S	S	S	S
CO4	S	S	S	S

S – Strong; M – Medium; L - Low

Pedagogy : Chalk and talk, Lecture, Discussion, Quiz, Demonstration, PPT

Course Designer: Mrs.R.Ramya

Semester III	Internal Marks : 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
19PCS3EC4A	ROBOTIC PROCESS AUTOMATION	ELECTIVE	90	6	-	4

Objective:

- To enrich the knowledge in Robotic Process Automation
- Learn sequence and control flow
- To know about the RPA Usecases

Syllabus:**UNIT I****(15 HOURS)**

What is Robotics Process Automation: Scope and Techniques of Automation - Robotic Process Automation – The Future of Automation.

UNIT II**(20 HOURS)**

Sequence, Flow Chart and Control Flow: Sequencing the Workflow – Activities – Control Flow, Various Types of Loops and Decision Making, Step-by-step example using Sequence and Flow Chart - Step-by-step example using Sequence and Control Flow.

UNIT III**(20 HOURS)**

Data Manipulation: Variables and Scope – Collections – Arguments – Purpose and use – Data Table usage with examples – Clipboard Management – File Operation with step-by-step example – CSV/Excel to data table and vice versa.

UNIT IV**(20 HOURS)**

Taking Control of The Controls System: Finding and Attaching Windows – Finding the Control – Techniques for waiting for a control – Act on Controls – Mouse and Keyboard Activities – Working with UiExplorer – Handling events – Revisit Recorder – Screen Scraping – When to use OCR – Types of OCR available – How to use OCR – Avoiding Typical failure points.

UNIT V**(15 HOURS)**

RPA Usecases: RPA in Banking – Excel Automation – PDF Data Extraction & Automation – RPA Data Migration and Entry – Email Automation

Text Book:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER/EDITION	YEAR OF PUBLICATION
1.	Alok Mani Tripathi	Learning Robotic Process Automation	Packt, Birmingham	2018

Reference Book:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER/EDITION	YEAR OF PUBLICATION
1	Steve Kaelble	Robotic Process Automation for dummies	NICE RPA team	2018

Web References:

- [1.https://www.edureka.co/blog/rpa-tutorial/](https://www.edureka.co/blog/rpa-tutorial/)
- [2.https://www.udemy.com/course/robotic-process-automation/](https://www.udemy.com/course/robotic-process-automation/)
- [3.https://www.guru99.com/robotic-process-automation-tutorial.html](https://www.guru99.com/robotic-process-automation-tutorial.html)
- [4.https://www.automationanywhere.com/in/robotic-process-automation](https://www.automationanywhere.com/in/robotic-process-automation)
- [5.https://www.uipath.com/blog/learning-robotic-process-automation-through-video-tutorials](https://www.uipath.com/blog/learning-robotic-process-automation-through-video-tutorials)

Course Outcomes:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Learn Robotic Process Automation and its Features	K1
CO2	Explore Control Flow and Decision Making	K2
CO3	Enumerate Clipboard Management	K3
CO4	Differentiate various controls	K4

Mapping with Programme Outcomes:

COs	PO1	PO2	PO3	PO4
CO1	M	M	L	L
CO2	M	L	M	L
CO3	S	L	M	L
CO4	M	M	M	S
CO5	L	S	L	L

S – Strong; M – Medium; L - Low

Pedagogy: Chalk and Talk, Discussion, Lecture, Quiz, PPT

Course Designer: Ms.R.Sangeetha

Course Title : **Introduction to Research**

Course Link : https://www.swayam.gov.in/nd1_noc20_ge22/

The screenshot shows the Swayam website interface. At the top, there are navigation links: "About Swayam", "All Courses", "National Coordinators", and "Local Chapters". A search bar labeled "COURSE CATALOG" and a "SIGN-IN / REGISTER" button are also visible. The main content area features a dark blue background with white text. It includes a video player showing a professor, a "JOIN" button, and a "Learners enrolled: 584" indicator. Below this, there is a "COURSE LAYOUT" section listing 8 weeks of topics, and a "SUMMARY" table with course details.

By Prof. Prathap Narayana | IN Madras

Large numbers of students are actively considering and taking up research and associated higher studies. This course aims to introduce students to the important aspects of research. The intent of the course is to make students aware of the details associated with formal research and to help students overcome common misconceptions that may be present in their minds. By going through this course, students are likely to be able to take up research activities in a more systematic and formal manner right from the beginning.

INTENDED AUDIENCE : Students of ME/MTech/MS/MSc/PhD can benefit.

PRE-REQUISITES : Students who have completed undergraduate studies (in Engineering or Science) will be in a better position to benefit from this course

Learners enrolled: 584

JOIN

COURSE LAYOUT

- Week 1** : A group discussion on what is research; Overview of research;
- Week 2** : Literature survey, Experimental skills;
- Week 3** : Data analysis, Modelling skills;
- Week 4** : Technical writing; Technical Presentations; Creativity in Research
- Week 5** : Creativity in Research; Group discussion on Ethics in Research
- Week 6** : Design of Experiments
- Week 7** : Intellectual Property
- Week 8** : Department specific research discussions

SUMMARY

Course Status :	Upcoming
Course Type :	Elective
Duration :	8 weeks
Start Date :	17 Aug 2020
End Date :	09 Oct 2020
Exam Date :	18 Oct 2020
Enrollment Ends :	17 Aug 2020
	Multidisciplinary
Category :	Faculty Domain for
	Newly Joined
Level :	Postgraduate
	This is an AICTE approved FDP course

IV SEMESTER

Semester IV	Internal Marks : 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
19PCS4CC9	CLOUD COMPUTING	CORE	90	6	-	5

Objective:

- To provide an in-depth and comprehensive knowledge of the Cloud Computing fundamental issues, technologies, applications and implementations.
- To motivate students to do programming and experiment with the various cloud computing environments
- To introduce about the Cloud Standards

Syllabus:

UNIT I:

(15 HOURS)

Defining Cloud Computing- Cloud Types: The NIST model - The Cloud Cube Model - Deployment models - Service models - Examining the Characteristics of Cloud Computing: Paradigm shift - Benefits of cloud computing - Disadvantages of cloud computing - Assessing the Role of Open Standards.

Assessing the Value Proposition: Early adopters and new applications - The laws of cloudonomics - Cloud computing obstacles - Behavioral factors relating to cloud adoption.

UNIT II:

(20 HOURS)

Understanding Cloud Architecture: Exploring the Cloud Computing Stack– Composability-Infrastructure – Platforms - Virtual Appliances - Communication Protocols – Applications.

Understanding Services and Applications by Type: Defining Infrastructure as a Service (IaaS) - Defining Platform as a Service (PaaS) - Defining Software as a Service (SaaS) - SaaS characteristics - Open SaaS and SOA.

UNIT III:

(20 HOURS)

Understanding Abstraction and Virtualization: Using Virtualization Technologies - Load Balancing and Virtualization: Advanced load balancing - The Google cloud - Understanding Hypervisors: Virtual machine types - VMware vSphere - Understanding Machine Imaging: Porting Applications - The Simple Cloud API - AppZero Virtual Application Appliance.

Capacity Planning - Load testing - Resource ceilings - Server and instance types.

UNIT IV:

(20 HOURS)

Understanding Cloud Security: Securing the Cloud – Securing Data – Establishing Identity and Presence.

Using The Mobile Cloud: Working with Mobile Devices – Defining the Mobile Market – Using Smartphones with the Cloud.

Working With Mobile Web Services: Understanding Service Types – Performing Service Discovery – Using SMS – Defining WAP and other Protocols – Performing Synchronization.

UNIT V:

(15 HOURS)

Cloud Programming and Software Environments: Parallel and distributed programming paradigms – Programming support of Google App Engine – Programming on Amazon AWS and Microsoft Azure – Emerging Cloud software environments.

Text Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER /EDITION	YEAR OF PUBLICATION
1	Barrie Sosinsky	Cloud Computing Bible	Wiley Publishing Inc	2011
2	Kai Hwang, Geoffrey C. Fox and Jack J. Dongarra	Distributed and Cloud computing: From parallel processing to the Internet of Things	Morgan Kaufmann	2013

Reference Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER /EDITION	YEAR OF PUBLICATION
1	Michael Miller	Cloud Computing	Pearson Education Inc., 7th Edition	2012
2	Rajkumar Buyya & Co.	Cloud Computing Principles and Paradigms	John Wiley & Sons Publications	2011

Web References:

1. https://www.tutorialspoint.com/cloud_computing/index.htm
2. <https://data-flair.training/blogs/cloud-computing-tutorial/>

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Explain the cloud paradigm and its various forms of services	K3
CO2	Illustrate the architecture, infrastructure and delivery models	K3
CO3	Apply suitable virtualization concepts	K4
CO4	Solve problems using cloud toolkit	K4
CO5	Create interactive mobile services	K5

Mapping with programme outcomes:

COs	PO1	PO2	PO3	PO4
CO1	S	S	S	M
CO2	S	S	S	S
CO3	S	S	S	S
CO4	S	S	S	S
CO5	S	M	S	L

S- Strong; M- Medium; L- Low

Pedagogy: Chalk and talk, Discussion, Quiz, Assignments & PPT

Course Designer: Ms.P.Muthulakshmi

Semester IV	Internal Marks : 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT

19PCS4CC10	DIGITAL IMAGE PROCESSING	CORE	90	6	-	5
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Objective:

- To impart the knowledge of image fundamentals and mathematical transforms necessary for image processing
- To understand the image enhancement techniques
- To study image compression procedures
- To study the image segmentation and representation techniques

Syllabus:

UNIT-I

(14 Hours)

Introduction to Image Processing: Overview of Image Processing-Nature of Image Processing- Image Processing and Related Fields-Digital Image Representation-Types of Images-Digital Image Processing Operations-Fundamental Steps in Image Processing- Image Processing Applications-Digital Imaging System-Colour Image Processing: Colour Models- Colour Quantization.

UNIT-II

(18 Hours)

Image Acquisition: Physical and biological aspects-Sampling and Quantization-Image quality-Image Transforms: Need for Image Transforms-Properties of Fourier Transform-Discrete Cosine Transform-Discrete Sine Transform- Walsh Transform-Hadamard Transform-Haar Transform-Slant Transform-SVD and KL Transforms.

UNIT-III

(19 Hours)

Image Enhancement and Restoration: Image Quality and Need for Image Enhancement-Point Operations-Spatial Filtering Concepts-Frequency Domain Filtering-Image Degradation Model-Categories of Image Degradations-Image Restoration Techniques.

UNIT-IV**(19 Hours)**

Image Segmentation : Introduction-Classification of Image Segmentation Algorithms-Detection of Discontinuities-Edge Detection-Hough Transforms and Shape Detection-Corner Detection-Principles of Thresholding

UNIT-V**(20 Hours)**

Image Compression: Image Compression Models – Compress Algorithms and its types – Types of Redundancy – Lossless Compression Algorithms – Lossy Compression Algorithms – Image and Video Compression Standards.

Case study: Face Recognition-Iris Recognition-Fingerprint Recognition-Signature Verification

Text Book:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER /EDITION	YEAR OF PUBLICATION
1	Dr.S.Sridhar	Digital Image Processing	Oxford University Press	2012

Reference Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER /EDITION	YEAR OF PUBLICATION
1	Anil Jain K.	Fundamentals Of Digital Image Processing	PHI Learning Pvt. Ltd	2011
2	Rafael C. Gonzalez, Richard E. Woods, Steven L. Eddins	Digital Image Processing Using MATLAB	Third Edition Tata Mc Graw Hill Pvt. Ltd	2011
3	Malay K. Pakhira	Digital Image Processing And Pattern Recognition	PHI Learning Pvt. Ltd, 1st Edition	2011

Web References:

1. <http://www.cs.nmt.edu/~ip/lectures.html>
2. <http://cvc.yale.edu/projects/yalefaces/yalefaces.html>
3. <https://bestlearning.gnomio.com/>

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the fundamentals concepts of digital image processing and image transforms	K2
CO2	Analyze images in the frequency domain using various transforms	K4
CO3	Evaluate the techniques for image enhancement and image restoration	K5
CO4	Interpret image segmentation techniques	K3
CO5	Compare various compression techniques	K4
CO6	Apply image processing algorithms in practical applications	K3

Mapping with programme outcomes:

COs	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	S	S	S	S
CO3	S	S	M	S
CO4	S	M	S	S
CO5	S	S	S	S
CO6	S	S	S	S

S – Strong; M – Medium; L – Low

Pedagogy: Power point Presentation, e-content.

Course Designer : Ms.K.Reka

Semester IV	Internal Marks : 40	External Marks:60
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COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
19PCS4CC4P	FOSS LAB	CORE	90	-	6	4

Objective:

- To expose students to FOSS environment
- To use and modify existing programs using open source packages/Technologies
- To inculcate knowledge in developing new software

Syllabus

1. Linux
2. GIMP: GNU Image Manipulation Program
3. Apache Struts
4. Perl
5. Ruby
6. Apache Cassandra database
7. Mongo DB
8. Hadoop

Web References:

1. <https://www.vmware.com/>
2. <https://www.cyberciti.biz/tips/linux-unix-bsd-documentations.html>
3. <https://developer.gimp.org/api/2.0/>
4. <https://struts.apache.org/>
5. https://www.tutorialspoint.com/perl/perl_references.html
6. <https://www.ruby-lang.org/en/documentation/>
7. <https://cassandra.apache.org/doc/latest/>
8. <https://docs.mongodb.com/manual/reference/database-references/>
9. <https://hadoop.apache.org/>

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

CO Number	CO Statement	Knowledge Level
CO1	Ability to install and run open-source operating systems	K1
CO2	Explain open source project structure and how to successfully setup a project	K2
CO3	Ability to contribute software to and interact with Free and Open Source Software development projects	K3
CO4	Exploring the Hadoop Distributed File System (HDFS)	K3

Mapping with Programme Outcomes:

Cos	PO1	PO2	PO3

				PO4
CO1	S	S	S	S
CO2	S	S	S	S
CO3	S	S	S	S
CO4	S	S	S	S

S – Strong; M – Medium; L – Low

Pedagogy : Demonstration

Course Designers: Ms.S.Udhayapriya & Ms.V.Kavitha

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
19PCS4EC5A	WIRELESS SENSOR NETWORKS	ELECTIVE	90	6	-	4

Objective:

- To get a thorough knowledge of sensors and its architecture
- To learn about the characteristics of wireless transmission
- To gain the exposure of sensor platform and its tools

Syllabus:

UNIT I

(13 HOURS)

OVERVIEW OF WIRELESS SENSOR NETWORKS: Application Examples-Types of Applications -Challenges for Wireless Sensor Networks, Enabling Technologies for Wireless Sensor Networks.

UNIT II

(17 HOURS)

ARCHITECTURES : Single-Node Architecture - Hardware Components, Energy Consumption of Sensor Nodes , Operating Systems and Execution Environments, Network Architecture - Sensor Network Scenarios, Optimization Goals and Figures of Merit, Gateway Concepts.

UNIT III

(20 HOURS)

NETWORKING SENSORS : Physical Layer and Transceiver Design Considerations, MAC Protocols for Wireless Sensor Networks, Low Duty Cycle Protocols and Wakeup Concepts - S-MAC , The Mediation Device Protocol, Wakeup Radio Concepts, Address and Name Management, Assignment of MAC Addresses, Routing Protocols Energy-Efficient Routing, Geographic Routing

UNIT IV

(20 HOURS)

INFRASTRUCTURE ESTABLISHMENT: Topology Control, Clustering, Time synchronization, Localization and Positioning, Sensor Tasking and Control.

UNIT V

(20 HOURS)

SENSOR NETWORK PLATFORMS AND TOOLS: Sensor Node Hardware – Berkeley Motes, Programming Challenges, Node level software platforms, Node-level Simulators, State-centric programming

Text Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER /EDITION	YEAR OF PUBLICATION
1.	Holger Karl, Andreas Willig	Protocols and Architectures for Wireless Sensor Networks	John Wiley	2005
2.	Feng Zhao, Leonidas J.Guibas	Wireless Sensor Networks- An Information Processing Approach	Elsevier	2007

Reference Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER /EDITION	YEAR OF PUBLICATION
1.	Kazem Sohraby, Daniel Minoli, and Taieb Znati	Wireless Sensor Networks-Technology, Protocols and Applications	John Wiley	2007
2.	Anna Hac	Wireless Sensor Network Designs	John Wiley	2003

Web References:

1. www.cs.wpi.edu
2. sensors-and-networks.blogspot.com
3. www.tfb.edu.mk

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Define the wireless sensor, various platforms and its issues	K1
CO2	Review the various deployment mechanisms	K2
CO3	Construct the MAC layer and its issues	K3
CO4	Differentiate architectures, functions and performance of wireless sensor networks systems and its platforms	K4
CO5	Propose various routing protocols	K5

Mapping with Programme Outcomes:

COs	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	S	S	M	M
CO3	S	S	S	S

CO4	S	S	S	S
CO5	S	S	S	S

S – Strong; M – Medium; L – Low

Pedagogy : Chalk and Talk, Discussion, Lecture, Quiz, PPT

Course Designer : Ms.D.Radhika

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
19PCS4EC5B	MANET	ELECTIVE	90	6	-	4

Objective:

- Able to understand the principles of adhoc networks
- To get a knowledge of routing protocols and their performance
- Gain battery management schemes
- Identify issues and solutions of transport layer

Syllabus:

UNIT I

(12 HOURS)

Adhoc Networking-Model of Operation-Commercial Applications-Technical factors affecting Adhoc networks.

UNIT II

(18 HOURS)

Issues in Designing a Routing Protocol for Ad Hoc Wireless Networks – Classifications of Routing Protocols – Table–Driven Routing Protocols – On Demand Routing Protocols-Hybrid Routing Protocols.

UNIT III

(20 HOURS)

Issues in Designing a Multicast Routing Protocol –Classifications of Multicast Routing Protocols – Tree–Based Multicast Routing Protocols– Mesh–Based Multicast Routing Protocols– Energy–Efficient Multicasting – Multicasting with Quality of Service Guarantees – Application – Dependent Multicast Routing .

UNIT IV

(20 HOURS)

Transport layer : Issues in designing- Classification of Transport Layer Solutions-Security in Adhoc Wireless Networks-Secure Routing in Adhoc Wireless Networks-Network Layer Solutions-QoS Frameworks for Adhoc Wireless Networks.

UNIT V

(20 HOURS)

Battery Management Schemes-Transmission Power Management Schemes-Recent advances in Wireless Networks-Ultra Wide Band Radio Communication-Wireless Fidelity Systems.

Text Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER /EDITION	YEAR OF PUBLICATION
1.	C.Siva Ram Murthy, B.S.Manoj	Ad hoc Wireless Networks Architectures and protocols	Pearson Education	2007
2.	Charles E. Perkins	Adhoc Networking	Addison-Wesley Professional	2001

Reference Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER /EDITION	YEAR OF PUBLICATION
1.	Stefano Basagni, Marco Conti, Silvia Giordano and Ivan Stojmenovic	Mobile ad hoc Networking	Wiley-IEEE press	2004
2.	Mohammad Ilyas	The handbook of adhoc wireless networks	CRC press	2002
3.	C. K. Toh	Ad Hoc Mobile Wireless Networks Protocols and Systems	Prentice Hall	2001

Web References:

1. en.wikipedia.com
2. tools.ietf.com
3. folk.uio.no
4. www.ietf.org
5. Tandfonline.com
6. books.google.co.in

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	State the adhoc networks, characteristics and its features	K1
CO2	Review the protocol design issues of adhoc networks	K2
CO3	Examine the transport layer issues	K3
CO4	Compare QoS related performance measurements of ad hoc and sensor networks	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	S	S	S	S
CO3	S	S	S	S
CO4	S	S	S	S

S – Strong; M – Medium; L - Low

Pedagogy : Lecture, Quiz, and PPT

Course Designer : Ms.D.Radhika

Semester IV	Internal Marks : 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT

19PCS4EC5C	MOBILE COMPUTING	ELECTIVE	90	6	-	4
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Objective:

- To understand Wireless networks GSM , UMTS and WAP Architecture
- To gain basic knowledge about Android application development
- To create real time app using content providers and Threads

Syllabus:

UNIT I (15 HOURS)

Applications – Mobile and Wireless Devices – Simplified Reference Model – Need for Mobile Computing – Wireless Transmission – Multiplexing. Telecommunication system : Telecommunication system– GSM – Architecture- Handover-Security.

UNIT II (15 HOURS)

Wireless LAN : IEEE 802.11 – System Architecture-MAC Frame – MAC Management – Bluetooth - Architecture. Mobile IP: Goals – Packet Delivery –Strategies – Registration –Adhoc Networks – Routing Strategies.

UNIT III (21 HOURS)

Getting started with Android programming: What Is Android? - Obtaining the Required Tools - Creating Your First Android Application - Anatomy of an Android Application - Activities, Fragments, and Intents: Understanding Activities- Linking Activities Using Intents –Fragments - Calling Built-In Applications Using Intents.

UNIT IV (21 HOURS)

Getting to know the Android user interface: Understanding the Components of a Screen- Adapting to Display Orientation - Managing Changes to Screen Orientation - Utilizing the Action Bar - Designing your user interface with views : Using Basic Views - Using Picker Views - Using List Views to Display Long Lists- Understanding Specialized Fragments-Displaying pictures and menus with views.

UNIT V (18 HOURS)

Content providers: Sharing Data in Android - Using a Content Provider–Messaging : SMS Messaging-Sending E-mail –Location based services: Displaying Maps - Getting Location Data - Monitoring a Location - Developing Android services: Creating Your Own Services- Establishing Communication between a Service and an Activity -Binding Activities to Services- Understanding Threading.

Text Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER /EDITION	YEAR OF PUBLICATION
1.	Jochen H.Schiller	Mobile Communications	Addison Wesley Pearson Education	2014
2.	Wei Meng Lee	Beginning Android 4 Application Development	Wiley India Pvt. Ltd	2012

Reference Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER /EDITION	YEAR OF PUBLICATION
1.	Raj Kamal	Mobile Computing	Oxford University Press	2012
2.	Asoke K Talukder, Hasan Ahmed, Roopa R Yavagal	Mobile Computing	Tata Mcgraw Hill Publishing company limited	2010

Web References:

1. <http://developer.android.com/guide/index.html>.
2. <http://developer.android.com/reference/packages.html>
3. <http://developer.android.com/guide/components/fundamentals.html>
4. <http://www.gsm-files.com/>

Course Outcomes:

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

Co Number	CO Statement	Knowledge Level
CO1	Illustrate the concepts of Multiplexing, GSM Architecture and its Protocols	K3
CO2	Analyze Messaging and Location based services	K4
CO3	Categorize Activities, Fragments, Intents & Views	K5

Mapping with Programme Outcomes:

Cos	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	S	S	S	S
CO3	S	S	S	S

S – Strong; M – Medium; L – Low

Pedagogy : Chalk and Talk, Lecture, Discussion, PPT, Demonstration

Course Designer: Mrs. K.Pradeepa

ANNEXURE - Q

a. Skeleton of the BCA - UG program

**BACHELOR OF COMPUTER APPLICATIONS- COURSE STRUCTURE
(For the Candidates admitted from the academic year 2019-2020 onwards)**

Semester	Part	Course	Title	Course Code	Inst. Hours/Week	Credit	Exam Hours	Marks		Total
								Internal	External	
I	I	Language Course-I (LC)-Tamil / Other Languages (Hindi/Sanskrit/French)	இக்கால இலக்கியம்	19ULT1	6	3	3	25	75	100
			Story, Novel, Hindi Literature-I,& 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)	Programming with C	19UCA1CC1	6	6	3	25	75	100
		Core Course - I (CP)	Practical I -Programming with C	19UCA1CC1P	3	2	3	40	60	100
		First Allied - I (AC)	Essential Mathematics	19UCA1AC1	4	4	3	25	75	100
		First Allied - II (AC)	Numerical Analysis and Statistics	19UCA1AC2	3	-	-	-	-	-
			Value Education	19UGVE	2	2	3	25	75	100
Total					30	20				600
II	I	Language Course-II (LC)-Tamil/Other Languages (Hindi/Sanskrit/French)	இடைக்கால இலக்கியமும் புதினமும்	19ULT2	6	3	3	25	75	100
			Prose, Drama, Hindi Literature-II,& 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)	Data Structures	19UCA2CC2	6	6	3	25	75	100
		Core Course - II (CP)	Practical II -Data Structures Using C	19UCA2CC2P	3	2	3	40	60	100
		First Allied - II (AC)	Numerical Analysis and Statistics	19UCA1AC2	3	3	3	25	75	100
		First Allied - III (AC)	Operations Research	19UCA2AC3	4	2	3	25	75	100
			Environmental Studies	19UGES	2	2	3	25	75	100
Total					30	21				700

Semester	Part	Course	Title	Course Code	Inst. Hours/Week	Credit	Exam Hours	Marks		Total
								Internal	External	
III	I	Language Course - III (LC)-Tamil / Other Languages (Hindi/Sanskrit/French)	காப்பியமும் நாடகமும்	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)	Writing for General and Specific Purposes – I	19UE3	6	3	3	25	75	100
	III	Core Course - III (CC)	Database Management Systems	19UCA3CC3	6	6	3	25	75	100
		Core Course - III (CP)	Practical III – DBMS	19UCA3CC3P	3	2	3	40	60	100
		Second Allied - I (AC)	Financial Accounting	19UCA3AC4	4	4	3	25	75	100
		Second Allied - II (AP)	Computer Applications in Business	19UCA3AC1P	3	2	3	40	60	100
	IV	Non Major Elective – I	Principles of Internet	19UCA3NME1	2	2	3	25	75	100
Basic Tamil I			19ULC3BT1							
Special Tamil I			19ULC3ST1							
		Swayam online course	Programming in C++		-	2	-	-	-	-
Total					30	24				700
IV	I	Language Course-IV (LC)-Tamil /Other Languages ((Hindi/Sanskrit/French)	பண்டைய இலக்கியம்	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)	Writing for General and Specific Purposes - II	19UE4	6	3	3	25	75	100
	III	Core Course - IV (CC)	Programming with Java	19UCA4CC4	6	6	3	25	75	100
		Core Course - IV (CP)	Practical IV -Programming with Java	19UCA4CC4P	3	2	3	40	60	100
		Second Allied - III (AC)	Organizational Behaviour	19UCA4AC5	5	3	3	25	75	100
	IV	Non Major Elective – II	HTML Practicals	19UCA4NME2P	2	2	3	40	60	100
			Basic Tamil II	19ULC4BT2				25	75	
Special Tamil II			19ULC4ST2							
Skill Based Elective – I	Animation Practicals	19UCA4SBE1AP	2	2	3	40	60	100		
	HTML5 Practicals	19UCA4SBE1BP								
V		Swayam online course	As per UGC Recommendations							
Total					30	21				700

Semester	Part	Course	Title	Course Code	Inst. Hours/Week	Credit	Exam Hours	Marks		Total
								Internal	External	
V	III	Core Course -V (CC)	Web Programming with PHP	19UCA5CC5	5	5	3	25	75	100
		Core Course - V (CP)	Practical V -PHP with MySQL	19UCA5CC5P	4	3	3	40	60	100
		Core Course - VI (CC)	Operating Systems	19UCA5CC6	5	5	3	25	75	100
		Core Course - VII (CC)	Software Engineering	19UCA5CC7	5	5	3	25	75	100
	Major Based Elective – I	Digital Electronics & Microprocessor	19UCA5MBE1A	5	5	3	25	75	100	
		Human Computer Interaction	19UCA5MBE1B							
		Artificial Intelligence	19UCA5MBE1C							
	Skill Based Elective – II	Unix Programming	19UCA5SBE2A	2	2	3	25	75	100	
		Python Programming	19UCA5SBE2B							
	Skill Based Elective – III	Unix Lab	19UCA5SBE3AP	2	2	3	40	60	100	
		Python Lab	19UCA5SBE3BP							
	Soft Skills Development				19UGSD	2	2	3	25	75
Total					30	29				800
VI	III	Core Course - VIII (CC)	Computer Networks	19UCA6CC8	6	6	3	25	75	100
		Core Course - IX (CC)	Data Analytics	19UCA6CC9	6	5	3	25	75	100
		Core Course - VI (CP)	Practical VI -System R Programming	19UCA6CC6P	5	4	3	40	60	100
	Major Based Elective – II	Internet of Things	19UCA6MBE2A	6	5	3	25	75	100	
		Mobile Computing	19UCA6MBE2B							
		.Net Programming	19UCA6MBE2C							
	Major Based Elective – III	.Net Lab	19UCA6MBE3AP	6	5	3	40	60	100	
		Android Lab	19UCA6MBE3BP							
		Mini Project Work	19UCA6MBE3CPW							
	IV	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100
Extension Activity				19UGEA		1				
Total					30	27				600
Total					180	142				4100

b. 4th sem BCA - UG syllabus

CORE COURSE – III (CC)

PROGRAMMING WITH JAVA

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA2CC	Programming with JAVA	Core	90	6	-	6

PREAMBLE

- Understand fundamentals of programming concepts, OOPs concepts and ability to write a Java program to solve specified problems.

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
<u>CO1</u>	<u>Explain the fundamental concepts in Object Oriented Programming</u>	<u>K2</u>
<u>CO2</u>	<u>List basic programming skills in Java</u>	<u>K1</u>
<u>CO3</u>	<u>Illustrate package and exceptions with example</u>	<u>K2</u>
<u>CO4</u>	<u>Demonstrate the usage of threading and files</u>	<u>K2</u>
<u>CO5</u>	<u>Build Applet package and Database connectivity</u>	<u>K3</u>

MAPPING WITH PROGRAM SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	M	M	M	M
CO2	M	M	M	M
CO3	S	M	M	M
CO4	S	M	M	M
CO5	S	S	S	M

UNIT I: Oops Fundamentals

(18 HOURS)

Fundamentals Of Object Oriented Programming: Basic Concepts Of Object Oriented Programming- Benefits and Applications Of OOP. **Java Evolution:** Java Features – How Differs From C And C++ - Java And Internet – Java And World Wide Web – Web Browsers - Java Environment- **Overview Of Java Language:** Simple Java Program- More Of Java- An Application With Two Classes- Java Program Structures, Tokens, Statements – Installing And Configuring Java- Implementing A Java Program – Java Virtual Machine – Comment Line Arguments – Programming Style.

UNIT II: Constants, Variables , Data Types, Operators and Control Statements

(18 HOURS)

Constants, Variables and Data Types: Constants- Variables – Data Types – Declaration of Variables – Giving Values To Variables – Scope of Variables – Symbolic Constants- Type Casting- Getting Values Of Variables. **Operators and Expressions - Decision Making and Branching - Decision Making and Looping** – While, Do, For Statements, Jump In Loops, Return Statements.

UNIT III: Classes, Objects, Arrays, Strings ,Vectors, Interfaces and Packages

(18 HOURS)

Classes, Objects and Methods : Defining A Class – Fields and Methods Declaration - Creating Objects – Accessing Class Members – Constructors – Method Overloading – Static Members – Nesting Of Methods – Inheritance: Extending A Class – Overriding Methods – Final Variables, Methods And Classes – Finalizer Methods – Abstract Methods And Classes – Visibility Control. **Arrays, Strings and Vectors:** Creating An Arrays – One And Two Dimensional Arrays-Strings – Vectors – Wrapper Classes – Enumerated Types. **Interfaces: Multiple Inheritance – Packages.**

UNIT IV: Multithreaded Programming , Files and I/O Streams

(18 HOURS)

Multithreaded Programming: Creating Threads – Extending The Thread Class – Stopping And Blocking Thread- Life Cycle Of Thread-Using Thread Method-Thread Exception-Thread Priority- Synchronization – Implementing The Runnable Interface-**Managing Errors and Exceptions. Managing Input/Output Files In Java.**

UNIT V: Applet and Database Connectivity

(18 HOURS)

Applet Programming: How Applets Differ From Applications- Preparing To Write Applets- Building Applet Code- Applet Life Cycle- Creating And Executable Applet – Designing A Web Page- Applet Tag-Adding Applet To HTML File-Running The Applet. **Java Database Connectivity:** Introduction – JDBC Architecture – Discussion With Example – Overview Of JDBC Components.

TEXT:

E.Balagurusamy, "Programming with JAVA", Tata McGraw-Hill Publishing Company Limited, New Delhi, 6th Edition, 2019.

REFERENCES:

1. Ken Arnold Gosling and David Holmen. "The JAVA Programming Language", 3rd Edition. Addison Wesley Publication.
2. S.Sagayaraj, R.Denis, P.Karthik and D.Gajalakshmi, "Java programming", Universities Press, 2017.
3. C.Muthu, "Programming with JAVA", Second Edition, McGraw Hill Education (2008).
4. Schildt Herbert, "Java :The Complete Reference", Tata McGraw-Hill, 8th Edition, 2011.

WEB REFERENCES:

1. <https://beginnersbook.com/>
2. https://www.tutorialspoint.com/java/java_tutorial.pdf
3. http://www.ntu.edu.sg/home/ehchua/programming/java/jdbc_basic.html - For JDBC connection.

COURSE DESIGNER

Ms.V.Yasodha, Assistant Professor, Department of Computer Applications.

CORE COURSE – IV (CP)

PRACTICAL-IV –PROGRAMMING WITH JAVA

CourseCode	Course Title	Category	Learning Hours	Theory Hours/Week	Practical Hours/Week	Credit
19UCA4CC4P	Practical IV- Programming With Java	Core	45	–	3	2

PREAMBLE:

- To impart practical training on Programming with Java.

COURSE OUTCOMES (CO):

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Recall basic arithmetic operations, command line arguments and arrays.	K1
CO2	Apply polymorphism, inheritance, interface and packages concepts.	K3
CO3	Implement all string operations.	K3
CO4	Use thread and exception handling concepts.	K3
CO5	Create applet programs	K5

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	M	M	M
CO2	M	S	M	S
CO3	M	M	S	L
CO4	M	S	M	S
CO5	L	S	S	S

S-Strong; M-Medium; L-Low

LIST OF PRACTICALS

1. COMMAND LINE ARGUMENTS

Write a program to find the factorial of a given number using command line arguments.

2. ARRAYS

Write a program to sort list of elements in ascending and descending order.

3. STRING OPERATIONS

Write a program to implement all string operations.

4. POLYMORPHISM

Write program to implement constructor overloading.

5. INHERITANCE

Write a program to calculate employee pay slip using single inheritance.

6. INTERFACE

Write a program to implement the concept of interface.

7. PACKAGES

Write a program to find the student's percentage and grade using packages.

8. THREAD

Write a program to implement multithread concept and also assign priorities to them.

9. EXCEPTION HANDLING

Write a program to handle the exception using try and multiple catch statements (NumberFormatException, ArithmeticException, ArrayIndexOutOfBoundsException).

10. APPLETS

Write a program to create a window with three check boxes called red, green, blue. The applet should change the colors according to the selection of the check box.

COURSE DESIGNER:

Ms. P. Ranjani, Assistant Professor, Department of Computer Applications.

**NON MAJOR ELECTIVE – II
PRACTICAL – HTML PRACTICALS**

Course Code	Course Title	Category	Learning Hours	Theory Hours/Week	Practical Hours/Week	Credit
19UCA4NME2P	HTML Practicals	NME	30	–	2	2

PREAMBLE:

- To impart practical training on HTML.

COURSE OUTCOMES (CO):

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Recall basic HTML	K1
CO2	Use hyperlink, image tags	K3
CO3	Design a webpage using frames and framesets	K5

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	M
CO2	S	S	S	S
CO3	M	S	S	M

S-Strong; M-Medium; L-Low

LIST OF PRACTICALS

1. BASIC HTML TAGS

Perform a text formatting using basic HTML tags.

2. HYPERLINK

Create a hyperlink using HTML tags.

3. LISTS

Create ordered and unordered list.

4. IMAGE TAG

Implementation of image tags.

5. TABLE TAG

Display your class time table using HTML tags.

6. FORM

Create your bio data using HTML form elements.

7. FRAMES AND FRAMESETS

Design a web page using frames and frame sets.

COURSE DESIGNER:

Ms. P. Ranjani, Assistant Professor, Department of Computer Applications.

**SKILL BASED ELECTIVE-I
PRACTICAL – A - ANIMATION PRACTICALS**

Course Code	Course Title	Category	Learning Hours	Theory Hours/Week	Practical Hours/Week	Credit
19UCA4SBE1AP	Animation Practicals	SBE	30	–	2	2

PREAMBLE:

- To impart training on Animation practicals

COURSE OUTCOMES (CO):

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Recall pen, brush tools in photoshop	K1
CO2	Apply resolution, grayscale, black and white to an image	K3
CO3	Using layers, masking, rotation , overlapping of an image	K3
CO4	Creating custom colors, gradients, grouping , tweening	K5

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	M
CO2	M	S	S	S
CO3	M	S	S	S
CO4	S	S	S	S

S-Strong; M-Medium; L-Low

LIST OF PRACTICALS

PHOTOSHOP

1. BRUSH TOOL

Create a multicolor real life image using brush tool.

2. IMAGE SIZE, RESOLUTION AND COLOR CHANGE

- Changing size, resolution and gray scale of an image.
- Convert black and white image into color image.

3. IMAGE MODIFICATION

Cropping, rotating, overlapping, super imposing an image.

4. COMMERCIAL BROCHURE

Develop a commercial brochure with background tints.

5. LAYERS

Working with layers (creation, deletion, merge).

6. FILTERS AND MASKS

Applying masks and filtering on images.

FLASH

1. STROKES AND FILLS

Working with strokes and fills.

2. WORKING WITH COLOURS

Creating custom colors, gradients, grouping of objects.

3. CONVERSION

Converting text to shapes.

4. TWEENING

Applying tweening (motion, shape)

COURSE DESIGNER:

Ms. P. Ranjani, Assistant Professor, Department of Computer Applications.

PRACTICAL – B - HTML 5 PRACTICALS

Course Code	Course Title	Category	Learning Hours	Theory Hours / Week	Practical Hours / Week	Credit
19UCA4SBE1BP	HTML 5 Practicals	SBE	30	-	2	2

PREAMBLE:

To know the basic concepts of HTML 5.

COURSE OUTCOMES (CO):

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Understand basic HTML tags	K1
CO2	Create a HTML page using keygen, meter and menu elements	K5
CO3	Apply audio components and datalist in HTML 5	K3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES (PSO):

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	M
CO2	M	M	M	M
CO3	M	S	S	M

S- Strong; M-Medium; L-Low

LIST OF PRACTICALS

1. BASIC ELEMENTS OF HTML

- Design a webpage using SCRIPT & NOSCRIPT tags using HEADER & FOOTER
- Design a webpage using Citations, Quotations & Definitions

2. PHRASE TAGS

- Create a web page using Canvas element in HTML.
- Design a webpage by applying Keygen element of HTML.

3. PRESENTATION TAGS

Create a web page using Background image & color properties

4. LIST PROPERTY

Design a webpage using list-style-type property.

5. LINKS AND IMAGES

a. Create a web page using HYPERLINK

b. Create a web page using IMAGES.

6. TABLES

Design a webpage using Table elements

7. FORMS

Design a webpage by applying Form elements of HTML.

8. FRAMES

Create a web page using frames

9. JAVASCRIPT

Write JAVASCRIPT to display the result of any calculation, using HTML output element.

COURSE DESIGNER:

Ms.Lakshna Arun, Assistant Professor, Department of Computer Applications

DATABASE MANAGEMENT SYSTEMS PRACTICALS

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCC4CC2P	Database Management System - Practicals	Core	60	-	4	3

PREAMBLE:

To impart the practical knowledge of MYSQL.

COURSE OUTCOMES (CO):

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Remember DDL & DML commands	K1
CO2	Apply various Operators and Pattern Searching concepts	K3
CO3	Evaluate Aggregate Functions in SQL Queries	K4
CO4	Create Queries for View Operations	K5

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	M	S
CO2	S	S	S	M	S
CO3	S	S	S	M	S
CO4	M	S	S	S	M

S-Strong; M-Medium; L-Low

LIST OF PRACTICALS

1. DDL COMMANDS

Perform the following DDL commands

- a) Creation of a table
- b) Alter the structure of the table
- c) Drop table
- d) Drop the column

2. DML COMMANDS

Perform table manipulation using DML commands

3. CONSTRAINTS

Develop mysql queries to implement the following the constraints on the table

- a. Primary Key
- b. Foreign Key
- c. NOT NULL

4. LOGICAL OPERATORS

Develop mysql queries to implement the following logical operations

- a. AND
- b. OR
- c. NOT

5. AGGREGATE FUNCTIONS

Develop mysql queries to implement the following aggregate functions

- a.SUM() b.AVG() c.MAX() d.MIN() e.COUNT()

6. STRING OPERATIONS

Develop mysql queries to implement

- a. String operations using "%" "
- b. String operations using "_"

7. GROUPING and ORDERING OF DATA

Develop mysql queries to implement the grouping and ordering of data

8. NESTED QUERIES and SUB QUERIES

Develop mysql queries to implement the concept of nested queries and sub queries

9. VIEWS

Develop mysql queries to implement the following view operations

- a) Create View b) Update View c) Drop View

10. INDEXES

Develop mysql queries to implement the concept of creation and validation of index

COURSE DESIGNER:

Ms. A. Anandhavalli, Assistant Professor, Department of Computer Applications.

PGDDS

c. Skeleton of the PGDDS – Post Graduate Diploma program

Semester	Part	Course	Title	Inst. Hours/Week	Exam Hours	Marks		Total
						Internal	External	
I	III	Core Course I	Data Science	6	3	25	75	100
		Core Course II	Programming with Python	6	3	25	75	100
		Core Course III	Statistics for Data Science	6	3	25	75	100
		Core Course IP	Practical I- Programming with Python	6	3	40	60	100
		Core Course IIP	Project Work - 1 Project 75 Marks Viva Voce 25 Marks	6	–	–	–	100
				30				
II	III	Core Course IV	Programming in R	6	3	25	75	100
		Core Course V	Data Storage Techniques	6	3	25	75	100
		Core Course VI	Data Analytics and Machine Learning	6	3	25	75	100
		Core Course IIIIP	Practical II - Programming in R	6	3	40	60	100
		Core Course IVP	Project Work - 2 Project 75 Marks Viva Voce 25 Marks	6	–	–	–	100
Total				30				
Total				60				1000

d. 1st sem PGDDS syllabus

PGDDS- CORE COURSE-I (CC)

DATA SCIENCE

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
	Data Science	Core	90	6	-	

PREAMBLE:

- To provide the fundamental concepts and techniques of Data Science

COURSE OUTCOMES (CO):

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Explain the basic knowledge about data science.	K2
CO2	Illustrating preparation & analysis, testing of data	K3
CO3	Demonstrating the learning process.	K3
CO4	Compute the role of network and graphs.	K3
CO5	Make use of the available modeling systems	K3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	S	S	S	M
CO3	S	M	L	M
CO4	M	S	M	S
CO5	S	M	M	M

S – Strong; M – Medium; L – Low

SYLLABUS

UNIT-I: Introduction

Introduction to Data Science: Data Science-Toolboxes for Data Scientists: Introduction-Data Science Eco System Installation-Integrated Development Environment-Get Started with Python for Data Scientist.

UNIT-II: Statistics

Descriptive Statistics: Introduction-Data Preparation-Exploratory data analysis-Estimation-
Statistical Inference: Introduction-The frequentist approach-Hypothesis testing-But is the Effect E Real.

UNIT-III: Supervised and Unsupervised Learning

Supervised Learning: Introduction-The Problem-First Step-Learning-Learning curves training, validation& test-Two learning models-Ending the learning process-A Joy business case-Unsupervised learning-Introduction-Clustering.

UNIT-IV: Network Analysis

Network Analysis: Introduction –Basic definitions in graphs-Social network analysis-Centrality-Ego networks-Community detection.

UNIT-V: Recommender Systems

Recommender Systems: Introduction-Work of recommender systems. Modeling user Preferences-Evaluating recommenders-Introduction-Data Cleaning-Text Representation.

TEXT:

“Introduction to Data Science”- Laura Igual, SantiSegul-Springer. ISBN 978-3-319-50017-1(e-book)

REFERENCES:

1. Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data- John Wiley & Sons-EMC Educational Services
2. Doing Data Science- Cathy O'Neil, Rachel Schutt, O'Reilly Media.

WEB REFERENCES:

1. <http://www.springer.com/series/7592>.
2. <https://www.edureka.co/blog/what-is-data-science/>
3. https://en.wikipedia.org/wiki/Data_science

COURSE DESIGNER:

Ms. M. Ellakkiya, Assistant Professor, Department of Computer Applications

PROGRAMMING WITH PYTHON

Course Code	Course Title	Category	Learning Hours	Theory Hours/Week	Practical Hours/Week	Credit
	Programming with Python	Core	90	6		

PREAMBLE:

- To understand concepts of Python programming language.

COURSE OUTCOMES (CO):

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Understand Python's core data types while writing new programs	K1
CO2	Demonstrate different decision making statements	K2
CO3	Use the knowledge of file concepts	K3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	M	S	M	M
CO2	M	M	M	M
CO3	M	S	S	M

S- Strong; M-Medium; L-Low

SYLLABUS

UNIT - I: Overview

Introduction to Python: Features of Python - How to Run Python – Identifiers - Reserved Keywords - Variables - Comments in Python - Indentation in Python - Multi-Line Statements -Multiple Statement Group(suite) – Quotes in Python - Input, Output and Import Functions -Operators.

UNIT - II: Data Types, Operations and Flow Control

Data Types and Operations: Numbers- Strings - List- Tuples – Set- Dictionaries -Data type conversion-Flow Control: Decision Making- Selection Structures-Loops-Nested Loops-Types of Loops.

UNIT - III: Functions, Modules and Packages

Functions Definition-Function Calling - Function Arguments - Recursive Functions - Function with more than one return value-Modules and Packages: Built-in Modules - Creating Modules - import Statement - Locating Modules - Namespaces and Scope - The dir() function - The reload() function - Packages in Python - Date and Time Modules.

UNIT - IV: File and Exception Handling

File Handling: Opening a File - Closing a File - Writing to a File – Reading from a File - File Methods - Renaming a File - Deleting a File - Directories in Python- Exception Handling: Built-in Exceptions - Handling Exceptions - Exception with Arguments- Raising Exception - User-defined Exception - Assertions in Python

UNIT - V: Regular Expressions and Database Programming

The Math() function- The Search() function-Search and Replace-Regular Expression Patterns-Character Classes- Special Character Classes-Repetition Cases-findall() method- compile() method-Connecting to a Database- Creating Tables- INSERT,UPDATE,DELETE, READ Operation-Transaction Control

TEXT:

Jeeva Jose and P. SojanLal, “Introduction to Computing and Problem Solving with Python”, Khanna Book Publishing Co. (P) Ltd., 2016.

REFERENCES:

1. Ch Satyanarayana, M Radhika Mani & B N Jagadesh, “Python Programming”, Universities Press, 2018.
2. David M.Beazley, “Python Essential Reference” Fourth Edition
3. John Zelle, “Python Programming- An Introduction to Computer Science”

WEB REFERENCES:

1. www.learnpython.org/
2. <https://www.codecademy.com/learn/python>
3. <https://www.Codementor.io>
4. <https://www.Python.org>

COURSE DESIGNER:

Mrs.K.Akila, Assistant Professor, Department of Computer Applications

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
	Statistics for Data Science	Core	90	6	-	

PREAMBLE:

- To understand the concepts of Statistic and to apply in Data Science

COURSE OUTCOMES (CO):

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Recognize the elements of structured data	K2
CO2	Explore the data distribution	K3
CO3	Apply the concept of binary and categorical data	K3
CO4	Identify the role of random sampling sample bias and selection bias	K3
CO5	Make use of bootstrapping and distributions	K3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	L
CO2	S	S	M	L
CO3	S	S	S	S
CO4	S	S	S	S
CO5	S	S	S	S

S – Strong; M – Medium; L – Low

SYLLABUS

UNIT – I Elements of Structured Data, Rectangular Data and Estimates of Location

Elements of Structured Data – Rectangular Data – Data Frames and Indexes – Graph Data – Estimates of Location – Mean – Median and Robust Estimates

UNIT – II Estimates of Variability and Exploring the Data Distribution

Estimates of Variability – Standard Deviation and Related Estimates – Estimates Based on Percentiles – Exploring the Data Distribution – Percentiles and Boxplots – Frequency Table and Histograms – Density Estimates

UNIT – III Exploring Binary and Categorical Data and Exploring Two or More Variables

Exploring Binary and Categorical Data – Mode – Expected Value – correlation – Scatter plots – Exploring Two or More Variables – Categorical Variables – Categorical and Numeric Data – Visualizing Multiple Variables

UNIT – IV Random sampling and sample bias, Selection Bias and Sample Distribution of a Statistic

Random sampling and sample bias – Bias Random Selection – Size Versus Quality _ Sample Mean – Selection Bias – Regression to the mean – Sample Distribution of a Statistic – central limit theorem – standard error

UNIT – V The Bootstrap and Distributions

The Bootstrap – Resampling versus bootstrapping – Confidence intervals – Normal Distribution – Standard Normal and QQ _Plots – Long _Tailed Distributions – Students Distributions – Binominal Distributions – PSOisson and Related Distribution – Weibull Distribution

TEXT:

Peter C. Bruce and Andrew G. Bruce “Statistics for Data Scientists” 50 Essential Concepts, Published by O’Reilly Media, 2016.

REFERENCES:

1. James D. Miller “Statistics for Data Science” by Packt Publishing Ltd, 2017.
2. Ankit Rathi, “Probability and Statistics for Data Science” Independently Published, 2019.
3. Niall Adams and Edward Cohen “Statistical Data Science” by World Scientific Publishing Europe Ltd, 2018.

WEB REFERENCES:

1. <https://www.edx.org/micromasters/mitx-statistics-and-data-science>
2. <https://towardsdatascience.com/basic-statistics-you-need-to-know-for-data-science-1fdd290f59b5>
3. <https://www.kdnuggets.com/2018/12/introduction-statistics-data-science.html>

COURSE DESIGNER:

Ms. V. Infine Sinduja, Assistant Professor, Department of Computer Applications

CORE COURSE IP

PRACTICAL-I PROGRAMMING WITH PYTHON

Course Code	Course Title	Category	Learning Hours	Theory Hours/Week	Practical Hours/Week	Credit
	Programming with Python	core	90		6	

PREAMBLE:

To know the basics of algorithmic problem solving using Python

COURSE OUTCOMES (CO):

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Understand and apply Python's basic concepts	K1
CO2	Demonstrate different basic OOPS concepts	K2
CO3	Use the knowledge of file concepts	K3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	M	S	M	M
CO2	M	M	M	M
CO3	S	S	S	M

S- Strong; M-Medium; L-Low

LIST OF PRACTICALS

1. COMMAND LINE ARGUMENTS

To count the words using Command Line Arguments in Python.

2. NESTED LOOPS

- a. To check Whether the given number is Positive or Negative using if..elif...else in Python
- b. To convert the Number into String using Switch case in Python

3. INHERITANCE

To find the area of Triangle using Inheritance in Python.

4. FUNCTIONS

- a. To find the Factorial of given number using Recursion.
- b. To print Fibonacci series of 10 numbers using Python

5. LIST

- a. To swap two elements in a list using Python
- b. Python program to find sum of elements in a list

6. FILE

- a. Write a Python program to read an entire text file.
- b. Write a Python program to count the number of lines in a text file.

COURSE DESIGNER:

Ms. K. Akila, Assistant Professor, Department of Computer Applications.

ANNEXURE – R
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc (IT) COURSE STRUCTURE
(For the candidates admitted from the Academic year 2019-2020 onwards)

Sem	Part	Course	Title	Subject Code	Inst. Hours/week	Credit	Exam	Marks		Total
							Hours	Int	Ext	
I	I	Language Course-I (LC)- Tamil/Other Languages	,f;fhy ,yf;fpak;	19ULT1	6	3	3	25	75	100
			Story, Novel, Hindi Literature – I & Grammar – I	19ULH1						
			History of Popular Tales Literature & 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 I	Programming in C	19UIT1CC1	6	5	3	25	75	100
		Core Practical I	Programming in C Lab	19UIT1CC1P	3	2	3	40	60	100
		First Allied I	Essential Mathematics	19UIT1AC1	4	4	3	25	75	100
		First Allied II	Numerical Analysis & Statistics	19UIT1AC2	3	-	-	-	-	-
	IV		Value Education	19UGVE	2	2	3			100
Total					30	19				600
II	I	Language Course-II (LC)- Tamil/Other Languages	,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 II	Data structures and C++	19UIT2CC2	6	6	3	25	75	100
		Core Practical II	Data structures using C++ Lab	19UIT2CC2P	3	2	3	40	60	100
		First Allied II	Numerical Analysis & Statistics	19UIT1AC2	3	3	3	25	75	100
		First Allied III	Operation Research	19UIT2AC3	4	2	3	25	75	100
	IV		Environmental Studies	19UGES	2	2	3			100
Total					30	21				700

Sem	Part	Course	Title	Subject Code	Inst. Hours/ week	Credit	Exam	Marks		Total
							Hours	Int	Ext	
III	I	Language Course-III (LC)-Tamil/Other Languages	fhg;gpaKk; ehlfKk;	19ULT3	6	3	3	25	75	100
			Medieval, Modern Poetry & Hindi Literature – 3	19ULH3						
			Prose Textual Grammar and Vakyarachana	19ULS3						
			Communication in French – III	19ULF3						
	II	English Language Course – III (ELC)	Writing for General and Specific Purposes - I	19UE3	6	3	3	25	75	100
	III	Core III	Database Management Systems	19UIT3CC3	6	5	3	25	75	100
		Core III-Practical	DBMS Lab	19UIT3CC3 P	3	2	3	40	60	100
		Second Allied course-I	Financial Accounting	19UIT3AC4	4	4	3	25	75	100
		Second Allied course –II-P	Computer Applications in Business	19UIT3AC1 P	3	2	3	40	60	100
	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 10 th , +2 but opt for other languages in degree programme.	Internet and its Usage	19UIT3NME1	2	2	3	25	75	100
Basic Tamil			19ULC3BT1							
Special Tamil			19ULC3ST1							
V		SWAYAM ONLINE COURSE	Knowledge Management Systems(Extra Credit)			2	As per UGC Norms			
Total					30	23				700

Sem	Part	Course	Title	Subject Code	Inst. Hours / week	Credit	Exam	Marks		Total
							Hours	Int	Ext	
IV	I	Language Course-IV (LC)- Tamil/Other Languages	g;ila ,yf;fpak;	19ULT4	6	3	3	25	75	100
			Letter Writing, General Essay, 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)	Writing for General and Specific Purposes - II	19UE4	6	3	3	25	75	100
	III	Core IV	Programming in Java	19UIT4CC4	6	5	3	25	75	100
		Core IV Practical	Java Programming Lab	19UIT4CC4P	3	3	3	40	60	100
		Second Allied course III	Organizational Behavior	19UIT4AC5	5	3	3	25	75	100
	IV	Skill Based Elective I-P	1. A.Web Development Tool	19UIT4SBE1 AP	2	2	3	40	60	100
			1.B. Animation Tool	19UIT4SBE1 BP						
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 10 th , +2 but opt for other languages in degree programme.	Information security & Cyber Laws	19UIT4NME2	2	2	3	25	75	100	
		Basic Tamil	19ULC4BT2							
		Special Tamil	19ULC4ST2							
V	SWAYAM ONLINE COURSE	As per UGC Recommendations (Extra credit)	May be fixed later			As per UGC Norms				
Total					30	21				700

Sem	Part	Course	Title	Subject Code	Inst. Hours/ Week	Credit	Exam	Marks		Total
							Hours	Int	Ext	
V	III	Core V	Computer Networks	19UIT5CC5	5	5	3	25	75	100
		Core VI	Python programming	19UIT5CC6	5	5	3	25	75	100
		Core VI Practical	Python Lab	19UIT5CC5P	4	3	3	40	60	100
		Core VII	Digital Fundamentals and Computer Organization	19UIT5CC7	5	5	3	25	75	100
	IV	Major Based Elective I	I.A- Software Engineering and Testing	19UIT5MBE1A	5	5	3	25	75	100
			I.B- Object Oriented Analysis and design	19UIT5MBE1B						
			I.C- Software Project Management	19UIT5MBE1C						
		Skill Based Elective– II	2.A. JavaScript in HTML	19UIT5SBE2A	2	2	3	25	75	100
			2.B.Page Maker	19UIT5SBE2B						
		Skill Based Elective–III	3.A.Learning JQuery	19UIT5SBE3A	2	2	3	25	75	100
			3.B.Corel Draw & Dream Weaver	19UIT5SBE3B						
			Soft Skills		19UGSD	2	2	3	25	75
	Total					30	29			
VI	III	Core VIII	Operating system	19UIT6CC8	6	6	3	25	75	100
		Core IX	Mobile Application Development	19UIT6CC9	6	6	3	25	75	100
		Core IX Practical	Mobile Application using Android	19UIT6CC6P	5	4	3	40	60	100
	IV	Major Based Elective II	II.A-Open Source Technology	19UIT6MBE2A	6	5	3	25	75	100
			II.B- Microsoft Programming	19UIT6MBE2B						
			II.C-Artificial Intelligence	19UIT6MBE2C						
		Major Based Elective III	III. A-Open source Lab	19UIT6MBE3AP	6	6	3	40	60	100
			III. B-.Net with C#	19UIT6MBE3BP						
			Development lab III.C. Mini Project	19UIT6MBE3CPW						
	V	Extension Activity	Extension Activity	19UGEA	0	1	0			
VI	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100	
Total					30	29				600
Grand Total					180	140				4100

SEMESTER – IV	PROGRAMMING IN JAVA	Hours/Week-6	
Core Course - Core IV		Credits - 5	
Course Code 19UIT4CC4		Internal-25	External- 75

COURSE OBJECTIVE

- To provide the keen knowledge of JAVA language
- Enable the students to write object oriented, platform independent and interactive program
- Learn to connect and access database through JDBC

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Introducing the basics of platform independent language and its structure	K1
CO2	Illustrate the Object Oriented Programming Concepts with interactivity	K2
CO3	Outline the error handling mechanism	K2
CO4	Experiment with simple programming exercises	K3
CO5	Apply Object Oriented concepts to develop real time applications	K3

Mapping with Programme Outcomes

COs\POs	PO1	PO2	PO3	PO4
CO1	S	M	M	M
CO2	S	M	M	S
CO3	S	S	M	S
CO4	S	S	S	S
CO5	S	S	S	S

SYLLABUS

UNIT I: Overview of Java language

(12 Hours)

Java History – Java Features – How Java differs from C and C++ - Java and Internet - Java Support Systems – Java Environment. Introduction – Simple Java Program – Comments – Java Program Structure – Tokens – Java Statements – Implementing a Java Program – JVM – Command Line Arguments - Constants – Variables – Data Types – Type Casting. [Operators and Expressions - If – if...else – Nesting of if... Else

– else if – switch - ternary operator- Decision Making and Branching - Decision Making and Looping]
[Self-Study]

Applications: Finding the area and perimeter for different shapes,

UNIT II: Classes, Objects and Methods

(17 Hours)

Classes, Objects and Methods - **Inheritance** – Overriding methods – final Variables and methods – Final classes – finalizer methods – Abstract methods and classes – visibility control-Arrays, Strings and Vectors: Arrays – One Dimensional Arrays – Creating an array – Two Dimensional Arrays – Strings. **Interfaces:** Multiple Inheritance - Defining interfaces – Extending interfaces – implementing interfaces – Accessing interface variables.

Applications: Bank Transaction, Electricity Bill Calculation

UNIT III: Packages, Multithreading and Exception Handling

(17 Hours)

Packages - Multithreaded Programming - Managing Errors and Exceptions: Types of errors – Exceptions – Syntax of Exception handling code – Multiple Catch Statements – Using finally statement – Throwing our own Exceptions – Using Exceptions for Debugging

Applications: Student Marklist preparation, Playing audio,

UNIT IV: Applet Programming

(16 Hours)

How applets differ from Applications – preparing to write applets – Building Applet Code – Applet life cycle – creating an Executable Applet – Designing a Web Page – Applet Tag – Adding Applet to HTML file – Running the Applet – Passing parameters to Applets

Graphics Programming: The Graphics Class – Lines and Rectangles – Circles and Ellipses – Drawing Arcs – Drawing Polygons – Line Graphs – Using Control Loops in Applets – Drawing Bar Charts-Introduction to AWT Package - Window Fundamentals – Closing an AWT Window or Frame – Working with Fonts - Layout Managers – Handling Events on AWT Components

Managing Input/output Files in Java: Concepts of Streams - Stream Classes – Byte Stream classes – Character stream classes – Using streams – I/O Classes – File Class – I/O exceptions –Creation of files – Reading / Writing characters, Byte-Handling Primitive data types – Random Access Files

Applications: Draw different shapes, Change the background color according to the selection

UNIT V: JDBC

(16 Hours)

Introduction - JDBC Architecture – Discussion with Example – **Java Servlets and JSP:** Introduction – Evolution of N-Tier Architecture – Difference between Two Servers – Overview of Servlets – Overview of JSP.

Applications: Create Employee Database and access the data through JDBC Connection.

TEXT BOOK

S.No	Authors	Title	Publishers	Year
1.	E. Balagurusamy	Programming with JAVA- A Primer	Tata McGraw-Hill, 6 th Edition	2019

REFERENCE BOOKS

S.No	Authors	Title	Publishers	Year
1.	Herbert Schildt	Java 2 – The Complete Reference	Tata McGraw-Hill, 9 th Edition	2014
2.	H.M. Deitel, P.J.Deitel	Java – How to Program	Pearson Education, 6 th Edition	2005

SEMESTER - IV	JAVA PROGRAMMING LAB	Hours/Week-4	
Core Course - Core IV Practical		Credits - 3	
Course Code 19UIT4CC4P		Internal-40	External- 60

COURSE OBJECTIVES

This course enables the students to develop the real time application software to implement in a platform independent environment.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Recall basic programming logic with simple example	K1
CO2	Develop Java Application program using Object Oriented Concepts	K2
CO3	Make use of the applet concept to design interactive program	K3
CO4	Create and analyze the real time applications	K4

Mapping with Programme Outcomes

COs\POs	PO1	PO2	PO3	PO4
CO1	S	M	M	M
CO2	S	S	M	S
CO3	S	S	M	S
CO4	S	S	S	S

SYLLABUS

- Classes and Objects
- Constructor Overloading
- Method Overloading
- String Operations (Reverse, Copy, Concatenate, Compare)
- Inheritance
- Interface
- Multithreading
- Package
- User-Defined Exception (minimum 3 types of exception should be used)
- Applet
- Create Database and access using JDBC connectivity

Semester - IV	WEB DEVELOPMENT TOOL	Hours/Week-2	
SBE-1A		Credits - 2	
Course Code- 19UIT4SBE1AP		Internal-40	External-60

OBJECTIVE

To develop a webpage

To handle embedding audio and video in HTML

To design a web page using HTML, CSS and Scripting language

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Develop a simple web page using basic HTML tags	K1
CO2	Create many frames and link them in HTML	K2
CO3	Design a web page using Forms and Tables	K3
CO4	Embed audio and video in HTML	K3
CO5	Design a web page using CSS and Scripting language	K3

Mapping with Programme Outcomes

COs\POs	PO1	PO2	PO3	PO4
CO1	S	M	M	M
CO2	S	S	M	S
CO3	S	M	S	M
CO4	S	S	M	M
CO5	S	S	M	M

SYLLABUS

1. Handling different tags available in HTML
2. Create an application form for a job (use Text box, Check box, Buttons...)
3. Create an advertisement in HTML with images and link multiple documents
4. Prepare a Time Table for your class using TABLE tag
5. Create a number of framesets and jump to a specified section within a frame
6. Develop a web page using different types of lists in HTML
7. Embedding audio and video in HTML documents
8. Design a HTML web page using CSS
9. HTML program with scripting language

Semester - IV	Animation Tool	Hours/Week-2	
SBE-1B		Credits - 2	
Course Code- 19UIT4SBE1BP		Internal-40	External-60

OBJECTIVE

To develop multimedia and animated rich web content using photoshop

To develop poster making and certificate preparation using photoshop

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Create graphics using design elements	K1
CO2	Illustrate masking effects	K2
CO3	Demonstrate attributes of images	K3
CO4	Model key drawing for animations	K3

Mapping with Programme Outcomes

COs\POs	PO1	PO2	PO3	PO4
CO1	S	M	M	S
CO2	S	S	M	S
CO3	S	M	S	M
CO4	S	S	M	M

SYLLABUS

1. Drawing Arts -using basic tools
2. Images with Masking effect- Clipping Mask
3. Poster Making – Text tool and shape tool
4. Designing a certificate – Pen tool
5. Text animation
6. Colour replacement
7. Text portrait poster preparation – Layer mask and merging layers
8. Rainbow effect in image – Gradient tool
9. 3D text and shapes
10. Making PNG image – Magnetic Lasso tool

SEMESTER - IV	Information Security & Cyber Laws	Hours/Week-2	
NON-MAJOR ELECTIVE-II		Credits – 2	
Course Code-19UIT4NME2		Internal-25	External-75

OBJECTIVES

- To provide a basic introduction to Information and Security
- To present an ideas about the types of Threats and Virus
- To present the counter measures and Cyber Laws for Information security

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge level
CO1	Outline the basics of Information Security, its quality, value and aspects	K1
CO2	Recall the basic concepts of Threats and its counter measures	K1
CO3	Define the types of viruses, its detection and recovery	K1
CO4	Summarize the counter measures for Information security and Cryptography	K2
CO5	Identify Cyber laws for Prevention and Detection	K3

Mapping with Programme Outcomes

COs\POs	PO1	PO2	PO3	PO4
CO1	S	M	M	M
CO2	S	S	M	S
CO3	S	M	S	S
CO4	S	S	M	M
CO5	S	M	S	M

Unit I

(6)

Basics of Information and Security: Information – Quality and Value of Information – Information Security – Information Security Breach – Aspects of Information Security

Unit II

(5)

Information Security Threats – Threats, Vulnerabilities and Countermeasures – Types of Threats

Unit III**(6)**

Viruses –Introduction – Types of Viruses – Prevention from Virus attacks – Antivirus software – Virus detection and Recovery

Unit IV**(7)**

Countermeasures for Information Security Breach – Backups: Need, Media and Qualities – Cryptography – Biometrics

Unit V**(6)**

Cyber Laws and Ethics – Cybercrime – Prevention and Detection – Cyber Laws – Indian IT Act and Ethical Issues

Text Books

S.No	Author	Title of The Book	Publishers/Edition	Year of Publication
1.	NIIT	Information Security : An Overview	Prentice-Hall of India Private Limited	2004
2.	Pankaj Agarwal	Information Security and Cyber Laws	Acme Learning Private Learning	2010

Reference Book

S.No	Author	Title of The Book	Publishers/Edition	Year of Publication
1.	Michael E. Whitman Herbert J. Mattord	Principles of Information Security	Cengage Learning India Private Limited	2012

ANNEXURE - S

B.Sc., MICROBIOLOGY

2019-2022

PROGRAMME EDUCATIONAL OBJECTIVES

- Our program will produce graduates to impart skill-oriented education
- To provide quality education with innovative technology to gain technical expertise
- To enrich the ambitions of our students to steer with constructive collaboration towards excellence

PROGRAMME OUTCOMES

1. Enable students to acquire expertise in the use and application of various methods used in microbiology
2. Provide learning opportunity to be reflective about their role as a researcher
3. Handle and independently work on lab protocols involving molecular techniques
4. Awareness of ethical issues in Microbiology research and career options.
5. Production of substantial original research of significance and quality sufficient for publication

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

TIRUCHIRAPPALLI-620 018

B.Sc. Microbiology Course Structure

(For the candidates admitted from the academic year 2019-2020 onwards)

SEM.	PART	COURSE	TITLE	SUBJECT CODE	INST. HOURS / WEEK	CREDIT	EXAM HOURS	MARKS		TOTAL
								INT	EXT	
I	I	Language Course-I (LC) –	Tamil*/Other Languages	19ULT1/H1/F1/S1	6	3	3	25	75	100
	II	English Language Course - I(ELC)	English	19UE1	6	3	3	25	75	100
	III	Core Course-I (CC)	General Microbiology	19UMB1CC1	6	6	3	25	75	100
		Core Practical – I (CP)	General Microbiology & Microbial Physiology -Practicals	19UMB1CC1P	3	-	-	-	-	-
		First Allied Course-I (AC)	Fundamentals of Biochemistry I	19UMB1AC1	4	4	3	25	75	100
		First Allied Practical-II(AP)	Fundamentals of Biochemistry I & II Practicals	19UMB1AC1P	3	-	-	-	-	-
	IV	Value Education		19UGVE	2	2	3	25	75	100
TOTAL					30	18				500
II	I	Language Course-II(LC)	Tamil*/Other Languages	19ULT2/H2/F2/S2	6	3	3	25	75	100
	II	English Language Course-II(ELC)	English	19UE2	6	3	3	25	75	100
	III	Core Course-II (CC)	Microbial Physiology	19UMB2CC2	6	6	3	25	75	100
		Core Practical – I (CP)	General Microbiology & Microbial Physiology -Practicals	19UMB1CC1P	3	3	3	40	60	100
		First Allied Practical-II(AP)	Fundamentals of Biochemistry I & II Practicals	19UMB1AC1P	3	3	3	40	60	100
		First Allied Course-III (AC)	Fundamentals of Biochemistry- II	19UMB2AC2	4	2	3	25	75	100
	IV	Environmental		19UGES	2	2	3	25	75	100

		Studies									
					TOTAL	30	22	-	-	-	700
III	I	Language Course–III(LC)	Tamil*/Other Languages	19ULT3/H3/F3/S3	6	3	3	25	75	100	
	II	English Language Course–III(ELC)	English	19UE3	6	3	3	25	75	100	
	III	Core Course – III (CC)	Introductory Virology	19UMB3CC3	6	6	3	25	75	100	
		Core Practical– II (CP)	Introductory Virology & Immunology Practicals	19UMB3CC2P	3	-	-	-	-	-	
		Second Allied Course–I(AC)	Biostatistics	19UMB3AC3	4	4	3	25	75	100	
		Second Allied Practical-II (AP)	Biostatistics and Bioinformatics Practicals	19UMB3AC2P	3	-	3	-	-	-	
	IV	Non Major Elective I for those who studied Tamil under Part-I	Herbal Medicine 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	19UMB3NME1 19ULC3BT1 19ULC3ST1	2	2	3	25	75	100	
V	SWAYAM ONLINE COURSE	Ecology and Environment		As per UGC norms	2						
					TOTAL	30	18	-	-	-	500
IV	I	Language Course – IV (LC)	Tamil*/Other Languages	19ULT4/H4/F4/S4	6	3	3	25	75	100	
	II	English Language Course – IV(ELC)	English	19UE4	6	3	3	25	75	100	
	III	Core Course – IV (CC)	Immunology	19UMB4CC4	5	5	3	25	75	100	
		Core Practical– II (CP)	Introductory Virology & Immunology Practicals	19UMB3CC2P	3	3	3	40	60	100	
		Second Allied Practical-II (AP)	Biostatistics and Bioinformatics Practicals	19UMB3AC2P	3	3	3	40	60	100	
		Second Allied Course - III(AC)	Computer Application in Biology	19UMB4AC4	3	2	3	25	75	100	
	IV	Non Major Elective II for those who studied Tamil under Part I	Pharmacognosy 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	19UMB4NME2 19ULC4BT2 19ULC4ST2	2	2	3	25	75	100	

		Skill Based Elective - I	(A) Mushroom Technology (B) Clinical Parasitology	19UMB4SBE1A 19UMB4SBE1B	2	2	3	25	75	100	
	V	SWAYAM ONLINE COURSE	As per UGC recommendations	May be fixed later	As per UGC norms						
				TOTAL	30	23	-	-	-	800	
V	III	Core Course – V (CC)	Medical Microbiology	19UMB5CC5	5	5	3	25	75	100	
		Core Course – VI (CC)	Agricultural Microbiology	19UMB5CC6	5	5	3	25	75	100	
		Core Course – VII (CC)	Molecular Biology	19UMB5CC7	6	5	3	25	75	100	
		Core Practical- III(CP)	Medical Microbiology, Agricultural Microbiology Molecular Biology- Practicals	19UMB5CC3P	3	3	3	40	60	100	
		Major Based Elective-I	(A)Fundamentals of Botany and Zoology (B)Organic Farming	19UMB5MBE1A 19UMB5MBE1B	5	5	3	25	75	100	
	IV	Skill Based Elective – II	(A)Biofertilizer Technology (B)Solid Waste Management	19UMB5SBE2A 19UMB5SBE2B	2	2	3	25	75	100	
		Skill Based Elective – III	(A)Medical Laboratory Technology (B)Basics of IPR	19UMB5SBE3A 19UMB5SBE3B	2	2	3	25	75	100	
		Soft Skill Development		19UGSD	2	2	3	25	75	100	
					TOTAL	30	29	-	-	-	800
			Core Course – VIII(CC)	Industrial Microbiology	19UMB6CC8	6	6	3	25	75	100
		Core Course – IX (CC)	Food Microbiology	19UMB6CC9	6	6	3	25	75	100	

		Core Practicals-IV(CP)	Industrial & Food Microbiology Practicals	19UMB6CC4P	6	5	3	40	60	100
VI	III	Major Based Elective-II	(A)Microbial Biotechnology (B)Food Adulteration	19UMB6MBE2A 19UMB6MBE2B	6	6	3	25	75	100
		Major Based Elective-III	(A)Recombinant DNA Technology (B)Biological Techniques	19UMB6MBE3A 19UMB6MBE3B	5	5	3	25	75	100
	V	Extension Activities		19UGEA	-	1	-	-	-	-
		Gender Studies		19UGGS	1	1	3	25	75	100
				Total	30	30	-	-	-	600
				Grand Total	180	140	-	-	-	3900

CORE COURSE – IV (CC)

IMMUNOLOGY

Sub code	Title of the paper	Category	L	P	T	Credits
19UMB4CC4	Immunology	Core	75	-	5	5

Preamble: The aim of the course is to teach the types of immunity, immune system, antigen, antigen – antibody reaction, T and B cell activation, lymphokines and cytokines, hyper sensitivity reaction, immune deficiency disorders, immune hematology and transplantation of immunity.

Course Outcome

COs	CO Statement	Knowledge level
CO1	Understand the history and types of immunity.	K4
CO2	Demonstrate the various antigen-antibody techniques.	K4
CO3	Differentiate the structure of MHC, Cytokines and lymphokines.	K6
CO4	Explain immunotechnology and its applications.	K6
CO5	Explain the knowledge about hypersensitivity reactions	K6

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	S	M	M	L
CO2	S	M	M	S	M
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	S	S	S

S- Strong; M-Medium; L-Low

Syllabus

UNIT-I: 15 hours

History and overview of the Immune system. Cells and organs of the Immune system – Origin, development. Immunohaematology - blood groups, blood transfusion, Rh incompatibility. Immunity - types of immunity - cell mediated, Innate and acquired immunity. Differentiation of T and B cells and their receptors.

UNIT-II: 15 hours

Antigen- properties, types, biology of antigens- Haptens, adjuvants, epitope, paratope, cross reactivity and Forssman antigen. Immunoglobulin - structure, properties, types and functions. Theories of antibody production. Complement- alternative and classical pathways. Antigen - Antibody reaction - Precipitation, Agglutination, Immunodiffusion and Complement Fixation.

UNIT-III: 17 hours

Immune response - Cell mediated and humoral. MHC, Cytokines, lymphokines - structure, function and their receptors. Vaccines – types, toxoids and anti-toxin. Transplantation Immunology- types of transplants, Tissue typing, Graft - rejection mechanism.

UNIT IV: 15 hours

Immunotechniques: Monoclonal antibody production, properties and its applications. ELISA, RIA, Immuno fluorescence - FISH, Immuno electrophoresis and WIDAL.

UNIT V: 13 hours

Hypersensitivity Reactions – Introduction, Definition - allergy, allergens, types - Immediate (Type I, Type II, Type III) and delayed (Type IV) Hypersensitivity reactions. Cancer Immunology - Introduction, tumour of immune system, tumour antigens, types of tumours and immuno therapy . Basic concept of autoimmunity and immuno deficiency disorders.

Text Books

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Abul K. Abbas, Andrew H. Lichtman, Shiv Pillai	Basic Immunology: Functions and Disorders of the Immune System 6th Edition	Elsevier	2019
2.	Robert R. Rich, Thomas A Fleisher , William T. Shearer, Harry Schroeder, Anthony J. Frew, Cornelia M. Weyand	Clinical Immunology: Principles and Practice	Elsevier	2018
3.	Abul K. Abbas, Andrew H. Lichtman, Shiv Pillai	Cellular and Molecular Immunology 9th Edition	Elsevier	2017
4.	Peter J. Delves , Seamus J. Martin , Dennis R. Burton , Ivan M. Roitt	Roitt's Essential Immunology	Wiley-Blackwell	2017
5.	Richard Coico, Geoffrey Sunshine	Immunology: A Short Course	Wiley-Blackwell	2015

Reference Books

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Kenneth Murphy, Casey Weaver	Janeway's Immunobiology 9th Edition	Garland Science	2016
2.	William E. Paul	Fundamental Immunology 7th Edition, Kindle Edition	Lippincott Williams	2012
3.	A Wesley Burks , Stephen T Holgate , Robyn E O'Hehir , Leonard B. Bacharier, David H. Broide , Gurjit K. Khurana Hershey , Jr. R. Stokes Peebles	Middleton's Allergy E-Book: Principles and Practice	Elsevier	2019
4.	John E. Bennett , Raphael Dolin, Martin J. Blaser	Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases: 2-Volume Set 8th Edition,	Saunders	2014
5.	Lauren M. Sompayrac	How the Immune System Works	Wiley-Blackwell	2019

Web links

1. <https://www.immunology.org/public-information/what-is-immunology>
2. <https://aacijournal.biomedcentral.com/articles/10.1186/1710-1492-7-S1-S1>
3. <https://onlinelibrary.wiley.com/journal/13652567>
4. <https://www.frontiersin.org/articles/10.3389/fimmu.2019.00684/full>
5. https://emedicine.medscape.com/allergy_immunology

Pedagogy

Power point presentations, Group Discussion, Seminar, Quiz , Assignment, Brain Storming activity

SECOND ALLIED COURSE – III (AC)

COMPUTER APPLICATION IN BIOLOGY

Sub code	Title of the paper	Category	L	P	T	Credits
19UMB4AC4	Computer application in biology	Allied	75	3	3	2

Preamble: The most important objective is to make the students understand inherent structure of biological information and to analyze the gene and protein sequences to reveal protein evolution. This syllabus would enlighten the students to understand the applications of computers in biology and acquiring basic knowledge about computers and internet.

Course Outcome

COs	CO Statement	Knowledge level
CO1	Define the basics of computer	K1
CO2	Recite the knowledge about internet	K1
CO3	Critique knowledge about bioinformatics	K4
CO4	Generalize the structure and classification of protein visualization tools	K6
CO5	Expand about the role of computers in biology	K6

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	S	S
CO2	S	S	S	S	M
CO3	S	S	M	L	M
CO4	S	S	S	S	M
CO5	S	M	M	M	M

S- Strong; M-Medium; L-Low

Syllabus

UNIT-I: 15 Hours

Introduction and History of Computers, Basic Anatomy of Computers. Input and output devices, hardware and software. Operating system.

UNIT-II: 15 Hours

Internet –History and Uses of internet. Connection to Internet - Getting connection-Web page-Modem-Internet Service providers-E-mail and Voice Mail, Creating E-mail Address.

UNIT-III: 15 Hours

Introduction to bioinformatics – history and its development – Scope and applications of bioinformatics. Biological database – GenBank -NCBI, EMBL, DDBJ.

UNIT-IV: 15 Hours

Sequence Alignment Pairwise (BLAST and FASTA) and Multiple sequence alignment (ClustalW). Structure of Protein, Classification –PDB, Swiss-PROT, SCOP, CATH. Protein visualization tools-RASMOL, Swiss PDB viewer.

UNIT-V: 15 Hours

Computers in Taxonomy and Systemic Data Analysis in Microbiology. Computers in clinical microbiology - Computer applications in fermentation – application of Computers in Drug - Designing using various software's.

Text Books

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Sumita Arora	A textbook of Information technology	Dhanpat Rai & Co	2020
2.	Nell Dale and John Lewis	Computer Science Illuminated	Jones and Bartlett Publishers	2019

3.	Arthur Lesk	Introduction to Bioinformatics	OUP Oxford	2019
4.	Daniel McGuire	Bioinformatics: Design, Sequencing and Gene Expression	Callisto	2019
5.	Vinay Sharma , Ashok Munjal and Ashish Shanker	Bioinformatics	Rastogi Publications	2018

Reference Books

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Alka Vishwa	Computer Organization and Architecture	Dreamtech Press	2019
2.	William T. Loging	Bioinformatics and Computational Biology in Drug Discovery and Development Reprint Edition	Cambridge University Press	2018
3.	Kevin P Hare	Computer Science Principles: The Foundational Concepts of Computer Science	Kevin P Hare LLC	2018
4.	Hamid Arabnia Quoc Nam Tran	Emerging Trends in Computational Biology, Bioinformatics, and Systems Biology	Morgan Kaufmann	2015

5.	Ramsden	Bioinformatics An Introduction	Springer-Verlag London	2015
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Web links

1. [http://en.m.wikipedia.org/wiki/Nucleotide sequence database](http://en.m.wikipedia.org/wiki/Nucleotide_sequence_database)
2. [www.bioinformatics.org/wiki/sequence alignment](http://www.bioinformatics.org/wiki/sequence_alignment)
3. <https://academic.oup.com/bioinformatics>
4. <https://www.ebi.ac.uk/training/online/course/bioinformatics-terrified/what-bioinformatics-0>
5. <https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/bioinformatics>

Pedagogy

Power point presentations, Group discussion, Seminar, Quiz, Assignment, Brain storming activity.

NON MAJOR ELECTIVE II

PHARMACOGNOSY

Sub Code	Title of the Paper	Category	L	T	P	Credit
19UMB4NME2	Pharmacognosy	NME	30	2	-	2

Preamble: To create awareness on traditional knowledge of medicinally important plants in day to day life.

Course Outcome

Cos	CO Statement	Knowledge level
CO1	Outline study of traditional Indian medicine	K1
CO2	Explain the needs of crude drugs	K2
CO3	Demonstrate the crude and commercial drugs	K4
CO4	Compile view of Oraganoleptic study	K3
CO5	Relate the analytical Pharmacognosy of available medicinal plants	K3

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	M	S	S
CO3	S	M	S	M	S
CO4	S	S	S	S	S
CO5	S	S	M	S	S

S- Strong; M-Medium; L-Low

Syllabus

Unit I: 5 Hours

History, Definition and scope of Pharmacognosy; Systems of Indian Medicines – Siddha, Unani, Ayurveda, Homeopathy; Terminologies in Pharmacognosy: Medical Ethnobotany, Ethno pharmacology, Phytotherapy, Phytochemistry.

Unit II: 5 Hours

Classification of Crude drugs – Taxonomical, Morphological, Pharmacological and Chemical classifications; Chemistry of drugs and its evaluation.

Unit III: 6 Hours

Preparation of crude and commercial drugs. Making infusion, decoction, lotion, washers, insect repellents, suppositories, tincture, making herbal syrups, compresses, poultice, plasters, ointments, herbal oils and herbal salves, surgical fibres, sutures and dressing.

Unit IV: 7 Hours

Organoleptic study of the following medicinal plants: Fruit – Amla, Bulb – Garlic, Rhizome – Ginger, Seed – Castor, Bark – Cinchona, Leaves – Neem, Flower – Clove.

Unit V: 7 Hours

Analytical Pharmacognosy – drug adulteration and detection. Biological testing of herbal drug. Phytochemical investigations with reference to secondary metabolites of locally available medicinal plants: *Phyllanthus amarus*, *Curcuma longa*, *Ocimum sanctum*, *Aloe vera*.

Text Books

S. No	Author	Title	Publisher	Year of Publication
1.	S.B.Gokhale & Dr.C.K. Kokate	Pharmacognosy	Nirali Prakashan,Pune	2019
2.	S.B.Gokhale, Dr.C.K. Kokate & A U Tatiya	Pharmacognosy And Phytochemistry	Nirali Prakashan, Pune	2019
3.	Bhandari & Singh	Textbook of Pharmacognosy	CBS Publishers and Distributors Pvt Ltd, Delhi	2019
4.	J.S.Qadry	A Textbook of Pharmacognosy Theory and Practicals	CBS Publishers and Distributors Pvt Ltd, Delhi	2019
5.	Bire shah & A.K.seth	Textbook of Pharmacognosy and Phytochemistry	CBS Publishers and Distributors Pvt Ltd, Delhi	2019
6.	Penelope Ody	The Complete Medicinal Herbal	Skyhorse, US	2017
7.	B.K. Garg	Plant analysis: Comprehensive methods and protocols	Scientific Publishers, Jodhpur	2017
8.	Subhash C. Mandal, Vivekananda Mandal, & Anup Kumar Das	Essentials of Botanical Extraction	Elsevier Academic Press,US	2015

Reference Books

S. No	Author	Title	Publisher	Year of Publication
1.	A.N.Kalia	Textbook of Industrial Pharmacognosy	CBS Publishers and Distributors Pvt Ltd, Delhi	2019
2.	Henry Kraemer	Scientific and Applied Pharmacognosy, Intended for the Use of Students in Pharmacy, as a Hand Book for Pharmacists, and as a Reference Book for Food and Drug Analysts and Pharmacologists	Wentworth Press, Sydney	2018
3.	Ned Burnett	Encyclopedia of Drug Discovery and Development	Foster Academics, USA	2015
4.	Roy Upton, Alison Graff, Georgina Jolliffe & Reinhard Länger	American Herbal Pharmacopoeia: Botanical Pharmacognosy	CRC Press (Taylor & Francis), Florida	2015
5.	Francesco Capasso , Timothy.S, Gaginella & Giuliano Grandolini	Phytotherapy: A Quick Reference to Herbal Medicine	Springer, Newyork	2012

Web Links

1. <https://www.amazon.in/Textbook-Pharmacognosy-Phytochemistry-Kumar-Jayaveera-ebook/dp/B06XKSY76H>
2. <https://www.pdfdrive.com/fundamentals-of-pharmacognosy-and-phytotherapy-2d-edition-e186515176.html>
3. <https://www.pdfdrive.com/textbook-of-pharmacognosy-and-phytochemistry-e184620437.html>
4. <https://www.pdfdrive.com/pharmacognosy-practice-e34345777.html>
5. <https://www.pdfdrive.com/an-introduction-to-pharmacognosy-e58091191.html>
6. <https://www.pdfdrive.com/pharmacognosy-fundamentals-applications-and-strategies-e158282041.html>
7. <https://www.pdfdrive.com/therapeutic-use-of-medicinal-plants-and-their-extracts-pharmacognosy-e186979045.html>
8. <https://www.pdfdrive.com/pharmacognosy-2-e38501617.html>
9. <https://www.pdfdrive.com/a-text-book-of-botany-and-pharmacognosy-e158788414.html>
10. <https://www.pdfdrive.com/introduction-to-pharmacognosy-e57734502.html>

Pedagogy

Power point presentations, Group Discussion, Seminar, Quiz, Assignment, Brain Storming Activity

SKILL BASED ELECTIVE-I

MUSHROOM TECHNOLOGY

Sub code	Title of the paper	Category	L	P	T	Credits
19UMB4SBE1A	Mushroom technology	Core	30	-	2	2

Preamble: To make the students to understand about the types of mushrooms, cultivation requirements and techniques, its storage and various mushroom food items.

COs	CO Statement	Knowledge level
CO1	Differentiate edible and Poisonous mushrooms	K5
CO2	Examine cultivation system of mushroom	K4
CO3	Create an nutrient profile of mushroom	K6
CO4	Formulation of mushroom food preparation	K6
CO5	Determine health benefits of mushroom	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	M	M	M	S
CO2	M	M	M	M	M
CO3	M	M	M	M	M
CO4	S	S	M	S	S
CO5	S	S	S	S	S

S- Strong; M-Medium; L-Low

Syllabus

Unit-I: 5 hours

Introduction – History–scope of edible mushroom .Types of Mushrooms – Poisonous and Edible Mushroom. Different parts of a typical Mushroom and Variations in mushroom morphology. Natural Habitats – Humicolous, Lignicolous and Coprophilus. Color of Mushroom Spores.

Unit-II: 5 hours

Cultivation of mushroom - small village unit & larger commercial unit. Principles of mushroom farm layout- location of building plot, design of farm, bulk chamber, composting platform, equipments & facilities , pasteurization room & growing rooms. Principles of composting, machinery required for compost making, materials for compost preparation. Methods of Composting- Long method of composting (LMC) & Short method of composting (SMC). Facilities required for spawn preparation, Preparation of spawn substrate, preparation of pure culture, media used in raising pure culture, culture maintenance, and storage of spawn.

Unit-III: 6 hours

Biology of mushroom - Button, Straw, Milky & Oyster- General morphology, distinguishing characteristics, spore germination and life cycle. Nutrient profile of mushroom - Protein, amino acids, Crude fibre, calorific values, carbohydrates, fats, vitamins & minerals.

Unit-IV: 7 hours

Cultivation of Button, Oyster, Milky & Straw mushroom - Collection of raw materials, compost & composting, spawn & spawning, casing & case run, cropping & crop management, picking & packing. Visit to relevant Labs/Field Visits.Mushroom Food preparation - soup, sauce, cutlet, omelette, samosa, pickles, curry & biriyani.

Unit-V: 7 hours

Health benefits of Mushroom - Antiviral, Antibacterial, Antifungal, Anti-tumour Properties, haematological value of cardiovascular &Renal health therapeutic diets for adolescence, aged persons & diabetes mellitus.

Text Books:

S.No	Author	Title	Publisher	Year
1.	R.Gogoi, Y.Rathaiah, T.R.Borah	Mushroom Cultivation Technology	Scientific Publisher	2019
2.	T.Parveen Kumar	Mushroom Cultivation and Marketing	Jaya Publishing House	2019
3.	Bahl N	Handbook on Mushrooms	Oxford and Ibh Publishing	2018
4.	Santosh Kumar and Gireesh Chand	Techniques of Mushroom Cultivation	Daya Publishing House	2018
5.	B.C.Suman, V.P. Sharma	Mushroom Cultivation in India	Daya Publishing House	2017

Reference Books

S. No	Author	Title	Publisher	Year
1.	Russell, Stephan.	The Essential Guide to Cultivating Mushrooms: Simple and Advanced Techniques for Growing Shiitake, Oyster, Lion's Mane and Maitake Mushroom at Home.	Storey Publishing	2014
2.	Cotter, Tradd.	Organic Mushroom Farming and	Chelsea Green Publishing	2014

		Mycoremediation: Simple to Advanced and Experimental Techniques for Indoor and Outdoor Cultivation.		
3.	Pathak Yadav Gour	Mushroom Production and Processing Technology	Agrobios	2010
4.	Krieger,L.C.	The Mushroom Handbook	Sufi Press	2010

Web Links

1. <http://www.fungi.com>
2. <http://www.mushworld.com/home>
3. <http://forums.mycotopia.net/faq-frequently-asked-questions/5594-mushroom-growers-handbook-1-mushworld-com.html>.
4. <http://forums.mycotopia.net/faq-frequently-asked-questions/6556-mushroom-growers-handbook-2-mushworld-com.html>
5. <http://www.americanmushroom.org/news.html>

Pedagogy

Power point presentations, Group Discussion, Seminar, Quiz, Assignment, Brain Storming activity.

SKILL BASED ELECTIVE I

CLINICAL PARASITOLOGY

Sub code	Title of the paper	Category	L	P	T	Credits
19UMB4SBE1B	Clinical Parasitology	SBE	30	-	2	2

Preamble: Gain knowledge about clinical parasitology. The classification of clinically important protozoa, helminths and arthropods. Acquire knowledge about the areas in which parasitic infections are endemic.

COs	CO Statement	Knowledge level
CO1	Generalize diagnostic techniques in parasitology	K6
CO2	Examine the clinical significance of <i>Entamoeba histolytica</i>	K4
CO3	Elaborate the pathogenicity of <i>Leishmania donovani</i>	K6
CO4	Discuss about the <i>Plasmodium spp.</i>	K6
CO5	Determine <i>Taenia solium</i>	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	M	M	M	S
CO2	M	M	M	M	M
CO3	M	M	M	M	M
CO4	S	S	M	S	S
CO5	S	S	S	S	S

S – Strong, M- Medium, L - Low

SYLLABUS

UNIT – I: 6 Hours

Introduction and Classification of Parasites – Protozoa and helminthic infection. Laboratory Diagnostic Techniques in Parasites – Direct Identification and Indirect Identification. Concentration methods - flotation techniques and sedimentation techniques.

UNIT - II: 6 Hours

Morphology, Clinical Significance, Symptoms, Pathogenicity, Lab Diagnosis, Treatment and Prevention - *Entamoeba histolytica*, *Naegleria fowleri*, *Acanthamoeba* spp. *Cryptosporium*.

UNIT - III: 6 Hours

Morphology, Clinical Significance, Symptoms, Pathogenicity, Lab Diagnosis, Treatment and Prevention - *Giardia intestinalis*, *Leishmania donovani*, *Trypanosoma cruzi* and *Trypanosoma brucei*.

UNIT - IV: 6 Hours

Morphology, Clinical Significance, Symptoms, Pathogenicity, Lab Diagnosis, Treatment and Prevention - *Toxoplasma gondii*, *Plasmodium* spp, *Fasciolopsis buski* and *Ascaris lumbricoids*.

UNIT - V: 6 Hours

Morphology, Clinical Significance, Symptoms, Pathogenicity, Lab Diagnosis, Treatment and Prevention – *Taenia solium*, *Fasciola hepatica*, , *Ancylostoma duodenale* and *Wuchereria bancrofti*.

Text Books

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Apurba S Sastry, Sandhya Bhat	Essentials of Medical	Jaypee Brothers Medical	2018

		Microbiology	Publishers;	
2.	Ananthanarayan & Paniker's	Microbiology	The Orient Blackswan	2017
3.	Paniker's	Medical Parasitology	Jaypee Brothers Medical Publishers	2017
4.	Chatterjee K D	Parasitology, Protozoology & Helminthology	CBS Publishers	2016
5.	S. C. Parija Srinivasa and H - Trop	Medical Parasitology	All India Publishers and Distributors	2013

Reference Books

S.No	Authors Name	Title of the Books	Publishers Name	Year of Publication
1.	Burton J. Bogitsh, Thomas N. Oeltmann Clint E. Carter	Human Parasitology	Elsiver Publishers	2019
2.	Stefan Riedel, Stephen Morse, Timothy Mietzner & Steve Miller	Medical Microbiology	McGraw- Hill Education	2019
3.	Kenneth Ryan, Nafees Ahmad, J. Andrew Alspaugh, W. Lawrence Drew	Medical Microbiology	McGraw- Hill Education	2018
	Mahmud, Rohela, Lim, Yvonne Ai Lian, Amir,	Medical Parasitology	Springer International	2017

4.	Amirah		Publishing	
5.	B. S. Nagoba and Asha Pichare	Microbiology & Parasitology	Elsevier India	2016

Web References

1. <http://dmoz.org/Science/Biology/Microbiology/>
2. <http://microbiology.mtsinai.on.ca/manual/default.asp>
3. <http://cal.vet.upenn.edu/parasite/links.html>
4. <http://www.suite101.com/links.cfm/microbiology>
5. <http://www.biosci.ohio-state.edu/-zoology/parasite/home.html>

Pedagogy

Power point presentations, Group Discussion, Seminar, Quiz, Assignment, Brain Storming Activity.

M.Sc., MICROBIOLOGY 2019-2021

PROGRAMME EDUCATIONAL OBJECTIVES

- The Masters in Microbiology programme will address the increasing need for skilled scientific manpower with an understanding of research ethics
- The laboratory training in addition to theory is included to prepare them for careers in the industry, agriculture, and applied research where biological system is increasingly employed
- The objective of this programme is to benefit the society by adding skilled scientific workforce across the country and the globe

PROGRAMME OUTCOME

1. Students will be able to acquire, articulate, retain and apply specialized language and knowledge relevant to microbiology
2. Students will acquire and demonstrate competency in laboratory safety including accurately reporting observations and analysis
3. Students will communicate scientific concepts, experimental results and analytical arguments clearly and concisely
4. Students will inculcate involvement in Research and internship activity
5. Graduates develop a broad range of scientific knowledge to meet the current and future expectation of industries at the national and global level

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

TIRUCHIRAPPALLI-620018

M.Sc., Microbiology Course Structure under CBCS

(For the candidates admitted from the academic year 2019-2020 onwards)

Sem.	Course	Title	Sub code	Inst./ Hours/ Week	Credit	Exam Hours	Marks		Total
							Int.	Ext.	
I	Core Course – I(CC)	Essentials of Microbiology	19PMB1CC1	6	4	3	25	75	100
	Core Course – II(CC)	Biological macromolecules	19PMB1CC2	6	4	3	25	75	100
	Core Course –III (CC)	Virology	19PMB1CC3	5	4	3	25	75	100
	Core Course –IV (CC)	Microbial Ecology	19PMB1CC4	5	4	3	25	75	100
	Core Practical –I (CP)	Practical- (CC-I,CC-II, CC-III & CC-IV)	19PMB1CC1P	8	4	3	40	60	100
			TOTAL	30	20	-	-	-	500
II	Core Course –V (CC)	Microbial Metabolism	19PMB2CC5	6	5	3	25	75	100
	Core Course – VI(CC)	Immunology	19PMB2CC6	6	5	3	25	75	100
	Core Practical–II (CP)	Practicals – (CC-V&CC-VI)	19PMB2CC2P	8	4	3	40	60	100
	Elective Course –I	(A) Microbial Techniques (B) Organic Farming (C) MicrobialCytology	19PMB2EC1A 19PMB2EC1B 19PMB2EC1C	5	5	3	25	75	100
	Elective Course –II	(A) Biofertilizer Technology (B) Public Health Microbiology (C) Marine Microbiology	19PMB2EC2A 19PMB2EC2B 19PMB2EC2C	5	5	3	25	75	100
			TOTAL	30	24	-	-	-	500

III	Core Course– VII(CC)	Industrial Microbiology	19PMB3CC7	6	5	3	25	75	100
	Core Course – VII(CC)	Clinical Microbiology	19PMB3CC8	6	5	3	25	75	100
	Core Practical– III(CP)	Practicals – (CC-VII&CC-VIII)	19PMB3CC3P	8	4	3	40	60	100
	Elective Course– III(EC)	(A) Recent trends in microbiology (B) Food Adulteration (C) Biomedical Laboratory Technology	19PMB3EC3A 19PMB3EC3B 19PMB3EC3C	5	5	3	25	75	100
	Elective Course– IV(EC)	(A) r-DNA Technology (B) Microbes in Solid Waste Management (C) Microbial Nanotechnology	19PMB3EC4A 19PMB3EC4B 19PMB3EC4C	5	5	3	25	75	100
	SWAYAM ONLINE COURSE	Nanotechnology in agriculture		As per UGC norms	2				
TOTAL				30	24	-	-	-	500
IV	Core Course – IX(CC)	Microbial Biotechnology	19PMB4CC9	5	5	3	25	75	100
	Core Course – X (CC)	Molecular Biology & Microbial Genetics	19PMB4CC10	5	5	3	25	75	100
	Elective Course- V(EC)	(A) Bio informatics & BioStatistics (B) Entrepreneurial Microbiology (c) Molecular taxonomy and phylogeny	19PMB4EC5A 19PMB4EC5B 19PMB4EC5C	5	4	3	25	75	100
	Core Practicals- IV(CP)	Practicals – (CC-IX & CC-X)	19PMB4CC4P	8	4	3	40	60	100
	Project		19PMBPW	7	4	-	-	-	100
TOTAL				30	22	-	-	-	500
GRAND TOTAL				120	90	-	-	-	2000

CORE COURSE – IX (CC)

MICROBIAL BIOTECHNOLOGY

Sub code	Title of the paper	Category	L	P	T	Credits
19PMB4CC9	Microbial Biotechnology	core	75	-	5	5

Preamble: To impart and explain the students with the advanced knowledge on the screening of biotechnologically important microbes by genetic engineering methods and its applications in industry.

Course Outcome

COs	CO Statement	Knowledge level
CO1	Understand the primary and secondary screening of microbes.	K4
CO2	Determine the applications of microbes	K4
CO3	Explain about biocontrol agents and its mode of action	K6
CO4	Elaborate the industrial production and preservation techniques	K6
CO5	Expand about functions of IPR& Biosafety	K6

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	L	M	L	S	S
CO2	S	S	S	S	M
CO3	S	S	S	S	M
CO4	S	S	S	S	M
CO5	S	M	M	M	M

S- Strong; M-Medium; L-Low

Syllabus

UNIT I: 15 hours

History and Concepts of Biotechnology, Primary and secondary metabolites, Genetic engineering of microbes to improve production of enzymes, antibiotics, amino acids, lipids, steroids, organic acid, toxins etc. Introduction to the use of microbes in environmental applications, Bioremediation, Biofertilizers, Bioaugmentation, Bioemulsifiers, Biosurfactants, Leaching of ores, Biopolymers and Bioplastics.

UNIT II: 15 hours

Application of Microbes in Biotechnology: Entomopathogenic microbes- *Beauveria bassiana*, *Metarhizium anisopliae*, *Paecilomyces* sp, *Bacillus thuringiensis* - Application and Mode of action. Biocontrol agents- *Trichoderma viride*, *Pseudomonas fluorescens*. Microbial pesticides; Application of plant biotechnology in crop protection, herbicide tolerant and insect resistant transgenic plants.

UNIT III: 17 hours

History and Importance of Biocontrol agents-parasites, predators, probiotics and insect pathogens. Ecological, biological, taxonomic, legal, ethical and economic aspects of biological control. Principles and procedures of using exotic biocontrol agents. Utilization of natural biocontrol agents: conservation, habitat management and augmentation. Mass multiplication techniques and economics. Effective evaluation techniques, Biocontrol organizations in World and India. Successful cases of biological control of pests.

UNIT IV: 13 hours

Industrial production: Fermenter designs and types. Control of fermentation process - batch, feed batch and continuous. Upstream and downstream processing in fermentation industry. Production of single cell proteins and hormones. Phycoremediation. Microbiology of raw and processed foods. Fermented food – Vinegar, Wine sauerkraut, Pickles, Cheese, and Yogurt, Ethanol, Citric acid, Amino acids, Vitamins, Antibiotics. Food preservation, contamination and spoilage, food-borne illness and intoxication.

UNIT V: 15 hours

IPR, Biosafety & Bioethics: Types of IP: Patents, Trademarks, Copyright & Related Rights, Industrial Design, Traditional Knowledge, Protection of New GMOs; International framework for the protection of IP. IP as a factor in R&D; IPs of relevance to Biotechnology and few Case Studies; Introduction to History of GATT, WTO, WIPO and TRIPS. Bio safety- concept and issues, rational vs subjective, perceptions of risk and benefits of biosafety. Bioethics: Concepts; Philosophical considerations; Bioweapons; Emerging issues: Challenges to Public Policy – To Regulate or not to regulate; improving public understanding of biotechnology products to correct misconceptions and Biodiversity act.

Text Books

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	PrakashKumarSarangi & Sonil Nanda	Biotechnology for Sustainable Energy and Products	I.K. International Publishing House Pvt. Ltd	2019
2.	Rup Lal	An Introduction to Biotechnology	I.K. International Publishing House Pvt. Ltd	2016
3.	Dr. Rita Singh and Dr. S.K. Ghosh	Industrial Biotechnolog y	Gvph- Publishers	2016
4.	S. C. Bhatia	Textbook of Biotechnolog y	Atlantic Publishers	2015
5.	R C Dubey	Textbook of Biotechnolog y	S.Chand Publishing,	2015

Reference Books

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	William J. Thieman , Michael A. Palladino .	Introduction to Biotechnology (What's New in Biology),	Pearson Publications	2018
2.	N. Dane Scott.	Food, Genetic Engineering and Philosophy of Technology	Hardcover, Springer;	2018
3.	Fernandes	Comprehensive Biotechnology,	M. Moo Young, Pergamon Press, UK	2016
4.	Mahendra K Rai	Hand book microbial biofertilizers	The Haworth press, Inc. New York.	2015
5.	Ashim K. Chakravarty.	Introduction to Biotechnology	4Oxford University Press	2015

Web References

1. <https://blackopscool.blogspot.com/2018/10/download-industrial-biotechnology-pdf.html>
2. https://www.researchgate.net/publication/311576484_Industrial_Biotechnology_An_Overview
3. <https://onlinelibrary.wiley.com/doi/book/10.1002/9783527807833>
4. <https://stuvera.com/biotechnology-books-pdf/>
5. <https://content.kopykitab.com/eReader.html>

Pedagogy

Power point presentation, Seminar, Assignment and Quiz.

CORE COURSE –X (CC)

MOLECULAR BIOLOGY AND MICROBIAL GENETICS

Sub Code	Title of the Paper	Category	L	P	T	Credits
19PMB4CC10	Molecular Biology and Microbial Genetics	Core Course	75	-	5	5

Preamble: To gain the basic knowledge on genetic material, nucleic acids, central dogma of molecular biology and DNA repair mechanisms. To develop an in-depth knowledge on gene expression and variations involved with the regulation of gene expression in prokaryotic system

Course Outcome:

COs	CO Statement	Knowledge level
CO1	Understand the basics of molecular biology	K2
CO2	Analyze central dogma of molecular biology	K4
CO3	Interpret nucleotide sequence change and repair mechanism	K4
CO4	Explain the significance of vectors and bacterial genetics	K5
CO5	Discuss gene expression and transposons	K6

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	M	S
CO3	S	S	M	S	S
CO4	S	S	S	S	M
CO5	S	M	S	S	S

S-Strong; M-Medium; L-Low

Syllabus

Unit I: Chemical Composition & Replication of Nucleic acid (15 hours)

Discovery of DNA, Molecular basis of DNA as genetic material, Structure and forms of DNA, Properties of DNA (denaturation, renaturation, melting curve and hyperchromicity), Replication of DNA- semi conservative mode, Meselson - Stahl experiment. Enzymology of DNA replication, Molecular basis of DNA replication, Types of replication - circular and theta. Structure of RNA - replication -types of RNA: tRNA, mRNA, rRNA and siRNA. Introduction to PNA (Peptide Nucleic Acid).

UNIT II: Transcription and Translation (15 hours)

Transcription - Initiation, Elongation and Termination; Transcriptional factors, Transcription in Eukaryotes, alternative splicing, mRNA transport and Post – transcriptional modifications. Translation - Basic features of genetic code, Wobble concept, prokaryotic and eukaryotic ribosomes, RNA polymerase types and decoding system. Protein synthesis - initiation, elongation and termination, inhibitors of protein synthesis. Post-translational modification of proteins, Translational control.

Unit-III: Mutation, DNA Damage & Repair Mechanism (15 hours)

Mutation & its types, Mutagens: Types, Physical mutagens, DNA reactive chemicals, base analogs, intercalating agents, metals and biological agents. DNA damages: Deamination, methylation, alkylation, UV damage, DNA repair pathways: mismatch repair, Nucleotide and Base excision repair, recombinational repair, SOS inducible repair, pyrimidine dimers and alkylation induced damage.

UNIT IV: Plasmids and Bacterial Genetics (15 hours)

Plasmids - properties, types and replication. Gene transfer mechanisms- Bacterial transformation (detection of transformation, development of competence, mechanism of transformation, transfection); conjugation-effective contact and pilli in conjugation, F-factor, the conjugal transfer process; high frequency recombination (Hfr) strains; formation of F prime (F'); transduction – generalized transduction; abortive transduction; specialized transduction. Sex duction.

UNIT V: Regulation of Gene Expression and Transposable Elements (15 hours)

Operon systems: Lactose operon - induction & repression; Tryptophan operon - repression & attenuation; Arabinose operon. Transposons: Structure, genetic organization and mechanism of transposition of transposable elements (Tn5, Tn3, Bacteriophage μ), Sleeping beauty transposon system. Retrotransposons, Conjugative and Mobilizable transposons. Assays of transposition. Importance of transposable elements in horizontal transfer of genes and evolution.

Text Books

S.No	Authors Name	Title of the Book	Publishers Name	Year
1.	Krishnaiah G.R.	Microbial Genetics & Molecular Biology (1 st edition)	Blue Rose Publisher	2019
2.	Verma P. S. and Agarwal A. K.	Cell Biology, Genetics, Molecular Biology, Evolution and Ecology	S. Chand Publishing	2018
3.	Primrose S.B. and Twyman R.M	Principles of Gene Manipulation and Genomics (8th edition)	Wiley-Blackwell Publisher	2016
4.	Gerald Karp, Janet Iwasa, Wallace Marshall	Karp's Cell and Molecular Biology: Concept and Experiments (8th edition)	Wiley Publisher	2015
5.	David Freifelder, John E. Cronan and Stanley R Maloy	Microbial Genetics (2nd edition)	Jones & Bartlett Publishers	2014

Reference Books

S.No	Authors Name	Title of the Book	Publishers Name	Year
1.	Hartl, Daniel L.	Genetics: Analysis of genes and genomes. (9th Edition)	Jones & Bartlett Learning	2019
2.	Peter Snustad D and Michael J. Simmons	Principles of Genetics (7 th Edition)	Wiley	2015
3.	Bruce Alberts, Alexander D. Johnson, Julian Lewis, David Morgan, Martin Raff, Keith Roberts, Peter Walter	Molecular Biology of the Cell (6 th Edition)	Garland Science, W. W. Norton &Company	2014
4.	Krebs J. E., Kilpatrick T. and Goldstein E. S.	Lewins Genes IX	Viva Books Pvt Ltd.	2014
5.	Larry Snyder, Joseph E. Peters, Tina M. Henkin, Wendy Champness	Molecular Genetics of Bacteria (4th Edition)	ASM Press	2014

Web links

1. <https://books.google.co.in> > books
2. <http://www.freebookcentre.net/Biology/Molecular-Biology-Books.html>
3. http://www.freebookcentre.net/medical_text_books_journals/genetics_ebooks_online_texts_download.html
4. <https://www.nature.com/scitable/ebooks/>
5. http://www.digitalbookindex.org/_search/search010biolmolecularcellbiologya.asp

Pedagogy

Power point presentations, Group Discussion, Seminar, Quiz, Assignment, Brain Storming activity

ELECTIVE COURSE- V(EC)

(A) BIOINFORMATICS AND BIOSTATISTICS

Course code	Title of the paper	category	L	P	T	credit
19PMB4EC5A	Bioinformatics and Biostatistics	Elective	75	-	5	4

Preamble: The important objective of this course is to enable the students to understand scope and popular databases of bioinformatics and methods of biostatistics. This syllabus gives a broad account of sequence alignment and approaches to drug discovery using bioinformatics techniques.

Course Outcome

COs	CO Statement	Knowledge level
CO1	Understand scope and popular databases of bioinformatics	K4
CO2	Explain sequence alignment methods	K5
CO3	Explain drug development using bioinformatics	K5
CO4	Compute the measures of central tendency	K4
CO5	Examine the various large sample testing of hypothesis	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	M
CO2	S	M	S	M	M
CO3	S	S	S	M	M
CO4	S	S	S	M	M
CO5	S	S	S	S	S

S- Strong; M-Medium; L-Low

Syllabus

Unit I: 16 hours

Important contributions - aims and tasks of bioinformatics - applications of bioinformatics - challenges and opportunities . Computer - types , servers and operating system, internet basics - HTML. Biological databases- primary , composite and secondary - Nucleic acid database , Protein database sequence. Structure databases, bibliographic databases - specialized genomic resources.

Unit II :14 hours

Sequence analysis of biological data - significance and Types of sequence alignment - pairwise alignments (FASTA & BLAST) - Models - Global, Local, End space free alignment and gap penalty. Multiple sequence alignment - methods, ClustalW.

Unit III :13 hours

Bioinformatics in drug development: Discovering a drug - target identification and validation - identifying the lead compound - optimization of lead compound - chemical libraries. Cheminformatics and pharmaco informatics. NGS.

Unit IV :16 hours

Measures of central tendency- Mean, Median and Mode- Standard Deviation- Correlation Analysis- Regression Analysis.

Unit V:16 hours

Hypothesis Testing and Large sample tests- Population and sample- Estimation Theory- Testing of hypothesis- Test of significance of mean- Test of significance of difference between two means- Test of significance for difference between of two standard deviations- Test of significance for single proportion- Test of significance of difference between two sample for large samples- ANOVA one way classification and two way classification.

Text books

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	R. Amjesh and S.S. Vinochandra	Bioinformatics for Beginners	Lamber Academic Publishing	2019
2.	C.S.V. Murthy	Bioinformatics	Himalaya Publishing House	2016
3.	Keith and M.Jonathan	Bioinformatics (Volume I) - Data, sequence analysis and evolution	Springer	2017
4.	P.N. Arora& P.K. Malhan	Biostatistics	Himalaya Publishing house	2012
5.	K. Subramanian & A. Santha	Statistics for Management	Scitech publications	2012

Reference books

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	K.G. Srinivasa, G.M. Siddesh and S.R. Manisekhar	Statistical Modelling and machine leaning principles for bioinformatics techniques, tools and applications (Algorithms for intelligent systems)	Springer publications	2020
2.	Noor Ahmad Shaik	Essentials of bioinformatics In silico life sciences medicine	Kindle Edition	2019
3.	William T. Loging	Bioinformatics and computational biology in drug discovery and	Cambrindge University press	2016
4.	R.S.N. Pillai&V.Bagavathi	Statistics Theory and Practice	S.Chand	2016
5.	Bernard Rosner	Fundamentals of Biostatistics	Lengage learning	2006

Web links

1. https://en.wikipedia.org/wiki/Sequence_alignment
2. <https://www.technologynetworks.com/drug-discovery/articles/target-identification-validation-in-drug-discovery-312290>
3. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3058157>
4. https://en.wikipedia.org/wiki/Sequence_database
5. https://saylordotorg.github.io/text_introductory-statistics/s12-02-large-sample-tests-for-a-popul.html
6. <https://www.analyticsvidhya.com/blog/2017/03/conditional-probability-bayes-theorem/>

Pedagogy

Power point presentation, Seminar, Assignment and Quiz

ELECTIVE COURSE- V (EC)

(B) ENTREPRENEURIAL MICROBIOLOGY

Sub Code	Title of the Paper	Category	L	T	P	Credit
19PMB4EC5B	Entrepreneurial Microbiology	Elective	75	5	-	4

Preamble: Understanding important concepts of entrepreneurship & basic requirements for establishing a bio-based startup and company.

Course Outcome

COs	CO Statement	Knowledge level
CO1	Outline study of Entrepreneurial Microbiology	K1
CO2	Explain the composting process & biofertilizer production	K2
CO3	Prepare and formulate microbial metabolites	K2
CO4	Compile on types of fermented foods	K3
CO5	Relate on various mushroom production	K3

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	M	S	S
CO3	S	M	S	M	S
CO4	S	S	S	S	S
CO5	S	S	M	S	S

S- Strong; M-Medium; L-Low

Syllabus:

Unit I: (15 hours)

Entrepreneur development activity, Institutes involved, Government contributions to entrepreneurs & risk assessment. Structure & start-up of a Bio-based technology Company. New Product Development. Intellectual Property Principles in microbial technologies. Understanding of Government policies: Ethical and Other Legal Issues in microbial products.

Unit II: (15 hours)

Composting, Vermicompost & biogas production. Steps in mass production of bacterial biofertilizers *Rhizobium*, *Azotobacter*, *Azospirillum*– quality guidelines for biofertilizers. Mass production of blue green algae (SCP-Health benefits) and micro algae for fuels. Industrial products from micro algae & seaweed.

Unit III: (15 hours)

Microbial Metabolites: Primary and secondary metabolites, Production of citric acid, acetic acid, amino acids and vitamins by microbial cultures using sucrose and molasses; Production of extracellular enzymes; Ethanol production using immobilized yeast culture. Production of antibiotics and pigments from microbes.

Unit IV: (15 hours)

Fermented beverages- production of different types of wine and beer; Fermented foods of vegetables and fruits- sauerkraut, pickles, Kimchi; Cereal and legume based fermented products bread, Soya Sauce, Koji, Tempeh, Miso, Natto, Tofu; Fermented Dairy Products Buttermilk; Yogurt (probiotics, prebiotics, synbiotics); *Acidophilus* Milk; *Bifidus* Milk, Bulgarian milk; Kefir; Kumiss; Cheeses.

Unit V: (15 hours)

Mushroom cultivation – Preparation of mother spawn, bed spawn. Preparation of bed- *Agaricus* sps, *Calocybe* sps, *Pleurotus* sps, *Volvariella* sps. Maintenance of mushroom shed, post harvesting technology-long term & short term storage. Mushroom recipes- soups, biryani, powder, pakoda. Marketing strategies.

Text Books:

S. No	Author	Title	Publisher	Year
1.	Charles Bamford	Entrepreneurship	McGraw Hill	2019
2.	William C Frazier, Dennis C Westhoff	Food Microbiology	McGraw Hill	2018
3.	Dr. Awani kr. Singh	Handbook of Microbial Bertilizers	Agrotech press	2018
4.	Madigan M.T, Bender K.S, Buckley D.H, Sattley W.M. and Stahl D.A.	Brock Biology of Microorganisms	Pearson Education	2017
5.	Ram Prasad	Environmental Microbiology	I K International Publishing house, Delhi	2016

Reference Books:

S. No	Author	Title	Publisher	Year
1.	James M. Jay, Martin J. Loessner, David A. Golden	Modern Food Microbiology	Springer	2020
2.	Amita Jain	Essentials of Microbiology	Elsevier	2019
3.	Vinita Katiyar & Anubha Joshi	Microbial Research- An Overview	I K International Publishing house, Delhi	2018
4.	Ananthanarayan & Paniker's	Textbok of microbiology	Orient Blackswan	2018
5.	Dr. CD Thapa, Dr. V. Prakasam, Sh. Mohinder Singh	Mushroom culture	ICAR	2016

Web Links

1. <https://www.ikbooks.com/subject/life-sciences/microbiology/145>
2. <https://www.ikbooks.com/books/book/earth-environmental-sciences/environmental-microbiology/9789384588526/>
3. <https://www.ikbooks.com/books/book/life-sciences/agriculture/potential-microorganisms-sustainable-agriculture/9788190746205/>
4. <https://www.amazon.in/Food-Microbiology-William-C-Frazier/dp/1259062511>
5. <https://www.agrimoon.com/mushroom-culture-horticulture-icar-pdf-book/>

6. https://www.researchgate.net/publication/41584156_Brock_Biology_of_Microorganisms_11th_edn_Michael_T_Madigan_John_M_Martinko_ed
7. <https://www.elsevier.com/books/essentials-of-microbiology-for-nurses-1st-edition/kannan/978-81-312-4454-8>
8. <https://www.amazon.in/Management-Entrepreneurship-N-V-R-Naidu/dp/8190675788>

Pedagogy

Power point presentations, Group Discussion, Seminar, Quiz, Assignments.

ELECTIVE COURSE- V (EC)

(C) MOLECULAR TAXONOMY AND PHYLOGENY

Subject code	Title of the Paper	Category	L	P	T	Credit
19PMB4EC5C	Molecular taxonomy and phylogeny	Elective	75	-	5	4

Preamble: This course focuses on a key component of systematics and the inference of phylogenesis that show how species or genes are related to one another. The students will get wide knowledge in the molecular taxonomy levels and phylogenetics.

Course Outcome:

Cos	CO Statement	Knowledge level
CO1	Determine the methods of taxonomy	K4
CO2	Critique the levels of structural organization	K4
CO3	Evaluate the taxa and phylogenetic concepts	K5
CO4	Generalize the gene regulations and genetic map	K6
CO5	Compile & analyse phylogenetics	K6

Mapping with Programme Outcomes:

Cos	PO1	PO2	PO3	PO4	PO5
CO1	M	S	M	M	M
CO2	S	M	M	S	M
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	S	S	S

Strong –S, Medium- M, Low-L

Syllabus

UNIT I: 15 hours

Taxonomy - Principles and methods, Concepts of species and hierarchical taxa, biological nomenclature, classical and quantitative methods of taxonomy of plants, animals and microorganisms.

UNIT II : 15 hours

Unicellular, colonial and multicellular forms; levels of organization of tissues, organs and systems; comparative anatomy. Outline classification of plants, animals and microorganisms: Important criteria used for classification in each taxon.

UNIT III: 15 hours

Traditional, typological, evolutionary, biological, phylogenetic concepts. Phylogenetic (among species) versus Tokogenetic (within species) relationships. Classical genetics, Mendelian genetics, population genetics. Recombination, heterozygosity, polymorphism. Hybridization. Lateral transfer. Phenetic analysis. Gene trees vs. species trees.

UNIT IV: 15 hours

DNA finger printing- importance of 16s rRNA, 18s rRNA, ITS sequencing in mitochondrial DNA. DNA bar coding. PCR and its types, RFLP, RAPD, DGGC, TGGC, STRR, LTR, Automated DNA sequencing; Linkage and pedigree analysis; Construction of genetic maps; Scoring Matrix, Pair wise sequence alignments, Multiple sequence alignments.

UNIT V: 15 hours

Phylogenetic analysis and evolutionary relationship among taxa. DNA-based phylogenetic trees- Phylogeny of various microbes- Bacteria, Archaea and Eukarya- Application of Taxonomy and Phylogeny, Conventional Classification of Taxonomy, Comparative genomics.

Text Books

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Joanne M Willey; Kathleen M Sandman; Dorothy H Wood	Prescott's microbiology	McGraw-Hill Education	2019
2.	Asheesh Shanker	Bioinformatics: Sequences, Structures, Phylogeny	Springer	2018
3.	Barnes Michael R.	Bioinformatics For Geneticists	Wiley India.	2018
4.	Paul M. Selzer, Richard J. Marhöfer, Oliver Koch.	Applied Bioinformatics: An Introduction.	Springer	2018
5.	Randall T. Schuh	Biological Systematics: Principles and Applications	Cornell University Press	2017

References Books

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Gerald Karp, Janet Iwasa, Wallace Marshall	Karp's Cell and Molecular Biology,	Wiley publishers	2020
2.	Zhipeng Cai, Pavel Skums, Min Li	Bioinformatics Research and Applications	Springer	2019
4.	Robert Brooker	Genetics: Analysis and Principles	McGraw-Hill Education	2017
5.	Austin Balfour	Principles of Plant and Animal Taxonomy	Syrawood Publishing House	2016

Web links

1. <http://www.deduveinstitute.be/~opperd/private/phenetics.html>
2. <https://socratic.org/questions/what-is-molecular-taxonomy>
3. <http://bio1510.biology.gatech.edu/module-4-genes-and-genomes/4-7-gene-regulation/>
4. <https://www.ebi.ac.uk/training/online/course/introduction-phylogenetics/what-phylogenetics>
5. <http://www.scienceandculture-isna.org/20081213.htm>
6. <http://www.pmbio.icbm.de/lehre/ws1011/vlphys/vlphys-07.pdf>
7. <http://www1.biologie.uni-hamburg.de/bonline/library/micro229/terry/229sp00/lectures/taxonomy.html>

Pedagogy

Power point presentation, Group Discussion, Seminar, Quiz, Assignment

CORE PRACTICALS- IV (CP)

MICROBIAL BIOTECHNOLOGY, MOLECULAR BIOLOGY & MICROBIAL GENETICS- PRACTICALS

Sub Code	Title of the paper	Category	L	T	P	Credit
19PMB4CC4P	Microbial Biotechnology, Molecular Biology & Microbial Genetics- Practicals	Practical	60	-	3	4

Preamble:

- To enable the Students to understand the Basic Knowledge in Microbial Biotechnology and Molecular Biology and Microbial genetics.
- To understand the production process Applications of Microbial products.
- To acquire a Skills about the various Techniques in Recombinant DNA Technology.
- To gain the brief Knowledge about Protein separation.

Course Outcome:

COs	CO Statement	Knowledge level
CO1	Predict the application of Immobilization	K3
CO2	Determine the Commercial production methods of Microbial Products	K4
CO3	Compare the genomic and plasmid DNA separation methods	K5
CO4	Expand the knowledge about PCR, Restriction digestion and ligation of DNA	K6
CO5	Critique knowledge about protein Separation method	K6

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	M	S	S	S
CO2	S	M	S	S	M
CO3	S	S	M	S	S
CO4	S	S	S	M	M
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

Syllabus

Microbial Biotechnology: 20 Hours

1. Immobilization of whole Yeast cells/ Enzyme by suitable method and determination of stability of Immobilized Enzyme.
2. Production of Organic acids - Citric acid and Glutamic acid
3. Production of Extracellular Enzymes – Amylase and Protease
4. Separation of Bio compounds –Paper Chromatography and Column Chromatography
5. Ethanol Production using Immobilized and free living Yeast Culture

Molecular Biology & Microbial Genetics: 40 hours

6. Isolation of Antibiotic Resistant Microbes
7. Isolation of Mutants by Spontaneous Mutation – Gradient plate technique
8. Isolation of Auxotrophic and Antibiotic Resistant Mutants by Physical and Chemical Mutagens
9. Competent Cell Preparation and Bacterial Transformation
10. Generalized Transduction in *E.coli*
11. Isolation and Quantification of Genomic DNA and Plasmid DNA from *E.coli*
12. Characterization of Plasmid DNA by Agarose gel electrophoresis
13. Restriction Digestion and Ligation of DNA
14. Polymerase Chain Reaction
15. Random Amplified Polymorphic DNA
16. Restriction Fragment Length Polymorphism
17. Insilico method of RFLP and Secondary Structure Prediction of RNA
18. Separation of Protein by SDS PAGE
19. Transfer of Protein - Western blot

Reference Books

S. No	Author	Title	Publisher	Year
1.	Swagat Kumar Dash, Hrudayanath Thatoi, Supriya Dash	Practical Biotechnology: Principles and Protocols	Dreamtech Press	2020

2.	SiddraIjaz& Imran UIHaq	Recombinant DNA Technology	Cambridge Scholar ,UK	2019
3.	Gunasekaran, P	Laboratory Manual in Microbiology	New Age International Publishers,New Delhi	2018
4.	Dr.P V G K Sarma	Molecular Biology A Practical Manual	MJP Publishers	2017
5.	K.R. Aneja	Pathology and Biotechnology	New Age International Publishers	2017
6.	Michael L. Shuler, FikretKargi & Matthew DeLisa	Bioprocess Engineering: Basic Concepts	Prentice Hall,US	2017
7.	Brown TA	Gene cloning and DNA Analysis Introduction	Blackwell Science Ltd., London.	2016
8.	Old RW & Primrose SB	Principles of Gene Manipulation - An Introduction to Genetic Engineering	Blackwell Scientific Publications, London	2014
9.	Sambrook, J &Russel DW	Molecular Cloning : A Laboratory Manual	Cold Spring Harbor, N.Y. : Cold Spring Harbor Laboratory Press	2014
10.	Judith W. Zyskind &Sanford I. Bernstein	Recombinant DNA Laboratory Manual	Academic Press	2014

Web Links

1. <https://www.youtube.com/watch?v=Vrs-KUN13WU>
2. <https://www.youtube.com/watch?v=e4iV-dCCKAM>
3. <https://www.youtube.com/watch?v=CSDnJvTufDI>

4. <https://www.youtube.com/watch?v=Uq6jZZKocgs>
5. https://www.youtube.com/watch?v=Tdb0N_PMpEI
6. <https://www.youtube.com/watch?v=Hv6Z9HDhNKg>
7. <https://www.youtube.com/watch?v=n6MhidjYpww>
8. https://www.youtube.com/watch?v=tcPgDR9_t64
9. <https://www.youtube.com/watch?v=uKeMiAZ8Zu4>

Pedagogy

Power point presentation, Group Discussion, Seminar, Assignment.



ANNEXURE – T

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

DEPARTMENT OF BIOTECHNOLOGY

B.Sc., BIOTECHNOLOGY PROGRAMME STRUCTURE

(For the candidates admitted from the academic year 2019 -2020 onwards)

Semester	Part	Course	Title	Subject Code	Inst. Hour/ Week	Credit	Exam Hours	Marks		Total		
								Int	Ext			
I	I	Language Course – III (LC)–Tamil/Other Languages	காப்பியமும் நாடகமும்	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)	Writing for General and Specific Purposes – I	19UE3	6	3	3	25	75	100		
	III	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)	Biochemistry	19UBT3AC3	4	4	3	25	75	100
				Second Allied Course-II (AP)	Lab in Biochemistry	19UBT3AC2P	3	-	-	-	-	-
	IV	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 opt for other languages in degree programme	Basics of Biotechnology	19UBT3NME1	2	2	3	25	75	100	
Basic Tamil				19ULC3BT1								
Special Tamil				19ULC3ST1								
V	V	Swayam Online Course	Animal Physiology	-	-	3	As per UGC Norms					
Total					30	19				600		

I	Language Course –IV (LC) -Tamil/Other Languages	பண்டைய இலக்கியம்	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)	Writing for General and Specific Purposes – 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)	Lab in Biochemistry	19UBT3AC2P	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 otherlanguage students b) Special Tamil for those whostudied Tamil upto +2 but opt for other languages in degree programme	Applied Biotechnology	19UBT4NME2	2	2	3	25	75	100
		Basic Tamil	19ULC4BT2						
		Special Tamil	19ULC4ST2						
	Skill Based Elective – I	A) Information in Omics and Applications	19UBT4SBE1A	2	2	3	25	75	100
	B) Bioinformatics	19UBT4SBE1B							
V	Swayam Online Course (As per UGC recommendation)	-	-	-	-	As per UGC Norms			
Total				30	22				800

**Core Course – IV
IMMUNOLOGY
2019 -2020 ONWARDS**

Semester - IV	IMMUNOLOGY	Hours/Week - 5	
Core Course - IV		Credits - 4	
Course Code – 19UBT4CC4		Internal 25	External 75

OBJECTIVES

- To know about the immune system and their functions.
- To acquire knowledge about the vaccines and its types.
- To study about the cellular responses in immune system.
- To know the significance of various immunological disorders and their remedies

Course Outcomes

CO Number	CO Statement	Knowledge Level
CO 1	Demonstrate the types of cells involved in immune system.	K1
CO 2	Describe the agents of nonspecific immunity.	K2
CO 3	Illustrate about the structure and functions of immunoglobulins and monoclonal antibodies.	K2
CO 4	Outline the clear and concise idea about Vaccines	K3
CO 5	Obtain Knowledge in transplantation and tumor immunology.	K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	M	M	S	S
CO3	S	S	S	S
CO4	S	S	M	S

CO5	S	L	S	S
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S- Strong, M- Medium, L-Low

**Core Course – IV
IMMUNOLOGY
2019 -2020 ONWARDS**

Syllabus

Unit - I – Fundamental Concepts and Anatomy of the Immune system (12 Hours)

Basics of Immunology - Terminology - antigen, immunogen, hapten, super antigen, allergen, antigenicity, immunogenicity, immunoglobulin, antibody, epitope, paratope, tolerogen etc. Organs of immune system, tissues of immune system, cells of immune system & mediators of immune system. Lymphoid organs: Primary lymphoid organs (Thymus, Bone marrow), Secondary lymphoid organs (Spleen, Lymph node, MALT). Haematopoiesis and differentiation; Haematopoietic stem cells, T-cells, B-cells, Macrophages, Monocytes, Polymorphs, Platelets and Null cells. Immunity: Innate and acquired immunity. Theory of clonal selection.

Unit II Cellular Responses (12 Hours)

T- Cells and B- Cells: Development, maturation, activation and differentiation. Antigen: Properties and Biology. Factors affecting antigenicity – Super antigens, epitopes, haptens, adjuvants and vaccines; Antigen –antibody binding; Immunoglobulin: Structure, functions and Classifications. Monoclonal antibodies - Principles and applications; APC's, MHC, antigen processing and presentation, regulation of T and B cell responses.

Unit – III Nonspecific Immunity (12 Hours)

Natural built in barriers – skin, semen, saliva, tears, enzymes. Mediators of immune system - lymphokines, cytokines, interferon, tumor necrosis factor. Complement components, natural killer cells, macrophages, phagocytosis, pinocytosis. Inflammatory response. Mucosal and Gut associated lymphoid tissue (MALT&GALT) and mucosal immunity.

Unit IV Vaccinology (12 Hours)

Active, passive and combined immunization. Live, killed, attenuated, plasma derived, sub unit, recombinant DNA, protein based, plant-based, peptide, anti-idiotypic and conjugate vaccines – production & applications. Role and properties of adjuvants & ISCOMS.

Unit - V Transplantation and Tumor Immunology (12 Hours)

Transplantation: Mechanism, Types of Grafts[#], Graft rejection, General and specific immunosuppressive therapy; Clinical transplantation; - Hypersensitivity - Type I-IV; Tumor immunology; Autoimmunity: Autoimmune diseases, diagnosis and treatment.

Self Study Topics

Text Books

S.No	Author	Title	Publisher	Year of Publication
1	Lauren M.Sompayrac	How the Immune system works. 6 th Edition	Wiley Blackwell	2019
2	Dr.P.Madhav Latha	A Textbook of Immunology	S.Chand Publishing	2018
3	Abul K.Abbas, Andrew H.Lichtman Shiv Pillai	Cellular and Molecular Immunology. 9 th Edition	Elsevier	2017
4	Warren Levinson	Review of Medical Microbiology and Immunology	Mc Graw Hill Education	2016
5	Paul	Fundamental Immunology. 7 th Edition	Lippincott Williams & Wilkins	2012
6	Louis Hawley Richard J Ziegler Benjamin L Clarke	BRS Immunology & Microbiology (6 th Edition)	Lippincott Williams & Wilkins	2015

Reference Books

S.No	Author	Title	Publisher	Year of Publication
1	Abul K.Abbas, Andrew H.Lichtman Shiv Pillai	Basic Immunology. 6 th Edition	Elsevier	2019
2	Jenni Punt, Sharon Stranford, Patrica Jones,	Kuby Immunology. 8 th Edition	ML IE PRNT	2018

	Judith Owen			
3	Peter J.Delves, Seamus J.Martin, Dennis R.Burton, Ivan M.Roitt	Roitt's Essential Immunology. 1 st Edition	Wiley Blackwell	2017
4	Kenneth Murphy, Casey Weaver	Janeway's Immunobiology. 9 th Edition	Garland Science	2016
5	Kathy M.Durkin	Understanding the Vaccines and the Immune system.1 st Edition	Nova Science.Pub.Inc	2010

Pedogogy:

1. Power point presentation, Group Discussion, Seminar, Assignment

Web links :

<https://youtu.be/Ktry4gGC2nA>
<https://youtu.be/GY87mHuuwok>
<https://youtu.be/edIPKRAKa-Y>
 Immunology Link Home Page.

**CORE PRACTICAL – IV
2019 -2020 ONWARDS**

Semester – IV	LAB IN IMMUNOLOGY	Hours / Week – 03	
Core Practical – IV		Credits – 03	
Course Code - 19UBT4CC4P		Internal 40	External 60

Preamble

- To Study about the Identification of Blood Group.
- To Enumerate the Blood Cells
- To Study about the Immunoelectrophoresis Techniques
- Enable the students with diagnostic skills for identification of certain diseases and immunological techniques.

Course Outcomes

On Successful Completion of the Course, Students will be able to

CO Number	CO Statement	Knowledge Level
CO 1	Demonstrate the methods to Identify the Blood Cells	K1
CO 2	Experiments for Enumeration of Blood Cells	K3
CO 3	Techniques for Plasma and Serum Separation and Identify the Blood Groups	K3
CO 4	Apply the diagnostic skills for identification of certain diseases, immunological techniques.	K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4
CO1	S	M	S	S
CO2	S	S	M	L
CO3	M	S	M	S
CO4	S	M	L	M

S – Strong, M – Medium, L - Low

CORE PRACTICAL – IV LAB IN IMMUNOLOGY

1. Identification of Cells in a Blood Smear.
2. Blood Cell Counting using Haemocytometer
3. Separation of Serum and Plasma
4. Identification of Blood Group
5. Latex Agglutination Test
6. Single Radial Immunodiffusion
7. Precipitation Reaction – AGD
8. Rocket Immunoelectrophoresis.
9. Testing for Typhoid Antigens - Widal Test
10. AMES TEST
11. DOT ELISA
12. Pregnancy Test – HCG
13. Rapid Plasma Reagin Test
14. Route of Immunization by Virtual
15. Breeding and Maintenance of Laboratory Animals by Virtual

Reference books:

S. No.	Authors Name	Year of Publication	Title of the Book	Publishers Name
1	Senthilkumar Balakrishnan, Karthik Kaliaperumal, Senbagam Duraisamy	2017	Practical Immunology A Laboratory n Manual	LAP LAMBERT Academic Publishing, Germany
2	Wilmore C.Webley	2017	Immunology Laboratory Manual	LAD Custom Publishing, Georgia.
3	Barbara Detrick, John L Schmitz, Robert G Hamilton	2016	Manual of Moleclar and Clinical Laboratory Immunology – 8 th Edition	ASM Press, Washington, DC.
4	Christine Dorresteyn Stevens	2016	Clinical Immunology and Serology: A Laboratory Perspective	F.A.Davis Company, Philadelphia
5	G.P.Talwar andS.K.Gupta	2012	A Handbook of Practical and Clinical Immunology	CBS, Publications, Delhi, India

Pedogogy

1. Power Point Presentations, Group Discussions, Seminars, Assignments
2. <https://www.thermofisher.com> ,
<http://currentprotocols.onlinelibrary.wiley.com>

SECOND ALLIED COURSE-III (AC)
PLANT ANATOMY AND PHYSIOLOGY
2019-2020 onwards

SEMESTER - IV	PLANT ANATOMY AND PHYSIOLOGY	Hours/Week – 3	
SECOND ALLIED COURSE- III (AC)		Credits – 3	
COURSE CODE –19UBT4AC4		Internal 25	External 75

Objectives

- To acquire knowledge about anatomical structure of plants
- To comprehend the biochemistry of plant metabolism
- To study about the application of plant growth regulators in agriculture
- To acquire complete knowledge about the biochemical pathways in plants

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO 1	Compare the account of anatomy of Dicot stem and Monocot stem	K2
CO 2	Classify the internal structure of Dicot root and Monocot root	K2
CO 3	Sketch the various pathway for translocation of minerals in plants	K3
CO 4	Analyse the utilization of plant hormones in agriculture	K4
CO 5	Design various biochemical pathways to characterize C3 and C4 plants	K6

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4
CO1	M	S	L	M
CO2	M	S	S	S
CO3	S	S	S	S
CO4	L	L	M	M
CO5	M	S	M	M

S- Strong, M-Medium, L-Low

SECOND ALLIED COURSE-III (AC)

PLANT ANATOMY AND PHYSIOLOGY

2019-2020 onwards

Unit – I Plant anatomy

9 Hours

Meristems: Characteristics, classification and theories of root - shoot apical meristem. The cambium: Types and functions. Simple Plant tissues: Types, Structure and functions. Comparative account of anatomy of Dicot stem (Sunflower) and Monocot stem (Maize) Dicot root (Sunflower) and Monocot root (Maize). Dicot Leaf and Monocot leaf

Unit – II Transportation in Plants

9 Hours

Translocation of water in xylem and Translocation of food in Phloem. Water uptake: imbibitions, diffusion, osmosis, water potential and its components Ascent of sap - Transpiration - Guttation. Stomatal physiology. Plant responses to Stress- biotic Stress- unwanted weeds, insects, bacteria, fungus, virus and abiotic Stress-Drought, high salinity, cold and heat

Unit – III Plant Growth Development

9 Hours

MS Medium and its composition in Plant tissue Culture for Plant Growth Development. Measurement of plant growth- growth curve. Plant growth regulators (PGR) - Auxins, Gibberellins, Cytokinins, Ethylene and Abscisic acid. Plant growth regulators in agriculture – Merits and demerits of PGR in agriculture.

Unit – IV Morphogenesis

9 Hours

Photomorphogenesis- Photoperiodism, Vernalisation, Phytochrome, Biological clock. Physiology of germination. Dormancy – causes and types of dormancy. Seed dormancy- Causes of Seed dormancy, Types of Seed dormancy-Innate, Enforced and Induced dormancy. Methods of Breaking Seed Dormancy. Importance of seed dormancy.

Unit – V Photosynthesis and Respiration

9 Hours

Photosynthesis: Photosynthetic pigment systems - radiant energy - cyclic and noncyclic electron transport - C3 and C4 pathways - factors affecting photosynthesis - photorespiration
Respiration: Aerobic - anaerobic, Glycolysis, Krebs's cycle, oxidation - reduction potential, ATP synthesis, Factors affecting respiration#.

Self Study Topic

Text books

S.No.	Author	Title	Publisher	Year of Publication
1	<u>Lincoln Taiz</u> , <u>Eduardo Zeiger</u> , <u>Ian Max Møller</u> , <u>Angus Murphy</u>	Fundamentals of Plant Physiology-1 edition	Sinauer Associates is an imprint of Oxford University Press	2018
2	Crang, Richard, Lyons-Sobaski, Sheila, Wise, Rober	Plant Anatomy A Concept-Based Approach to the Structure of Seed Plants	Springer International Publishing	2018
3	Bhatla, Satish C, Lal, Manju A.	Plant Physiology, Development and Metabolism	Springer Singapore	2018
4	Ava Metcalfe	Integrative Plant Anatomy	Tritech Digital Media	2019
5	Alexander James	Plant Physiology, Biochemistry And Biotechnology	Tritech Digital Media	2019

Reference Books

S.No.	Author	Title	Publisher	Year of Publication
1	<u>Neil Willey</u>	Environmental Plant Physiology	Taylor & Francis Inc	2016
2	Clive Koelling	Plant Anatomy, Morphology and Physiology	Syrawood Publishing House	2016
3	Taiz.L, Zeiger.E, Moller.M and Murphy.A	Plant Physiology and Development(VI Edition)	Sinauer Associates,Inc.Publishers,Massachusetts,USA	2015
4	Taylor A. Steeves and Vipen K. Sawhney	Essentials of Developmental Plant Anatomy	OUP USA	2017
5	Taiz.L, Zeiger.E, Moller.M and Murphy.A	Fundamentals of plant Physiology	Sinauer Associates, Inc	2018
6	Bob B.Buchanan, Wilhelm Gruissem, and Russell L.Jones	Biochemistry & molecular Biology of plants	John Wiley & Sons, Ltd	2015

Web links

https://swayam.gov.in/nd2_cec19_bt01/preview
<https://www.askiitians.com/biology/plant-physiology/>
<https://biology.ufl.edu>
<https://labs.eemb.ucsb.edu>
<https://employees.csbsju.edu>

Pedagogy

PowerPoint presentation, Video lectures, Group discussion, Seminar, Assignment

APPLIED BIOTECHNOLOGY
2019 – 2020 Onwards

Semester – IV	APPLIED BIOTECHNOLOGY	Hours/Week – 2	
Non Major Elective – II		Credits – 2	
Course Code – 19UBT4NME2		Internal 25	External 75

Preamble

- To understand the fundamental principles of biotechnology
- To appreciate the techniques involved in the field of biotechnology
- To recognize the application of genetically modified organisms in various fields like agriculture, livestock, medicine and environment.
- To familiarize with the basic principles of biotechnology employed in forensic science and medicine.

Course Outcomes

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

CO Number	CO Statement	Knowledge level
CO1	Define the importance of biotechnology in the field of life science	K1
CO2	Outline the principle and application of biotechnology in food industry	K2
CO3	Explain the efficiency of microbes in waste treatment and pollution control	K2
CO4	Apply the concept of DNA fingerprinting in forensic science	K3
CO5	Interpret regulations and guidelines for ensuring biosafety measures for protection of public health and environment.	K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4
CO1	M	L	M	M
CO2	M	M	L	M
CO3	S	M	S	M
CO4	M	L	L	M
CO5	L	M	L	M

S – Strong, M – Medium, L - Low

APPLIED BIOTECHNOLOGY
2019 – 2020 Onwards

Unit I **(6 Hours)**

Biotechnology in the field of Agriculture – History of Genetic modification in Agriculture - Genetically modified Crops – Advantages & Applications - Bt Cotton (Pest resistant), Flavr Savr Tomato (Shelf life improvement), Golden Rice (Rich in Vitamin A), Soybean (Rich in oleic acid content).

Unit II **(6 Hours)**

Introduction to Food Biotechnology, Principle of Fermentation process. Production of food products – Bread, Dairy, Confectionery & Beverages, Meat, Poultry & Fish products. Food processing & preservation.

Unit III **(6 Hours)**

Introduction to Environmental Biotechnology. Pollution – Source & types[#]. Health hazards due to pollution. Xenobiotics. Detection of Environmental pollutant - Biosensors. GMOs in Environmental clean-up. Health and Hygiene. Environmental standards & Quality monitoring.

Unit IV **(6 Hours)**

Importance of Biotechnology in Forensic science. Principle of DNA fingerprinting. application of DNA profiling in forensic medicine - Solving violent crimes such as murder and rape – Blood & Semen Sample; solving maternal & paternal disputes. Forensic Science Laboratories in India.

Unit V **(6 Hours)**

Biosafety guidelines and regulations - Importance and Operation. Role of Biosafety Committees - IBSC, RDAC, RCGM, GEAC. Environmental release of GMOs, Risk assessment and management.

Self Study Portion

Text books

S. No	Name of the Author(s)	Title of the book	Publishers name	Year of publication
1.	Varsha Gupta, Manjistha Sengupta, Jaya Prakash & Baishnab Charan Tripathy	Basic and Applied aspects of Biotechnology	Springer	2017
2.	Malik Zainul Abdin, Usha Kiran, Kamaluddin & Athar Ali	Plant Biotechnology: Principles and Applications	Springer	2017
3.	Firdos Alam Khan	Biotechnology Fundamentals	CRC Press	2016
4.	Ashish S. Verma, Anchal & Singh	Animal Biotechnology – Models in Discovery and Translation	Elsevier	2014
5.	A. K. Chakravarthy	Introduction to Environmental Biotechnology – Second Edition	OUP, India	2013

Reference books

S. No	Name of the Author(s)	Title of the book	Publishers name	Year of publication
1.	Pessarakli M	Handbook Of Plant And Crop Stress	Taylor & Francis	2020
2.	Foster G. N.	Food Biotechnology	CBS Publishers	2020
3.	Chawla H. S.	Introduction to Plant Biotechnology	Oxford & IBH Publishing	2017
4.	Allen K	Environmental Biotechnology	CBS Publishers	2016
5.	Petre M	Advances In Applied Biotechnology	INTECH	2016
6.	Daniel Vallero	Environmental Biotechnology – A Biosystems Approach	Academic Press	2015

Weblinks

<https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=16>

http://www.goldenrice.org/Content2-How/how1_sci.php

http://fsl.delhi.gov.in/wps/wcm/connect/doiit_fsl/fsl/home/

<https://www.who.int/csr/resources/publications/biosafety/Biosafety7.pdf>

<http://dbtindia.gov.in/guidelines-biosafety>

Pedagogy

Power point presentation, Group Discussion, Seminar, Assignment.

INFORMATION IN OMICS AND APPLICATIONS

Semester - IV	INFORMATION IN OMICS AND APPLICATIONS	Hours/Week – 2	
Skill based Elective-I (a)		Credits – 2	
Course Code – 19UBT4SBE1A		Internal 25	External 75

Objectives

- To understand the basic Principles and techniques of OMICS
- To familiarize with the basic tools and techniques employed in OMICS
- To grow knowledge regarding the modern application of molecular tools in real life problems
- To apply knowledge of different omics technology for designing experiment

Course Outcomes

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

CO Number	CO Statement	Knowledge level
CO1	Develop knowledge on the basics of omics and their versatile applications	K1
CO2	Understand the omics data analysis	K2
CO3	Integration of omics approaches for improvement of life	K2
CO4	Technical skills and knowledge development on versatile techniques in omics	K3
CO5	Explore more advanced application based aspects in omics	K3

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4
CO1	M	M	S	M
CO2	L	M	M	M
CO3	S	M	S	M
CO4	S	S	S	M
CO5	S	S	M	M

S – Strong, M – Medium, L - Lo

INFORMATRION IN OMICS AND APPLICATIONS

Unit I

Overview and general principles of omics technologies in biotechnology.

The data analysis workflow- from quantitative data to biological information.

Unit II

Omics approaches: Genomics, Proteomics, Transcript omics and Metabolomics.

Functional omics for discovery of novel organisms, enzymes, value added products.

Unit III

Omics tools- DNA sequencing, Genome sequencing, Next generation sequencing methods.

Genome annotation, Functional genomics. RNA Sequencing, Microarray.

Unit IV

Basics concepts, Tools of proteomics- SDS PAGE, 2D PAGE, Liquid chromatography,

Mass spectrometry (ESI AND MALDI), Protein identification by peptide mass finger printing. Applications of proteomics.

Unit V

Fundamental concepts and tools of metabolomics. Capillary electrophoresis, Gas chromatography. Application of omics in different field of biotechnology including agriculture, environment, pharmaceuticals, medicine and forensics

Text books

S. No	Name of the Author(s)	Title of the book	Publishers name	Year of publication
1.	Debmalya Barh Vasco Azevedo	Omics Technologies and Bio-engineering	Academic press	2017
2.	Wittmann,c. and Lee,S.Y.eds	Systems metabolic engineering	Springer science and Business Media	2012
3.	Barh,D.,Zambare,V. and Azevedo,V.	Omics: applications in biomedical, agriculture and environment	Springer science and Business Media	2017

4.	Kihara,D.	Protein function prediction for omics era	Springer science and business Media	2011
5.	Debmalya Barth, Vasco Azevedo	Omics Technologies and Bio- Engineering	Academic press	2018

Reference books

S. No	Name of the Author(s)	Title of the book	Publishers name	Year of publication
1.	Lawrence Baker	Bioinformatics: Tools and Techniques	Callisto Reference	2018
2.	Jeremy W Dale, Malcolm van Schantz	From genes to genome	Willey - Blackwell	2011
3.	Martins-de-souza,D.	Shotgun Proteomics	Humana Press	2014
4.	Michael Agostino	Practical Bioinformatics	Garland Publishing	20013
5.	Low, L and Tammi, M	A Practical Handbook of Next Generation Sequencing and Its Applications	World Scientific	2017
6.	Mohammed Iftexhar	Bioinformatics Practical Manual	Create Space Independent Publishing Platform	2015

Web links

1. www.sciencedirect.com
2. <https://www.ncbi.nlm.nih.gov/pubmed/>
3. <https://nptel.ac.in/courses/102103045/>
4. <http://www.nih.gov>
5. <http://www.nas.edu>

Pedagogy

Powerpoint presentation, Simulation, Animated videos, Lab and industrial visits, Group Discussion, Seminar and Assignment.

SKILL BASED ELECTIVE - I (B)
BIOINFORMATICS
2019 – 2020 Onwards

Semester – IV	BIOINFORMATICS	Hours/Week – 2	
Skill Based Elective – I (B)		Credits – 2	
Course Code –19UBT4SBE1B		Internal 25	External 75

OBJECTIVES

- To get introduced to the basic concepts of Bioinformatics
- To familiarize with the available databases related to bioinformatics
- To learn the usage of basic online bioinformatics tools and techniques
- To apply the concepts and tools of bioinformatics in various fields

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge level
CO1	Understand the basic concepts and terminologies in bioinformatics	K1
CO2	Learn the basic online biological resources and databases	K2
CO3	Learn and apply the online softwares and tools for macromolecular structure prediction and sequencing	K2
CO4	Apply the bioinformatics tools in medicine for drug discovery and identification of novel drugs	K3
CO5	Apply the bioinformatics ideas in different fields and explore upcoming areas of interest in bioinformatics	K3

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4
CO1	L	M	M	S
CO2	M	M	S	M
CO3	S	M	S	M
CO4	S	M	S	M
CO5	S	S	S	M

S – Strong, M – Medium, L - Low

BIOINFORMATICS - SYLLABUS

Unit 1 (6 Hours)

History of Bioinformatics[#] – Introduction to concepts and terminology of Internet, Search Engines, Databases and Softwares

Unit 2 (6 Hours)

Review of basics about structure of macromolecules - DNA, RNA and Proteins. Online resources for Bioinformatics – Biological Databases – NCBI, Genbank, EMBL, Swissprot, PDB. Executing search and retrieval of data. Sequence alignment – Multiple sequence alignment – Pairwise alignment.

Unit 3 (6 Hours)

Bioinformatics in genomics and proteomics – gene sequencing tools traditional methods – Maxam and Gilbert’s method, Sanger’s sequencing – structure prediction tools – Nucleic acid and protein structure prediction – Gene and protein expression analysis – similarity search databases – FASTA, BLAST. Analysis of Phylogeny - Phylogenetic tree construction. Protein ligand interaction, Ramachandran Plot, PYMOL.

Unit 4 (6 Hours)

Structure based drug discovery – Molecular docking of novel compounds – SAR and QSAR, Introduction to Simulation softwares in biology – Autodock, ADMET.

Unit 5 (6 Hours)

Applications of Bioinformatics in different fields – Medicine Agriculture , Environmental monitoring - Emerging areas in bioinformatics[#].

Self Study Topics

Text books

S. No	Name of the Author(s)	Year of publication	Title of the book	Publishers name
1.	Manoj Kumar	2020	Introduction to Bioinformatics	Notion press
2.	Ibrokhim Y. Abdurakhmonov	2016	Bioinformatics: Updated Features and Applications	BoD – Books on Demand
3.	Paul M. Selzer, Richard J. Marhöfer, Oliver Koch	2018	Applied Bioinformatics: An Introduction	Springer
4.	Prakash S. Lohar	2019	Bioinformatics	MJP Publisher

5.	Noor Ahmad Shaik, Khalid Rehman Hakeem, Babajan Banaganapalli, Ramu Elango	2019	Essentials of Bioinformatics, Volume I: Understanding Bioinformatics: Genes to Proteins	Springer
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Reference books

S. No	Name of the Author(s)	Year of publication	Title of the book	Publishers name
1.	Shoba Ranganathan, Kenta Nakai, Christian Schonbach	2018	Encyclopedia of Bioinformatics and Computational Biology: ABC of Bioinformatics	Elsevier
2.	Hamid R Arabnia, Quoc Nam Tran	2015	Emerging Trends in Computational Biology, Bioinformatics, and Systems Biology: Algorithms and Software Tools (Emerging Trends in Computer Science and Applied Computing)	Morgan Kaufmann; 1 st Edition
3.	Asheesh Shanker	2018	Bioinformatics: Sequences, Structures, Phylogeny	Springer
4.	Paola Lecca,	2011	Systemic Approaches in Bioinformatics and Computational Systems Biology: Recent Advances	Business Science Reference
5.	Arthur Lesk	2019	Introduction to Bioinformatics	Oxford University Press
6.	Jamil Momand, Alison McCurdy, Silvia Heubach	2016	Concepts in Bioinformatics and Genomics	Oxford University Press

Web links

www.ncbi.nlm.nih.gov > genbank

<https://nptel.ac.in/courses/102106065/>

www.ebi.ac.uk > training > online > course > bioinformatics-terrified

www.wwpdb.org

www.bioinformatics.org

Pedagogy

PowerPoint presentation, Video lectures, Demonstration and hands on teaching, Group discussion, Seminar and assignment.

ANNEXURE - U
CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS),TRICHY-18
PROGRAMME STRUCTURE - B.Sc., NUTRITION AND DIETETICS
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2019-2020)

SEM	PART	COURSE	COURSE TITLE	SUBJECT CODE	INS. HRS / WEEK	CREDIT	EXAM HRS	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- I & 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)	Food Science	19UND1CC1	6	5	3	25	75	100
				Core Practical – I (CP)	Food Science-Practical	19UND1CC1P	3	2	3	40
		First Allied Course – I (AC)	Food Microbiology	19UND1AC1	4	4	3	25	75	100
				First Allied Course –II (AP)	Food Microbiology and Food Chemistry –Practical	19UND1AC1P	3	-	-	-

	IV	Value Education	Value Education	19UGVE	2	2	3	25	75	100	
			TOTAL		30	19				600	
II	I	Language Course – II (LC) – Tamil/Other Languages	Idaikala ilakkiyamum pudhinamum	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	II	Core Course – II (CC)	Human Physiology	19UND2CC2	6	6	3	25	75	100
			Core Practical – II (CP)	Human Physiology – Practical	19UND2CC2P	3	2	3	40	60	100
		First Allied Course – II (AP)	Food Microbiology and Food Chemistry –Practical	19UND1AC1P	3	3	3	40	60	100	
			First Allied Course – III (AC)	Food Chemistry	19UND2AC2	4	2	3	25	75	100
	IV	Environmental studies	Environmental studies	19UGES	2	2	3	25	75	100	
				TOTAL		30	21				700

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)	Writing for General and Specific Purposes -I	19UE3	6	3	3	25	75	100	
	III	Core Course – III (CC)	Principles of Nutrition	19UND3CC3	6	5	3	25	75	100	
			Core Practical – III (CP)	Principles of Nutrition – Practical	19UND3CC3P	3	2	3	40	60	100
			Second Allied Course – I (AC)	Nutritional Biochemistry	19UND3AC3	4	4	3	25	75	100
			Second Allied Course – II Practical (AC)	Nutritional Biochemistry & Clinical Biochemistry – Practical	19UND3AC2P	3	-	-	-	-	-
	IV	Non Major Elective I – for those who studied tamil under Part-I	Basics in Nutrition	19UND3NME1	2	2	3	25	75	100	
			a. Basic Tamil for other language students	Basic Tamil							19ULC3BT1
			b. Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree programme	Special Tamil							19ULC3ST1
	V	SWAYAM ONLINE COURSE	Body Language : Key to Professional Success	-		1				As per UGC norms	
			TOTAL		30	19				600	

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)	Writing for General and Specific Purposes -II	19UE4	6	3	3	25	75	100
	III	Core Course – IV (CC)	Nutrition through Life Cycle	19UND4CC4	5	5	3	25	75	100
		Core Practical – IV (CP)	Nutrition through Life Cycle – Practical	19UND4CC4P	3	2	3	40	60	100
		Second Allied Course – II Practical (AC)	Nutritional Biochemistry & Clinical Biochemistry – Practical	19UND3AC2P	3	3	3	40	60	100
		Second Allied Course – III (AC)	Clinical Biochemistry	19UND4AC4	3	2	3	25	75	100
	IV	Non Major Elective II – for those who studied tamil under Part-I	Nutrition for the Family	19UND4NME2	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 programme	Special Tamil	19ULC4ST2						
		Skill Based Elective – I	I.A.Regional Cuisines	19UND4SBE1A						
			I.B.Basics in Food Production	19UND4SBE1B						
	V	SWAYAM ONLINE COURSE	As per UGC Recommendations							As per UGC norms
			TOTAL		30	22				

V	III	Core Course – V (CC)	Diet Therapy I	19UND5CC5	5	5	3	25	75	100
		Core Course – VI (CC)	Dietary Food Service Management	19UND5CC6	5	5	3	25	75	100
		Core Course – VII (CC)	Dietary Internship	19UND5CC7	5	5	-	40	60	100
		Core Practical - V (CP)	Diet Therapy I – Practical	19UND5CC5P	4	3	3	40	60	100
		Major Based Elective – I	I.A. Food Standards and Quality Control	19UND5MBE1A	5	5	3	25	75	100
	I.B. Techniques of Food Evaluation		19UND5MBE1B							
	IV	Skill Based Elective – II	II.A. Bakery and Confectionary	19UND5SBE2A	2	2	3	25	75	100
			II.B. Computer Applications in Nutrition and Dietetics	19UND5SBE2B						
		Skill Based Elective – III	III.A. Food Preservation	19UND5SBE3A	2	2	3	25	75	100
			III.B. Food Packaging	19UND5SBE3B						
		Soft Skills Development	Soft Skills Development	19UGSD	2	2	3	25	75	100
			TOTAL		30	29				800

VI	III	Core Course – VIII (CC)	Diet Therapy II	19UND6CC8	6	6	3	25	75	100
		Core Course – IX (CC)	Perspectives of Home Science	19UND6CC9	6	6	3	25	75	100
		Core Practical– VI (CP)	Diet Therapy II - Practical	19UND6CC6P	5	4	3	40	60	100
		Major Based Elective – II	II.A. Community Nutrition	19UND6MBE2A	6	6	3	25	75	100
			II.B. Principles of Resource Management	19UND6MBE2B						
		Major Based Elective – III	III.A. Food Processing	19UND6MBE3A	6	6	3	40	60	100
	III.B. Nutraceuticals and Functional Foods		19UND6MBE3B							
	V	Extension Activities	Extension Activities	19UGEA	-	1	-	-	-	-
		Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100
			TOTAL		30	30				600
		GRAND TOTAL		180	140				4100	

SEMESTER - IV

HOURS / WEEK - 5

CORE COURSE - IV	NUTRITION THROUGH LIFE CYCLE	CREDIT - 5	
COURSE CODE – 19UND4CC4		INTERNAL 25	EXTERNAL 75

Objectives

- To understand the importance of nutrition and health.
- To obtain knowledge on the nutritional needs pertaining to different stages of life.
- To plan diet for various age groups.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	List nutritional requirements for all age groups.	K1
CO2.	Explain the balanced diet, food groups and food pyramid.	K2
CO3.	Explain the physiological changes that take place during pregnancy and lactation.	K2
CO4.	Give examples of weaning foods and low cost supplementary foods.	K2
CO5.	Compute nutritive value for different age groups according to RDA.	K3

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1.	S	S	M	M	S
CO2.	S	S	M	M	S
CO3.	S	S	M	M	S
CO4.	S	S	M	M	S
CO5.	S	S	M	M	S

S- Strong; M-Medium

Syllabus

UNIT I

(15 Hours)

- a) **Introduction to Nutrition** - #Balanced diet, Basic five food groups#, RDA, factors affecting RDA.
- b) **Menu planning** - Definition, principles of menu planning, points to be considered in menu planning, steps involved in planning menu.

UNIT II

(15 Hours)

- a) **Nutrition for Pregnancy** –Physiological changes, nutritional problems, complications, food and nutritional requirements, dietary guidelines.
- b) **Nutrition for Lactation** – Role of hormones in milk production, factors affecting the volume and composition of breast milk, role of galactogogues, food and nutritional requirements, dietary guidelines, Lactation failure and factors responsible for lactation failure.

UNIT III

(15 Hours)

- a) **Nutrition for Infants**- Growth and development, importance of breast feeding, advantages of breast feeding, food and nutritional requirements. Weaning – Definition, types of supplementary foods, points to be considered in introducing weaning foods.
- b) **Nutrition for Preschoolers** – Growth and development, food and nutritional requirements, factors affecting nutritional status, low cost supplementary foods and nutritional problems among preschoolers.

UNIT IV

(15 Hours)

- a) **Nutrition for school going children** – Growth and development, food and nutritional requirement, packed lunch – factors to be considered, sample menu, school lunch programmes, nutritional problems.
- b) **Nutrition for adolescent** – Growth and development, body composition, puberty, secondary sexual characteristics, food and nutritional requirements, dietary guidelines, nutritional problems.

UNIT V

(15 Hours)

- a) **Nutrition for adulthood** – Food and nutritional requirements, dietary guidelines, nutritional problems.
- b) **Nutrition for old age** –Process of ageing, food and nutritional requirement, dietary guidelines, nutrition related problems, degenerative diseases.

#-# : Self study

Text Books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Srilakshmi B	2014	Dietetics	New Age International , New Delhi.
2.	Gajalakshmi R	2014	Nutrition Science	CBS Publishers and Distributors Pvt. Ltd

Reference Books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Sari Edelstein	2009	Life cycle nutrition	Jones and Bartlett Publisher
2.	Barasi, Mary E, Great Britain	2002	Human Nutrition: Health Perspective	Hodder and Stoughton
3.	Swaminathan M	2012	Handbook of Food and Nutrition	Banglore Publishing Co Ltd
4.	Townsend, Carolyn E	2000	Nutrition and Diet Therapy	London: I.T.P an International Thomson Publishing Company
5.	Gopalan.C, Rama Sastri.V.B and Balasuramanian.S.C	2016	Nutritive Value of Indian Foods	National Institute of Nutrition(ICMR) Hyderabad

Journals

- Journal of Nutrition and Metabolism, Biomed central, United kingdom
- Pregnancy Hypertension, Elsevier Bv, Netherlands

Web links

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5104202/>

<https://www.ncbi.nlm.nih.gov/books/NBK525242/>

<https://www.health.gov.il/English/Topics/SeniorHealth/HealthPromo/Pages/nutrition-elderly.aspx>

Pedagogy: E-content, Lecture, Power point presentation, Seminar, Assignment, Group discussion.

Course Designers

- Ms.M.Vinothini
- Ms.S.Fathima

SEMESTER - IV	NUTRITION THROUGH LIFE CYCLE -PRACTICAL	HOURS / WEEK - 3	
CORE PRACTICAL – IV		CREDIT - 2	
COURSE CODE – 19UND4CC4P		INTERNAL 40	EXTERNAL 60

Objectives

- To gain knowledge on nutritive value of Indian foods.
- To understand the importance of nutrients.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Identify the physiological changes take place during all age group	K1
CO2.	Explain the importance of RDA for all age group	K2
CO3.	Describe the meal plan according to the age group	K2
CO4.	Interpret the nutrient content of the planned recipe with RDA	K2
CO5.	Prepare a planned meal based on the RDA for all age group	K3

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1.	S	S	M	M	S
CO2.	S	S	M	M	S
CO3.	S	S	M	M	S
CO4.	S	S	M	M	S
CO5.	S	S	M	M	S

S- Strong; M-Medium

Syllabus

NUTRITION THROUGH LIFE CYCLE -PRACTICAL

Plan, calculate nutritive value and prepare meal for

- Pregnant women
- Lactating women
- Infant
- Pre – schoolers
- School going children
- Adolescent
- Adult
- Old age

Text**Books**

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Srilakshmi B	2014	Dietetics	New Age International
2.	Gajalakshmi R	2014	Nutrition Science	CBS Publishers and Distributors Pvt. Ltd
3.	Gopalan.C, Rama Sastri.V.B and Balasuramanian.S.C	2016	Nutritive Value of Indian Foods	National Institute of Nutrition(ICMR) Hyderabad

Reference**Books**

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Graham Dodgshun and Michel Peters	2010	Cookery for the Hospitality Industry	Cambridge University Press, New Delhi
2.	Thangam E.Philip	2015	Modern Cookery for Teaching and the Trade Volume-I	Orient Blackswan Private Limited, New Delhi
3.	Kathleen Mahan	2008	Krause's Food and Nutrition Therapy	Saunders Elsevier, Missouri

Pedagogy: Practical, Demonstration

Course Designers

- Ms.M.Vinothini
- Ms.S.Fathima

SEMESTER - IV	NUTRITIONAL BIOCHEMISTRY & CLINICAL BIOCHEMISTRY - PRACTICAL	HOURS / WEEK - 3	
SECOND ALLIED COURSE PRACTICAL II		CREDIT - 3	
COURSE CODE – 19UND3AC2P		INTERNAL	EXTERNAL
		40	60

Objectives

- To develop skills in handling analytical equipment.
- To understand procedures for qualitative and quantitative analysis.
- To learn the collection of blood and urine

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Name the chemicals used in qualitative and quantitative analysis	K1
CO2.	Explain the procedure for quantitative analysis	K2
CO3.	Interpret the analytical results	K2
CO4.	Describe the analysis of blood and urine abnormalities in relation to diseased conditions	K2
CO5.	Apply calorimetry and chromatography techniques	K3

Mapping with Programme

Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1.	M	M	S	M	S
CO2.	M	M	S	M	S
CO3.	M	M	S	M	S
CO4.	M	M	S	M	S
CO5.	M	M	S	M	S

S- Strong; M-Medium

NUTRITIONAL BIOCHEMISTRY

- Qualitative tests for Sugars – Glucose, Fructose, Lactose, Maltose, Sucrose, Starch
- Qualitative tests for Proteins.
- Qualitative tests for Minerals.
- Quantitative estimation of Glucose.
- Quantitative estimation of Iron.
- Quantitative estimation of Calcium.
- Quantitative estimation of Ascorbic acid.

CLINICAL BIOCHEMISTRY

- Qualitative analysis of Urine for normal constituents.
- Qualitative analysis of urine for abnormal constituents.
- Estimation of blood glucose (Folin-Wu method).
- Estimation of urine glucose (Benedicts method)
- Estimation of blood urea and creatine (DAM-TSC Method).
- Estimation of urine urea (DAM-TSC Method).
- Electrophoretic pattern of blood proteins (Demonstration).
- Estimation of Serum Cholesterol (ZAK'S Method).
- Estimation of Serum Bilirubin(Ehrlich's Diazo reagent method)
- Techniques of Chromatography (Paper)

Text Books

S.No.	Author name	Year of Publication	Title of the book	Publishers name
1.	AmbikaShanmugam	2008	Fundamentals of Biochemistry for Medical students	Lippincott Williams & Wilkins
2.	Rafi MD, Dr NTR	2015	Textbook of Biochemistry for Medical Students	University of Health Sciences, Universities Press

Reference Books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Pattabiraman .N.T	2001	Laboratory Manual in Biochemistry	All India Publishers and Distributors Regd,Chennai
2.	Shanmugam.S, Sathishkumar,T, PanneerSelvam.K	2010	Laboratory handbook on biochemistry	PHI learning Private Ltd,Chennai.
3.	Murray, Robert K	2012	Harper`sIllustrated Biochemistry	Mcgraw Hill Irwin Companies, New York
4.	Das Lajja	2014	Medicinal Biochemistry	Venus Books, New Delhi
5.	Evangeline Jones	2016	Manual of Practical Medical Biochemistry,2 nd Edition	Jaypee Brothers Medical Publishers(p) Ltd.

Pedagogy: Lecture, Demonstration, Practical

Course Designers

- Ms.S.Fathima
- Ms.M.Vinothini

SEMESTER - IV	CLINICAL BIOCHEMISTRY	HOURS / WEEK - 3	
SECOND ALLIED COURSE III		CREDIT - 2	
COURSE CODE – 19UND4AC4		INTERNAL 25	EXTERNAL 75

Objectives

- To enable the students to gain knowledge on regulation of metabolism.
- To understand the relationship of biochemistry to health and disease to medicine.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Identify Biochemical data	K1
CO2.	Explain Carbohydrate disorders	K2
CO3.	Assess Protein disorders	K2
CO4.	Illustrate fat disorders	K2
CO5.	Prepare appropriate technique to evaluate various organ functions	K3

Mapping with Programme Outcomes

COS	PO1	PO2	PO3	PO4	PO5
CO1.	M	M	S	M	S
CO2.	M	M	S	M	S
CO3.	M	M	S	M	S
CO4.	M	M	S	M	S
CO5.	M	M	S	M	S

S- Strong; M-Medium

Syllabus

UNIT I

(9 Hours)

Biochemical Data Acquisition, Interpretation and Laboratory Techniques

General lab information, #units of measure-enzymes, hormones, electrolytes#, uses of biochemical data in clinical medicine. Acquisition and interpretation of biochemical data. Tools of biochemistry.

UNIT II

(9 Hours)

Disorders of carbohydrate metabolism

Glucose homeostasis, Diabetes mellitus, ketone bodies, macroangiopathy and microangiopathy. Glucose tolerance tests and glycosylated hemoglobin. Inborn errors of carbohydrate metabolism, Glycogen storage diseases, Galactosemia,

UNIT III

(9 Hours)

Disorders of Protein metabolism

Phenylalanemia, homocystinuria, tyrosinemia, MSUD, phenylketonuria, alkaptonuria, albinism and aminoacidurias. Disorders in purine/ pyrimidine metabolism

UNIT IV

(9 Hours)

Disorders of Fat metabolism

Disorders in lipids-Gaucher, Tay-Sach, Niemann-Pick, Farber's, Gangliosidosis, Steatorrhea, Dyslipidemia, Atherosclerosis, Coronary Artery Disease, Disorders of Lipoproteins.

UNIT V

(9 Hours)

Organ Function Tests

Kidney function test –Clearance test (Urea and creatinine clearance test), Measurement of Osmolality (ADH test, Dilution test)

Liver function test –Tests based on excretory function, Based on metabolic capacity of liver, Tests based on serum enzymes, and synthetic function of liver.

Gastric function test –Fractional test meal, Stimulation test, Estimation of free acidity and total acidity

Pancreas Function test –Amylase and Lipase tests

#-# : Self study

Text Books

S.No	Author name	Year of Publication	Title of the book	Publishers name
1.	Satyanarayana U	2016	Fundamentals of Biochemistry	Books and Allied (p) Ltd, Kolkata
2.	Ambika Shanmugam,		Fundamentals of biochemistry for medical students, 8 th Edition	Lippincott Williams and Wilkin

Reference Books

S.No	Author name	Year of publication	Title of the book	Publishers name
1.	Das Lajja	2014	Medicinal Biochemistry,	Venus Books, New Delhi
2.	Murray, Robert K	2012	Harper's Illustrated Biochemistry	Mcgraw Hill Irwin Companies, New York

Journals

- CPD Bulletin Clinical Biochemistry, Rila Publications, Ltd, United Kingdom.
- Annals of Clinical Biochemistry, Sage Publications Inc, England.
- Clinical Biochemistry, Pergamon-Elsevier Science Ltd, Canada.
- Indian Journal of Clinical Biochemistry, Association of Clinical Biochemists of India.
- Journal of Clinical Biochemistry and Nutrition Japan.

Web Links

<https://ncdc.gov.in/>

<http://aiihph.gov.in/department-of-biochemistry-and-nutrition/>

Pedagogy: E-content, Lecture, Power point presentation, Seminar, Assignment

Course Designers

- Ms.M.Vinothini
- Ms.S.Fathima

SEMESTER - IV	NUTRITION FOR THE FAMILY	HOURS / WEEK - 2	
NON MAJOR ELECTIVE -II		CREDIT - 2	
COURSE CODE – 19UND4NME2		INTERNAL 25	EXTERNAL 75

Objectives

- To understand the role of nutrition in different stages of life cycle.
- To gain experience in planning menu for different stages of life cycle.
- To develop skills in organizing and evaluating nutrition projects in the community.

Course Outcomes

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

CO Number	CO statement	Knowledge level
CO 1	Identify the inter relationship between health and nutrition	K1
CO 2	Explain menu planning principles for different stages of life cycle	K2
CO 3	Explain importance of RDA	K2
CO 4	Interpret nutritional problems throughout life cycle	K2
CO 5	Apply basic therapeutic principles in menu planning	K3

Mapping with programme outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	S
CO2	S	S	M	M	S
CO3	S	S	M	M	S
CO4	S	S	M	M	S
CO5	S	S	M	M	S

S- Strong; M-Medium

Syllabus

UNIT I

(6 Hours)

a) **Principles of Nutrition** – #Classification and functions of Nutrients#. Inter relationship between health and nutrition, malnutrition, over nutrition, under nutrition. Principles of meal planning , RDA.

b) **Nutrition for Pregnancy** - Physiological changes and complications during Pregnancy, food and nutritional requirements during pregnancy.

c) **Nutrition for Lactation**- Physiology of Lactation, food and nutritional requirements of lactating women.

UNIT II

(6 Hours)

a) **Nutrition for Infants** -Importance of breast milk, food and nutritional requirements for infants, weaning and supplementary foods for infants.

b) **Nutrition for - Preschoolers** Food habits of preschoolers, food and nutritional requirements for preschool children.

UNIT III

(6 Hours)

a) **Nutrition for School Age** -Food and Nutritional requirements for school going children. nutritional problems.

b) **Nutrition for Adolescents** -Food and Nutritional requirements for adolescence and eating disorders.

UNIT IV

(6 Hours)

a) **Nutrition during Adulthood** -Reference man and Reference woman, Food and nutritional requirements for adults.

b) **Nutrition during Old age** - Nutritional requirements, nutritional problems and dietary management.

UNIT V

a) **Basics in therapeutic menu planning** – Characteristics of clear fluid, full fluid soft diet.

Therapeutic dietary principles - Energy – High calorie and Low calorie, Carbohydrate – High carbohydrate and Low carbohydrate, Protein – High protein and Low protein, Fat – High fat and Low fat, Dietary fibre – High fibre and Low fibre.

#-# : Self study

Textbooks

No.	Author name	Year of Publication	Title of the book	Publisher name
1.	Srilakshmi B	2012	Nutrition Science	New Age International Publishers, New Delhi
2.	SwaminathanM	2012	Hand book of Food and Nutrition	Bangalore printing and publishing co., Ltd, Bangalore
3.	Raheena Begum M	2012	A Text Book of Foods, Nutrition and Dietetics	Sterling publishers private Limited

Reference Books

S.No.	Author name	Year of Publication	Title of the book	Publisher name
1.	Gajalakshmi R	2008	Nutrition Science	CBS Publishers and distributors Pvt Ltd, New Delhi,
2.	Indrani T.K	2008	Nursing Manual of Nutrition and Therapeutic Diet	Jaypee Brothers, Medical publishers (p) Ltd, New Delhi
3.	Shubhangini Joshi A	2014	Nutrition and Dietetics	MC Graw Hill Education (India)
4.	Srilakshmi B	2014	Dietetics	New Age International Publishers, New Delhi

Journals

- Nutrition, Elsevier Science Inc, United States.
- Journal of Youth and Adolescence, Springer/Plenum Publishers, United States.
- Journal of Food and Nutrition Research, Vup Food Research Inst, Bratislava, Slovakia.

Web links

<https://www.ncbi.nlm.nih.gov/books/NBK209825/>

<https://www.who.int/nutrition/topics/nutrecomm/en/>

Pedagogy: E-content, Lecture, Power point presentation, Seminar, Assignment, Quiz.

Course Designers

- Ms.B.Thanuja
- Ms.E.Agalya

SEMESTER - IV	I.A.REGIONAL CUISINES	HOURS / WEEK - 2	
SKILL BASED ELECTIVE - I		CREDIT - 2	
COURSE CODE – 19UND4SBE1A		INTERNAL 25	EXTERNAL 75

Objectives

To gain knowledge on Indian regional cuisines.

To understand the basic culinary terms.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Identify role of spices in Indian cookery	K1
CO2.	Describe the characteristics of regional cuisines	K2
CO3.	Describe the food habits of various Indian region	K2
CO4.	Categorize cooking methods applied in Indian regional cuisines	K3
CO5.	Categorize speciality cuisines of Indian festivals	K3

Mapping with programme outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	S	M
CO2	S	M	M	S	M
CO3	S	M	M	S	M
CO4	S	M	M	S	M
CO5	S	M	M	S	M

S- Strong; M- Medium

UNIT I

Introduction to Indian Cuisines (6 Hours)

Introduction to Indian food, Philosophy of Indian cooking, influence of the invaders and travellers on Indian cuisine. #Spices and Condiments used in Indian cookery#, masala and Pastes. Basic gravies- Makhni gravy, Tomato onion gravy, Hariyali gravy, White gravy, Regional gravies.

UNIT II

Famous cuisines North and West Regions of India (6 Hours)

Origin of tandoor and dum cooking, special equipment and their uses, workflow, tenderizing agents used in Indian cooking. Introduction to North Indian cuisine - Kashmir Cuisine, Punjabi Cuisine, Mughalai and Awadh Cuisine, Rajasthani Cuisine. West region cuisine -Gujarati Cuisine, Maharastrian Cuisine, Vidharbha, Kohlapur, Maratwada, Konkan, Goan Cuisine.

UNIT III

Famous cuisines of North Eastern India (6 Hours)

Introduction to North Eastern Indian cuisine - Staple foods, special food habits, various cooking methods and characteristics of Assamese, Arunachal Pradesh, Bihar, Manipuri, Meghalaya, Mizoram, Nagaland, Sikkim, Tripuri Cuisines.

UNIT IV

Famous cuisines of Central Indian (6 Hours)

Introduction to Central Indian cuisine – Staple foods, food habits, special occasion foods and characteristics of Madhya Pradesh and Odissi cuisines.

UNIT V

Famous cuisines of South Indian Cuisine (6 Hours)

Heritage of South Indian cuisines, Factors that affect eating habits in south Indian region, Speciality cuisines for festivals and special occasions. Characteristics of Tamil Nadu Cuisine, Hyderabad and Andhra Cuisine, Kerala cuisine, Karnataka cuisine .

#-# : Self study

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Krishna arora	2011	Theory of cookery	Frank bros&co, Noida
2.	Graham Dodgshun	2008	Cookery for the hospitality industry	Cambridge university press Graham Dodgshun, Michel Peters

Reference books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Linda civitello	2011	Cuisine and culture	John Wily & sons, New jersey
2.	Parvinder S.Bali	2014	Food Production Operations	Oxford University Press, New Delhi
3.	Parvinder S.Bali	2012	International Cuisines and Food production Management	Oxford University Press, New Delhi

Journals:

- Journal of Culinary Science and Technology

Web links:

http://www.tasteofindiabtown.com/menu/TOI_webmenu_082410.pdf
https://en.wikipedia.org/wiki/South_Indian_cuisine
https://www.indianembassybeirut.gov.in/pdf/Introduction_to_Indian_Cuisine.pdf
<http://www.itrhd.com/magazine/special-issue1.pdf>
https://www.academia.edu/32998366/Indian_cuisines_representing_Indian_culture
https://en.wikipedia.org/wiki/Global_cuisine
<http://www.listwoo.com/top-10-international-cusines/>
<https://www.internationalcuisine.com/>
<https://www.tandfonline.com/doi/full/10.1080/1743873X.2013.767818?src=recsys>

Pedagogy: E-content, Lecture, Power point presentation, Seminar, Assignment, Industrial visit

Course Designers

- Ms. S. Fathima
- Ms. T.R. Revathi

SEMESTER - IV	I.B.BASICS IN FOOD PRODUCTION	HOURS / WEEK - 2	
SKILL BASED ELECTIVE - I		CREDIT - 2	
COURSE CODE – 19UND4SBE1B		INTERNAL	EXTERNAL
		25	75

Objectives

To acquire knowledge on environmental set up for cooking.

To learn various methods and techniques of Cooking.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Identify uses of equipment in food production	K1
CO2.	Explain pre preparation techniques for Cooking	K2
CO3.	Illustrate basic preparation salads, soups and sauces	K2
CO4.	Describe egg, fish and meat cookery	K3
CO5.	Apply bakery principles and techniques in the preparation of cakes, cookies and biscuits	K3

Mapping with programme outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	S
CO2	S	S	M	M	S
CO3	S	S	M	M	S
CO4	S	S	M	M	S
CO5	S	S	M	M	S

S- Strong; M-Medium

Syllabus

UNIT I

Organization of Kitchen, Storage and Service Spaces (6 Hours)

Size and type of kitchens, designing kitchens, layout of kitchens (General layout of kitchen in various organizations). Location of storage spaces, types of storage, planning storage spaces. Location and planning service areas.

Equipment – Classification, #uses of equipment in food production#.

UNIT II

Pre-preparation (6 Hours)

Pre-Preparation-Meaning of terms -Washing, peeling, paring, Cutting, mirepoix, mincing, meringue, mandolin, macedoine, shredding, slicing, slitting, grating, grinding, mashing, pureeing, sieving, mashing, rendering, filtration, flavouring, folding, homogenization, beating, blending, creaming, folding, kneading, marinating, whipping, stirring.

Cooking

Cooking -Objectives and methods of cooking (Moist heat, Dry heat, Fat as a medium of cooking, Microwave and Solar cooking)

UNIT III

Preparation of Salads, Soups and Sauces (6 Hours)

Classification of salad, parts of salad, salad dressings. Stocks, classification of soups, garnishes for soups. Classification of sauces, importance in food preparations.

UNIT IV

Fish, Egg and Meat Cookery (6 Hours)

Fish Cookery-Classification of fish with examples, selection of fish, pre-preparation of fish for cooking, Cooking of fish. Egg cookery –Uses of egg in food preparations, methods of cooking. Meat Cookery- Methods of tenderization of meat, meat cookery.

UNIT V

Fundamentals in the preparation of Cakes, Cookies and Biscuits (6 Hours)

Role of ingredients, principles involved in preparation of cake, balancing of cake formula, cake faults and their causes. Difference between cookies and biscuits, Role of ingredients, principles involved in preparation of cookies, types of cookies, faults and their causes in making cookies.

#-# : Self study

Text books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Krishna Arora	2005	Theory of cookery	Frank Bros and co.Publishers, New Delhi
2.	R.Singaravelavan	2006	Food & Beverage Service	Oxford University press (2006)
3.	Yogambal Ashokkumar		Text book of Bakery and Confectionary	
4.	V.Cessarani and R.Kinton	2002	Practical Cookery	Hodder and Stoughton publishers

Reference books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	V.Cessarani. and R.Kinton	2002	Practical Cookery	Hodder and Stoughton publishers
2.	Thangam Philip	2005	Modern Cookery	Orient Longmam Limited, Bangalore
3.	Vijay Dhawan	2007	Food & Beverage Service	Frank Bros&co, New Delhi

Journals

- Journal of Food Industry, Macro think Institute, United States.
- Journal for Food Processing and beverages, Avens Publishing Group, India. **Food**

Web links

<http://esu-services.ch/projects/lcafood/>

<https://www.tutorialspoint.com/>

<http://www.yourarticlelibrary.com/home-science/food-production/soup-meaning-and-classification-food-production/86444>

<https://sielearning.tafensw.edu.au/toolboxes/KitchenOps/tools/kitchen/hfood/soups.html>

https://getrevising.co.uk/revision-notes/pastry_making

Pedagogy: E-content, Lecture, Power point presentation, Seminar, Assignment, Demonstration, Visit to food production units.

Course Designers

- Ms.B.Thanuja
- Ms.S.Fathima

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
PROGRAMME STRUCTURE -M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2019-2020)

SEM	COURSE	COURSE TITLE	SUBJECT CODE	INS. HRS / WEEK	CREDIT	EXAM HRS	MARKS		TOTAL
							INT	EXT	
I	Core Course – I (CC)	Advanced Food Science	19PFS1CC1	6	5	3	25	75	100
	Core Course – II (CC)	Human Nutrition and Public Health	19PFS1CC2	6	5	3	25	75	100
	Core Course – III (CC)	Biochemical Changes in Diseases	19PFS1CC3	6	5	3	25	75	100
	Core Course – IV (CC)	Advanced Dietetics I	19PFS1CC4	6	5	3	25	75	100
	Core Practical – I (CP)	Human Nutrition and Public Health – Practical	19PFS1CC1P	6	4	3	40	60	100
		TOTAL			30	24			
II	Core Course – V (CC)	Advanced Dietetics II	19PFS2CC5	6	5	3	25	75	100
	Core Course – VI (CC)	Hospital Administration	19PFS2CC6	6	5	3	25	75	100
	Core Practical II (CP)	Advanced Dietetics – I & II - Practical and Dietary Internship	19PFS2CC2P	6	4	3	40	60	100
	Elective Course – I (EC)	I.A. Functional Foods and Nutraceuticals	19PFS2EC1A	6	4	3	25	75	100
		I.B. Paediatric Nutritional Care	19PFS2EC1B						
	Elective Course – II (EC)	II. A. Applied Physiology	19PFS2EC2A	6	4	3	25	75	100
		II. B. Nutrition for fitness	19PFS2EC2B						
		TOTAL			30	22			

III	Core Course – VII (CC)	Principles of Home Science	19PFS3CC7	6	5	3	25	75	100
	Core Course – VIII (CC)	Research Methods and Statistical Techniques	19PFS3CC8	6	5	3	25	75	100
	Core Practical – III (CP)	Catering Internship	19PFS3CC3P	6	5	-	40	60	100
	Elective Course – III (EC)	III.A.Food Microbiology and Sanitation	19PFS3EC3A	6	4	3	25	75	100
		III.B.Nutrition in Clinical Critical Care	19PFS3EC3B						
	Elective Course – IV (EC)	IV.A. Food Product Development	19PFS3EC4A	6	4	3	25	75	100
		IV.B.Basic Food Analytical Techniques	19PFS3EC4B						
SWAYAM ONLINE COURSE	Patent Drafting for Beginners	-		1				As per UGC norms	
	TOTAL		30	23				500	
IV	Core Course – IX (CC)	Quantity Food production and Service	19PFS4CC9	6	5	3	25	75	100
	Core Course – X (CC)	Food Service Management	19PFS4CC10	6	5	3	25	75	100
	Core Practical – IV (CP)	Quantity Food Production and Service -Practical	19PFS4CC4P	6	4	3	40	60	100
	Elective Course – V (EC)	V.A. Management and Accounting inHospitality Industry	19PFS4EC5A	6	4	3	25	75	100
		V.B.Counselling Skills	19PFS4EC5B						
	Project Work		19PFSPW	6	3	-	40	60	100
		TOTAL		30	21				500
	GRAND TOTAL		120	90				2000	

SEMESTER - IV	QUANTITY FOOD PRODUCTION AND SERVICE	HOURS / WEEK - 6	
CORE COURSE - IX		CREDIT - 5	
COURSE CODE – 19PFS4CC9		INTERNAL 25	EXTERNAL 75

Objectives

- To gain knowledge in menu planning and product standards to maintain quality.
- To learn aspects on quantity production and quality control.
- To understand the importance of styles of services and courses of menu.

Course outcomes

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

CO number	CO statement	Knowledge level
CO1	List the various types of food service institutions	K1
CO2	Classify menu and courses of menu in a food service institutions	K3
CO3	Apply principles of purchasing and storage techniques in pre-preparations	K3
CO4	Determine standardization of recipes and portioning.	K4
CO5	Appraise hygiene and sanitation and safety procedures in food production	K5
CO6	Design kitchen layout with effective work simplifications	K6

Mapping with programme outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1.	S	S	M	S	S
CO2.	S	S	M	S	S
CO3.	S	S	M	S	S
CO4.	S	S	M	S	S
CO5.	S	S	M	S	S

S- Strong; M-Medium

Syllabus

UNIT I

Menu planning, food and beverage services (15 Hours)

a) Menu Planning - Definition, types of menu, techniques of writing a menu, menu display, study of menus for different types of quantity food outlets, Courses of menu – French classical menu, uses of menu cards, important cookery terms used in menus, common terms in French and English Menu, role of computers in menu planning.

b) Styles of services (**English Service, American Service, French Service, Gueridon Service, Russian Service**). Types of services (Waiter service, Banquet service, Buffet service, Self-service), rules for laying a table, rules for waiting at a table. Equipment for service - (silver, crockery, glassware, stainless steel, plastics and melamine ware).

c) Food service systems-Types- Conventional, Commissary, Ready prepared (cook-chill, cook-freeze) and Assembly service system.

UNIT II

Purchase and storage (20 Hours)

a) Indenting, Methods of buying (Informal, formal, bid, negotiation, future contracts), purchasing procedures, standard purchase specifications, methods of purchasing (contract purchasing, purchasing through quotations, cash purchases, purchasing through tenders, centralized purchases, periodical purchases), receiving of purchased items. Procedures for evaluating food quality.

b) Storage – Perishable, Non-perishable, principles of storage (FIFO, LIFO, Bin cards), recommended temperatures for storage and inventory control .

UNIT III

Equipment, Production and standardization of recipes (20 Hours)

a) Equipment – Classification, Traditional Vs Modern equipment. Equipment required for quantity food production – major and minor with reference to receiving, storage, preparation, service, dish washing and garbage disposal area. Use, care and maintenance of equipment. Points to be considered while selecting equipment.

b) Production-Methods of cooking, preparation of salads, soups, sauces, sandwiches, vegetable carving, garnishing.

c)Standardization of Recipe and portioning- methods and benefits.Left over utilisation of foods.

UNIT IV

Kitchen organisation and work simplification (20 Hours)

- a)Kitchen Organisation - kitchen layout – Island layout, zonal layout, assembly layout. Points to be considered while designing kitchen layout.
- b)#Fuel- Types of fuel, management and effective utilisation of fuel#.
- c)Work Simplification –Aspects and classification of work simplification. Mise-en –scene, Mise-en-place.

UNIT V

Hygiene and Sanitaion and Safety (15 Hours)

- a)Hygiene and Sanitaion – Environmental hygiene and sanitaion, hygiene in food handling, personnel hygiene.
- b)Safety- Causes of accidents in food industry, Three Es of safety,Safety procedures, First aid, Fire accident - types, prevention and control, pest control, Work environment safety, safety management programmes,

#-# : Self study

Text Books

S.No.	Author name	Year of Publication	Title of the book	Publisher name
--------------	--------------------	----------------------------	--------------------------	-----------------------

1.	Negi J	2000	Professional Hotel Management	S.Chand and Company Limited, New Delhi (2000)
2.	J.P.Palacio., V.Harger.,G.Shugari., M.Thesis	2001	West and Woods Introduction to Food Service.	Mac Millan Pub Co., New York
3.	Krishna Arora	2005	Theory of cookery	Fronk Bros and co.Publishers, New Delhi
4.	R.Singaravelavan	2006	Food & Beverage Service	Oxford University press (2006)

Reference Books

S.No.	Author name	Year of Publication	Title of the book	Publisher name
1.	V.Cessarani. and R.Kinton	2002	Practical Cookery	Hodder and Stoughton publishers
2.	KhanM.A	2003	Food Service Operations	AVI Publications Co., Connecticut
3.	Thangam Philip	2005	Modern Cookery	Orient Longmam Limited, Bangalore
4.	Vijay Dhawan	2007	Food & Beverage Service	Frank Bros&co, New Delhi
5.	MohiniSethi and Malhan S M	2007	Catering Management – An Integrated Approach	Wiley Eastern Limited, Mumbai
6.	TharunBansal	2015	Hotel Facility Planning	Oxford University Press

Journals

- Journal of Foodservice Business Research, Haworth Press Inc. publishing, United States

- Food Hygiene and Safety Science, Food Hygiene & Safety publishing, Japan.
- Food, Culture & Society, Association for The Study of Food and Society publishing, United States.
- Manufacturing and Service Operations Management, institute for Operations Research and The Management Sciences publisher, United States.

Web links

<https://blog.cvent.com/events/food-service-styles/>

<https://www.nidirect.gov.uk/articles/storing-food-safely>

<http://www.breakingtravelnews.com/focus/article/different-types-of-cuisines-around-the-world-come-with-us-and-enjoy-the-exp/>

<https://opentextbc.ca/foodsafety/chapter/storage-temperatures-and-procedures/>

http://www.searo.who.int/entity/world_health_day/2015/whd-what-you-should-know/en/

Pedagogy: Lecture, Seminar, Assignment, Power point presentation , Industrial visits.

Course Designers

- Ms.E.Agalya
- Ms.S.Fathima

SEMESTER - IV	FOOD SERVICE MANAGEMENT	HOURS / WEEK - 6	
CORE COURSE - X		CREDIT - 5	
COURSE CODE – 19PFS4CC10		INTERNAL	EXTERNAL
		25	75

Objectives

- To understand the organization and management of Food Service Institutions.
- To gain knowledge on principles and functions of management.
- To study the importance of tools of management.

Course outcomes

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

CO number	CO statement	Knowledge level
CO 1	Identify commercial and non – commercial food service institutions	K1
CO 2	Explain the principles, functions and tools of management	K2
CO 3	Predict the significance of planning and organization in the managerial process	K3
CO 4	Determine the importance of tools of management	K4
CO 5	Evaluate the role of motivation in management	K4
CO 6	Generalize the significance of controlling in managerial process	K6

Mapping with programme outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1.	S	S	M	S	S
CO2.	S	S	M	S	S
CO3.	S	S	M	S	S
CO4.	S	S	M	S	S
CO5.	S	S	M	S	S

S- Strong; M-Medium

Syllabus

UNIT I

(18 Hours)

a) **Food Service Institutions** - #Classification of food service institutions: Commercial and Non Commercial food service institutions. Objectives and workflow#.

b) **Functional Areas in Food Service Institutions**-Front office,Housekeeping, Receiving area, Storage area, Production area, Serving area and Garbage disposal – Layout, role and activities.

c) **Event management** -Types of events, role of staff, event administration, event organization-weddings, and outdoor catering (off premises catering).

UNIT II

(18 Hours)

a)Introduction to Management-Principles, Functions and Theories of Management .

b)Tools of management-Organization Chart, job description, job specification, work schedule, job analysis, production and staff analysis statement and budget.

UNIT III

(18 Hours)

a)Planning - Definition, Nature, importance and steps in planning. Steps and kinds of forecasting.

b)Organization -Definition, Process of organization, Types– Formal and Informal Organization and importance of organization.

c)Human Resource Management –Staffing, man power planning, recruitment, selection and training. Directing - Definition, characteristics and principles of directing, delegation, decentralization, centralization, supervision, authority and responsibility.

UNIT IV

(18 Hours)

a)Motivation - Definition, importance, types, theories -Traditional (Fear and Punishment theory, Efforts and Rewards Theory, Carrot and Stick Theory), Modern Theories (Maslow's hierarchy of needs theory, Herzberg's Motivation – Hygiene theory, McClelland's Three –Need theory, Vroom's Expectancy theory). Approaches and techniques to enhance motivation - wages, salaries, incentives, promotion, demotion, transfer and dismissal.

b)Leadership – Definition, Characteristics, Theories of Leadership – Traitist Leadership Theory, Behavioural Theories of Leadership, Tannenbaum and Schmidt's leadership continuum. Types of Leadership styles – Authoritarian, Paternalistic, Democratic, Laissez-faire, Expert or Functional Leader and Institutional Leader.

UNIT V

(18 Hours)

a)Communication – Meaning, Characteristics, Significance, Channels of Communication – formal and informal channel. Communication media – Oral, Written, Nonverbal and Barriers of Communication

b)Controlling - Definition, characteristics and importance of controlling, techniques of control – Break Even Analysis, PERT (Programme Evaluation and Review Technique), MIS (Management Information System) and Budgetary control.

c) **Performance appraisal** – importance, methods – Traditional trait approach – Rating Scales, Ranking methods, Critical incident, Check-list methods. Appraisal by results or objects – Management by Objectives

#-# : Self study

Text books

S.No.	Author name	Year of Publication	Title of the book	Publisher name
1.	Ahmed Ismail	2004	Front office operations and Management	Delmar Publications, Singapore.
2.	Vijay R. Thakur	2007	Food and Beverage Service	Denetis Co
3.	Premavathy N	2008	Principles of Management (Business Management)	Sri Vishnu Publication
4.	Raghubalan G and Smritee Raghubalan	2009	Hotel housekeeping - Operations and Management	Oxford University Press, New Delhi
5.	Mohini Sethi	2011	Catering management – An Integrated approach	New Age International Pvt. Ltd. New Delhi

Reference books

S.No.	Author name	Year of Publication	Title of the book	Publisher name
1.	West and B.B.Wood	1996	Food service in institutions	Jonewiley and sons
2.	Malhotra R K	1998	Fundamentals of hotel Management	Anmol Publications, New Delhi
3.	Sharma Jyothi S	2006	Catering Management Practices	Akansha Publishing house, New Delhi
4.	Vijay R. Thakur	2007	Food and Beverage Service	Denetis Co
5.	Chakravarthi B K	2011	Hotel and Hospitality Management	A.P.H. Publishing corporation
6.	Anil Bhat	2016	Principles of Management	Oxford University Press, New Delhi

			competencies, Practices, Processes	
7.	Peter jones	2016	Food service operations	Library cataloguing in publishing data, London
8.	Singaravelan R	2016	Food and Beverage Service	Oxford university Press, New Delhi

Journals

- Journal of Industrial Engineering and Management, Omnia Science.
- Journal of Food Service Business Research, Taylor and Francis, United Kingdom.
- Journal of Hotel and Business Management, Longdom Publishing, Belgium.

Web Links

<http://ncert.nic.in/textbook/pdf/lehe104.pdf>

<https://pdfs.semanticscholar.org/18b8/eb1b94af18401e4610673e3f8bd6120f38fc.pdf>

https://nptel.ac.in/courses/122106031/slides/1_1s.pdf

http://shodhganga.inflibnet.ac.in/bitstream/10603/197548/5/05_chapter%202.pdf

<https://www.manage.gov.in/studymaterial/EC.pdf>

Pedagogy: Lecture, Assignment, Seminar, Quiz, Power point Presentation, Visit to Commercial and Non Commercial Food Service Establishments.

Course Designers

- Ms. S.Agalya
- Ms. B.Thanuja

SEMESTER - IV	QUANTITY FOOD PRODUCTION AND SERVICE - PRACTICAL	HOURS / WEEK - 6	
CORE PRACTICAL - IV		CREDIT - 4	
COURSE CODE – 19PFS4CC4P		INTERNAL 40	EXTERNAL 60

Objectives

- To plan various regional cuisines.
- To understand the principles of table setting and napkin folding.
- To study the operational aspects of commercial and non- commercial food service institutions.

Course outcomes

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

CO Number	CO statement	Knowledge level
CO 1	List types of menu	K1
CO 2	Explain standardization of recipes	K2

CO 3	Classify different courses of menu	K3
CO 4	Determine role of ingredients in various regional cuisines	K4
CO 5	Assess recipe standardisation techniques	K5
CO 6	Design table setting techniques	K6

Mapping with programme outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1.	S	S	M	S	S
CO2.	S	S	M	S	S
CO3.	S	S	M	S	S
CO4.	S	S	M	S	S
CO5.	S	S	M	S	S

S- Strong; M-Medium

Syllabus

- Standardization of recipes, Portion control and Pricing.
- Planning and Preparation of South Indian cuisine
- Planning and Preparation of North Indian cuisine
- Planning and Preparation of Western cuisine
- Planning and Preparation of Chinese cuisine
- Planning and Preparation of Thai cuisine and
- Planning and Preparation of Continental cuisines
- Table Setting and Napkin folding.

Text Books

S.No.	Author name	Year of Publication	Title of the book	Publisher name
1.	Krishna Arora.,	2005	Theory of cookery	Fronk Bros and co.Publishers, New Delhi
2.	R.Singaravelavan	2006	Food & Beverage Service	Oxford University press (2006)

Reference Books

S.No.	Author name	Year of Publication	Title of the book	Publisher name
1.	V.Cessarani. and R.Kinton	2002	Practical Cookery	Hodder and Stoughton publishers

2.	Khan MA	2003	Food Service Operations	AVI Publications Co., Connecticut
3.	MohiniSethi and Malhan S M	2007	Catering Management – An Integrated Approach,	Wiley Eastern Limited, Mumbai
4.	Thangam Philip	2005	Modern Cookery	Orient Longman Limited, Bangalore
5.	Vijay Dhawan	2007	Food & Beverage Service	Frank Bros&co, New Delhi

Pedagogy: Lecture, Demonstration, Practical ,Power point presentation ,Industrial visits.

Course Designers

- Ms.E.Agalya
- Ms.S.Fathima

SEMESTER - IV	V.A.MANAGEMENT AND ACCOUNTING IN HOSPITALITY INDUSTRY	HOURS / WEEK - 6	
ELECTIVE COURSE - V		CREDIT - 5	
COURSE CODE – 19PFS4EC5A		INTERNAL	EXTERNAL
		25	75

Objectives

- To understand the forms and practices adopted in hospitality industry
- To gain knowledge on the various sources of finance and marketing procedures.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Define the management and importance of hospitality management	K1
CO2.	Explain the scope of hospitality industry	K2
CO3.	Apply the basic strategies involved in marketing	K3
CO4.	Analyze financial statements by using basic accounting techniques	K4
CO5.	Assess the types of various records used in front office area	K5
CO6.	Devise food and beverage cost control techniques	K6

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1.	S	S	S	M	M
CO2.	S	S	M	S	S
CO3.	S	S	M	S	S
CO4.	S	S	M	S	S
CO5.	S	S	M	S	S

S- Strong; M-Medium

UNIT I

(18 Hours)

Introduction to Management Accounting

Definition, need and importance of management accounting , difference between management accounting and cost accounting, importance of working capital management ,Total Quality Management in hospitality industry.

UNIT II

(18 Hours)

Hospitality marketing and marketing communication

Definition of marketing, marketing activities, relationship between sales and marketing, elements of marketing, role of sales department. Marketing communication, media analysis, public relations, press releases, market research and planning, supply and demand.

UNIT III

(18 Hours)

Basic Accounting

Sources of Finance- classification, need for accounting, cash flow analysis, book-keeping and accounting, double- entry system, journal- sub divisions of journal, ledger, trial balance, balance sheet, cashbook – petty cash book, profit and loss account, budgetary control.

UNIT IV

(18 Hours)

Front office accounting and Automation in Hospitality Industry

Guest accounting, main function of accounts and its system, types of accounts maintained by the front office cashier, front office accounting cycle, types of postings, methods of handling guest accounts, methods of account settlements. #Automation in Hospitality Industry-Advantages of using computers in food service institutions. Point of sale (POS) and Property Management Systems (PMS)#.

UNIT V

(18 Hours)

Food and Beverage Cost control

Food and Beverage cost, cost control methods, market reports, inventory control, food and beverage cost reconciliation – ingredient control, preparation control, beverage control techniques.

#-# : Self study

Text Books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	L.Dennis Foster	1993	Food and Beverage: Methods and Cost controls	McGraw – Hill International Editions
2.	Paul R. Dittmer	2002	Dimensions of the hospitality industry	John Wiley and Sons Inc

Reference Books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	A.Murthy and S. Gurusamy	2008	Essentials of Management Accounting	Vijay Nicole Imprints Pvt.Ltd
2.	RajniSofat and PreetiHird.	2008	Basic Accounting	Prentice – Hall of India Pvt.Ltd
3.	S.K.Bhatnagar	2005	Front Office Management	Frank Bros and Co

Journals

- Journal of Management Accounting Research, Chapel Hill,USA
- Journal of Accounting Research, Accounting Research Centre, University of Chicago
- Journal of Business Finance and Accounting

Web links

<https://www.investopedia.com>

https://link.springer.com/chapter/10.1057/9780230353275_19

<https://www.toppr.com/guides/business-environment/business-functions/financial-management>

Pedagogy: Lecture, Power point presentation, Seminar, Assignment.

Course Designers

- Ms.M.Vinothini
- Ms.S.Agalya

SEMESTER - IV	V.B.COUNSELLING SKILLS	HOURS / WEEK - 6	
ELECTIVE COURSE - V		CREDIT - 4	
COURSE CODE – 19PFS4EC5B		INTERNAL	EXTERNAL
		25	75

Objectives

- To acquire knowledge on basic etiquette of a counsellor.
- To learn handling different areas of counselling.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	List various avenues for counselling	K1
CO2.	Explain counselling techniques	K2
CO3.	Apply counselling techniques to various groups	K3
CO4.	Determine the nature of clients	K4
CO5.	Evaluate the impact of counselling	K5
CO6.	Design counselling pattern according to client's demand	K6

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1.	M	S	M	S	M
CO2.	M	S	M	S	M
CO3.	M	S	M	S	M
CO4.	M	S	M	S	M
CO5.	M	S	M	S	M

S- Strong; M-Medium;

Syllabus

UNIT I

(18 Hours)

Basics in Counselling

Counselling in India, Definition, Goals, Ethics, Scope, Characteristics of counsellor, types of counselling, objectives of counselling in health care, tools of counselling, sources of counselling, e resources in counselling

UNIT II

(18 Hours)

Techniques in Counselling

Strategies and communication skills, Rapport building and opening techniques, Questioning, listening, reflecting, acceptance, silence, leading reassurance, non-verbal behavior, terminating skills

UNIT III

(18 Hours)

Process of Counselling

Techniques for obtaining relevant information, Clinical Information, Medical History and General Profile, Dietary Diagnosis -Assessing food and nutrient intakes, #Lifestyles, physical activity, stress, Nutritional Status#, Correlating relevant information and identifying areas of need: Problem exploration and clarification, Developing new perspectives and setting goals, implementation, follow up and evaluation.

UNIT IV

Working with different groups

(18 Hours)

Hospitalised patients (adults, pediatric, elderly, special needs,), adjusting and adapting to individual needs. Outpatients (adults, pediatric, elderly and special needs), patient's and care takers education, techniques and modes, follow up, Monitoring and Evaluation of outcome: Home visit

UNIT V

(18 Hours)

Various Therapeutic Techniques

Psychoanalytic therapy, group therapy, psychodrama, behavior therapy, Gestalt therapy Cognitive therapy. Nutrition counselling protocols- Involving phase, Exploration and education, resolving, closing. Exploring the expressions, use of art in therapy.

#-# : Self study

Text books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	SujataSriram	2016	Counselling in India Reflection on the process	Springer
2.	Susan Davison, Christopher Rance, Peter Thomas	2013	Clinical Counselling in Medical Settings	Taylor and Francis

Reference books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	kathleenD. Bauer, Doreen Liou, Carol A. Sokolik	2016	Nutrition Counseling and Education Skill Development	CengageLEarning
2.	SujataSriram	2016	Counselling in India Reflection on the process	Springer
3.	Susan Davison, Christopher Rance, Peter Thomas	2013	Clinical Counselling in Medical Settings	Taylor and Francis
4.	Judy Gable, Tamara Herrmann	2016	Counselling Skills for Dietitians III edition	Blackwell Publishing

Journals

- Journal of Counselling Psychology, American Psychological Association, America.
- British Journal of Guidance and Counselling, Taylor and Francis, United Kingdom
- British Journal of Occupational Therapy, Sage Publication, United States.
- Counselling and Psychotherapy research, Wiley online Library, United Kingdom.

Web links

<https://www.mhinnovation.net/PMHP-Basic-Counselling-Skills.pdf>

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

Course Designers

- Ms.S.Fathima
- Ms.E.Agalya

SEMESTER - IV	PROJECT WORK	HOURS / WEEK - 6	
PROJECT WORK		CREDIT - 3	
COURSE CODE – 19PFSPW		INTERNAL	EXTERNAL
		40	60

Objectives

- To Design the framework to collect data.
- To develop the ability to solve a specific research problem.
- To understand the importance of experimental analysis.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Define the research design	K1
CO2.	Describe research problem	K2
CO3.	Classify collected data	K3
CO4.	Examine collected data and associate with statistical tool	K4
CO5.	Assess and publish papers in reputed research journals	K5
CO6.	Develop Proposals to apply for minor research projects	K6

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1.	S	S	M	M	M
CO2.	S	S	M	M	M
CO3.	S	S	M	M	M
CO4.	S	S	S	S	M
CO5.	S	S	S	S	M

S- Strong; M-Medium

Syllabus

- Principles of research ethics
- Selection of research problem
- Formulation of research design and methodology
- Collection of review of literature
- Processing of data – editing, coding, classification and tabulation
- Deriving solution and conclusion
- Preparation of bibliography
- Publication in journals
- Checking of plagiarism
- Preparation of proposals for research projects

Course designer

- Ms. M. Vinothini

INTERNAL MARKS

PROJECT WORK

- Review - I **(20Marks)**
- Review -II **(20Marks)**

TOTAL (40Marks)