

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

**Affiliated to Bharathidhasan University
Nationally Accredited (3rd Cycle) with 'A' grade by NAAC
ISO 9001 : 2015 Certified
Annamalainagar
Tiruchirapalli-620018**



Minutes of the Fifth Meeting of the Academic Council

Date : 09.10.2021
Venue : Trust Meeting Hall

Time : 10.30 a.m.

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FIFTH MEETING OF THE ACADEMIC COUNCIL

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TIME: 10.30 A.M.

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MINUTES

WELCOME AND INTRODUCTORY REMARKS OF THE CHAIRMAN

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

She briefed on the

- Accreditations
- Registrations
- Activities under UGC Paramarsh
- Faculty Details
- COVID19 Relief Fund

She also highlighted the achievements of the college from Feb 2021 to September 2021

- IQAC Activities
- Grants and Financial Assistance from the Government
- Grants and Financial Assistance from the Management
- MoU with TCS under Academic Interface Programme
- MoU with Bajaj Fin Serv Limited
- Awards and Recognitions
- Project Proposal
- Publications and Patents applied for
- SWAYAM NPTEL
- Faculty as NPTEL Reviewers/Translators
- Internship and Training Programmes
- Extension Activities and Outreach Programmes
- Achievement of Entrepreneurial Development Cell
- CCAA-Cauvery College Alumnae Association
- Placement Details
- Activities during COVID-19 Lockdown
- Infrastructure Upgradation

CONFIRMATION OF THE MINUTES OF THE PREVIOUS MEETING HELD ON 27.02.2021

The Member Secretary Dr. Sinthu Janita Prakash read the minutes of the IV Meeting of the Academic Council comprising of 17 Resolutions- (Resolution 04/01 to Resolution 04/17) of the IV Meeting of the Academic Council pertaining to the common curriculum for all the sections of B.Com, B.Sc Mathematics and BCA with more number of elective courses, pass criteria for NPTEL Courses, amendment in the curriculum in previous semesters & V Semester syllabus were confirmed.

RESOLUTION NO. 05/01

To consider and approve the introduction of the TCS integrated Academic Interface Programme - **B.Sc Computer Science with Cognitive Systems** for 2021- 2022 batch and onwards

Dr Karunakaran, External Academic Expert gave suggestion to the management to go for equivalence from TANSCHÉ, once the complete curriculum is framed.

Dr. M. Balamurugan, University Nominee, suggested to offer the course Data Structures and Algorithms before the course Database Management Systems.

Dr. K. Suriyan, University Nominee gave suggestions to include the viva-voce component in the Practical Examination.

Dr. Karunakaran, External Academic Expert, as per the Examination reforms suggested by UGC, advised to allocate 50 marks for internal and 50 marks for external, since 50 marks in internals can bring many components into the internals.

*Considered and approved the introduction of the TCS integrated Academic Interface Programme - **B.Sc Computer Science with Cognitive Systems** for 2021- 2022 batch and onwards as given in **Annexure A***

RESOLUTION NO. 05/02

To consider and approve the introduction of **Value Added Courses** from the Academic Year 2021-2022 onwards.

Dr. K. Suriyan, University Nominee gave suggestions to change the title of and the content of the Value Added Course offered by the department of Social Work, "Marital Counselling" as "Counselling for Wellbeing". He also advised to change the title of the Value Added Course, "Introduction to UPSC-CSE and TNPSC Examinations" as "Introduction to Job Oriented Competitive Examinations" and to include job oriented competitive examinations in the curriculum. The curriculum is modified and the number of hours is increased as 40.

*Resolved to approve the introduction of **Value Added Courses** from the Academic Year 2021-2022 onwards as given in **Annexure B**.*

RESOLUTION NO. 05/03

To **nominate two subject experts from outside the Parent University** for the BoS of various departments for the period 2022- 2025

*It is resolved to **nominate two subject experts from outside the Parent University** for the BoS of various departments for the period 2022- 2025 as given in **Annexure C**.*

RESOLUTION NO.05/04

To consider and approve the VI Semester Syllabi of Part III Core and Major based Elective Courses of B.A Tamil for 2019-2020 batch and onwards

*Resolved to approve the VI Semester Syllabi of Part III Core and Major based Elective Courses of B.A Tamil for 2019-2020 batch and onwards as recommended by the Board of Studies in **Tamil** and moved by the Chairman **Dr. S. Ramalakshmi** in the meeting and the same be approved as given in **Annexure D**.*

RESOLUTION 05/05

To consider and approve the VI Semester syllabi of Part III Core and Major based Elective Courses of B.A English for 2019-2020 batch and onwards

*It is resolved to approve the VI Semester syllabi of Part III Core and Major based Elective Courses of B.A English for 2019-2020 batch and onwards as recommended by the Board of Studies in **English** and moved by the Chairman **Dr. P. Urmila** in the meeting and the same be approved as given in **Annexure E**.*

RESOLUTION 05/06

To consider and approve

- a) the syllabi of Part III Core and Major based Elective Courses of Semester VI of B.A Social Work for 2019-2020 batch and onwards
- b) The syllabus of the Gender Studies Course (19UGGS) in Semester VI for all the Under Graduate Programmes of 2019-2020 batch and onwards

Resolved to approve

- a) *the syllabi of Part III Core and Major based Elective Courses of Semester VI of B.A Social Work for 2019-2020 batch and onwards*
- b) *The syllabus of the Gender Studies Course (19UGGS) in Semester VI for all the Under Graduate Programmes of 2019-2020 batch and onwards*

*as recommended by the Board of Studies in **Social Work** and moved by the Chairman **Dr. S. Metilda Bhuvaneshwari** in the meeting and the same be approved as given in **Annexure F**.*

RESOLUTION 05/07

To approve

- a) The ratification made to alter the credit scores for Allied Course III Business Law(19UBA3AC3) as 3 credits instead of 4 credits in Semester III, Major Based Elective I Consumer Behaviour (19UBA5MBE1A)/ Managerial Communication (19UBA5MBE1B) as 4 credits instead of 3 credits in Semester V
- b) The ratification to replace the Skill Based Elective Courses II – New Product Development (19UBA5SBE2A) as Banking-Practicum Study (19UBA5SBE2AP)/Business Ethics as (19UBA5SBE2B) as New Product Development (19UBA5SBE2BP) in Semester V
- c) Ratification to replace Skill Based Elective Courses III - Event Management (19UBA5SBE3A) with Statistical Package for Managers (SPSS) (19UBA5SBE3AP)/Personality Development (19UBA5SBE3B) as Event Management Practical (19UBA5SBE3BP) in Semester V
- d) The VI Semester syllabi of Part III Core and Major based Elective Courses of Semester VI of B.B.A for 2019-20 batch and onwards

It is resolved to approve

- a) The ratification made to alter the credit scores for Allied Course III Business Law(19UBA3AC3) as 3 credits instead of 4 credits in Semester III, Major Based Elective I Consumer Behaviour (19UBA5MBE1A)/ Managerial Communication (19UBA5MBE1B) as 4 credits instead of 3 credits in Semester V*
- b) The ratification to replace the Skill Based Elective Courses II – New Product Development (19UBA5SBE2A) as Banking-Practicum Study (19UBA5SBE2AP)/Business Ethics as (19UBA5SBE2B) as New Product Development (19UBA5SBE2BP) in Semester V*
- c) Ratification to replace Skill Based Elective Courses III - Event Management (19UBA5SBE3A) with Statistical Package for Managers (SPSS) (19UBA5SBE3AP)/Personality Development (19UBA5SBE3B) as Event Management Practical (19UBA5SBE3BP) in Semester V*
- d) The VI Semester syllabi of Part III Core and Major based Elective Courses of Semester VI 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. Thamil Selvi** in the meeting and the same be approved as given in **Annexure G.***

RESOLUTION 05/08

To consider and approve for 2019-2020 batch and onwards

- a) The ratification to replace Skill Based Elective Course- II titled Business Correspondence and Reporting (19UCO5SBE2A / 19UCC5SBE2A) with SPSS – Practicals (19UCO5SBE2AP / 19UCC5SBE2AP) in the V Semester of B.Com & B.Com CA
- b) The ratification to include the Major Based Elective Course- I Business Correspondence and Reporting (19UCO5MBE1A) instead of the Course E-Commerce in the V Semester of B.Com
- c) The ratification to replace the Core Course - X Management Information System (19UCC5CC10) with Entrepreneurial Development and to introduce Major Base Elective Course- I Business Correspondence and Reporting (19UCC5MBE1A) in V Semester of B.Com CA
- d) The VI Semester syllabi of Part III Core and Major based Elective Courses of B.Com. and B.Com. CA
- e) The ratification to alter the apportionment of marks of II M.Com. – IV Semester, Project Work (19PCO4PW), Internal 25 marks and External 75 marks have been fully converted into 100 Marks

Resolved to approve for 2019-2020 batch and onwards

- a) *The ratification to replace Skill Based Elective Course- II titled Business Correspondence and Reporting (19UCO5SBE2A / 19UCC5SBE2A) with SPSS – Practicals (19UCO5SBE2AP / 19UCC5SBE2AP) in the V Semester of B.Com & B.Com CA*
- b) *The ratification to include the Major Based Elective Course- I Business Correspondence and Reporting (19UCO5MBE1A) instead of the Course E-Commerce in the V Semester of B.Com*
- c) *The ratification to replace the Core Course - X Management Information System (19UCC5CC10) with Entrepreneurial Development and to introduce Major Base Elective Course- I Business Correspondence and Reporting (19UCC5MBE1A) in V Semester of B.Com CA*
- d) *The VI Semester syllabi of Part III Core and Major based Elective Courses of B.Com. and B.Com. CA*
- e) *The ratification to alter the apportionment of marks of II M.Com. – IV Semester, Project Work (19PCO4PW), Internal 25 marks and External 75 marks have been fully converted into 100 Marks*

*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 H.**

RESOLUTION 05/09

To consider and approve

- a) the syllabus of Part III Core and Major Based Elective Courses of Semester VI of B.Sc. Mathematics for 2019-20 batch and onwards
- b) To consider and approve the syllabi of Part III Core and Allied Courses of Semester I of B.Sc Mathematics for 2021-2022 batch and onwards

Resolved to approve

- a) *the syllabus of Part III Core and Major Based Elective Courses of Semester VI of B.Sc. Mathematics for 2019-20 batch and onwards*
- b) *To consider and approve the syllabi of Part III Core and Allied Courses of Semester I of B.Sc Mathematics for 2021-2022 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 I.***

RESOLUTION 05/10

To consider and approve the syllabi of Part III Core and Major based Elective Courses of Semester VI of B.Sc. Physics for 2019-20 batch and onwards

*It is resolved to approve the syllabi of Part III Core and Major based Elective Courses of Semester VI of B.Sc. Physics for 2019-20 batch and onwards as recommended by the Board of Studies in **Physics** and moved by the Chairman **Dr G. Maheswari** in the meeting and the same be approved as given in **Annexure J.***

RESOLUTION 05/11

To consider and approve

- a) Ratification to replace the Skill Based Elective Courses II – Chemistry of Consumer Products (19UCH5SBE2A) with Chemistry of Consumer Products(P) (19UBA5SBE2AP)/Dye Chemistry (19UCH5SBE2B) with Dye Chemistry (P)(19UCH5SBE2BP) in Semester V of B.Sc. Chemistry for 2019-20 batch and onwards
- b) Ratification to replace the Skill Based Elective Courses III – Water Treatment Technology (19UCH5SBE3A) with Water Treatment Technology (P) (19UCH5SBE3AP) / Biofuels (19UCH5SBE3B) with Biofuels (P) (19UCH5SBE3BP) in Semester V of B.Sc. Chemistry for

2019-20 batch and onwards

- c) the syllabi of Part III Core and Major based Elective Courses of Semester VI of B.Sc. Chemistry for 2019-20 batch and onwards

Resolved to approve

- a) *Ratification to replace the Skill Based Elective Courses II – Chemistry of Consumer Products (19UCH5SBE2A) with Chemistry of Consumer Products(P) (19UBA5SBE2AP)/Dye Chemistry (19UCH5SBE2B) with Dye Chemistry (P)(19UCH5SBE2BP) in Semester V of B.Sc. Chemistry for 2019-20 batch and onwards*
- b) *Ratification to replace the Skill Based Elective Courses III – Water Treatment Technology (19UCH5SBE3A) with Water Treatment Technology (P) (19UCH5SBE3AP) / Biofuels (19UCH5SBE3B) with Biofuels (P) (19UCH5SBE3BP) in Semester V of B.Sc. Chemistry for 2019-20 batch and onwards*
- c) *the syllabi of Part III Core and Major based Elective Courses of Semester VI of B.Sc. Chemistry for 2019-20 batch and onwards*

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

RESOLUTION 05/12

To consider and approve the syllabi of Part III Core and Major based Elective Courses of Semester VI of B.Sc. Computer Science for 2019-20 batch and onwards

*Resolved to approve the syllabi of Part III Core and Major based Elective Courses of Semester VI of B.Sc. Computer Science for 2019-20 batch and onwards as recommended by the Board of Studies in **Computer Science** and moved by the Chairman **Dr. V. Sinthu Janita Prakash** in the meeting and the same be approved as given in **Annexure L**.*

RESOLUTION 05/13

To consider and approve

- a) the ratification to replace the Skill Based Elective Courses II – Mobile Applications Development (19UCA5SBE2A) as Practical – PC Packages (19UCA5SBE2AP)/ Multimedia Systems (19UCA5SBE2B) as Practical-Corel Draw (19UCA5SBE2BP) in Semester V of BCA for 2019-20 batch and onwards
- b) the syllabi of Part III Core and Major based Elective Courses of Semester VI of BCA for 2019-20 batch and onwards

- c) the Programme Structure and the I Semester syllabi of BCA for 2021-2022 batch and onwards

Resolved to approve

- a) *the ratification to replace the Skill Based Elective Courses II –Mobile Applications Development (19UCA5SBE2A) as Practical – PC Packages (19UCA5SBE2AP)/ Multimedia Systems (19UCA5SBE2B) as Practical-Corel Draw (19UCA5SBE2BP) in Semester V of BCA for 2019-20 batch and onwards*
- b) *the syllabi of Part III Core and Major based Elective Courses of Semester VI of BCA for 2019-20 batch and onwards*
- c) *the Programme Structure and the I Semester syllabi of BCA for 2021-2022 batch and onwards*

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

RESOLUTION 05/14

To consider and approve the syllabi of Part III Core and Major based Elective Courses of Semester VI of B.Sc. Information Technology for 2019-20 batch and onwards

*Resolved to approve the syllabi of Part III Core and Major based Elective Courses of Semester VI of B.Sc. Information Technology for 2019-20 batch and onwards as recommended by the Board of Studies in **Information Technology** and moved by the Chairman **Dr. M. Parveen** in the meeting and the same be approved as given in **Annexure N.***

RESOLUTION 05/15

To consider and approve

- a) Syllabi of Environmental Studies Course (21UGES) for all Undergraduate courses of 2021-2022 batch and onwards
- b) Ratification to replace the Skill Based Elective II Courses – Biofertilizer Technology (19UMB5SBE2A) with Biofertilizer Technology Practical (19UMB5SBE2AP)/Solid Waste Management (19UMB5SBE2B) with Solid Waste Management Practical (19UMB5SBE2BP) in Semester V of B.Sc. Microbiology for 2019-2020 batch and onwards
- c) Ratification to replace the Skill Based Elective III Courses –Medical

Laboratory Technology (19UMB5SBE3A) with Medical Laboratory Technology Practical (19UMB5SBE3AP)/ Basics of Intellectual Property Rights (19UMB5SBE3B) with Vermitechnology Practical (19UMB5SBE3BP) in Semester V of B.Sc. Microbiology for 2019-2020 batch and onwards

- d) The syllabi of Part III Core and Major based Elective Courses of Semester VI of B.Sc. Microbiology for 2019-20 batch and onwards
- e) Ratification to replace the Course Title for Elective Course III Recent Trends in Microbiology (19PMB3EC3A) to Microbiology for Competitive Examination (20PMB3EC3A) in Semester III for MSc Microbiology 2020-2021 batch and onwards

Resolved to approve

- a) *Syllabi of Environmental Studies Course (21UGES) for all Undergraduate courses of 2021-2022 batch and onwards*
- b) *Ratification to replace the Skill Based Elective II Courses – Biofertilizer Technology (19UMB5SBE2A) with Biofertilizer Technology Practical (19UMB5SBE2AP)/Solid Waste Management (19UMB5SBE2B) with Solid Waste Management Practical (19UMB5SBE2BP) in Semester V of B.Sc. Microbiology for 2019-2020 batch and onwards*
- c) *Ratification to replace the Skill Based Elective III Courses –Medical Laboratory Technology (19UMB5SBE3A) with Medical Laboratory Technology Practical (19UMB5SBE3AP)/ Basics of Intellectual Property Rights (19UMB5SBE3B) with Vermitechnology Practical (19UMB5SBE3BP) in Semester V of B.Sc. Microbiology for 2019-2020 batch and onwards*
- d) *The syllabi of Part III Core and Major based Elective Courses of Semester VI of B.Sc. Microbiology for 2019-20 batch and onwards*
- e) *Ratification to replace the Course Title for Elective Course III Recent Trends in Microbiology (19PMB3EC3A) to Microbiology for Competitive Examination (20PMB3EC3A) in Semester III for MSc Microbiology 2020-2021 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 O**.*

RESOLUTION 05/16

To consider and approve the

- a) Ratification of the syllabi of Core Practical V Lab in Plant and Animal

Biotechnology (19UBT5CC5P) of B.Sc. Biotechnology for 2019-20 batch and onwards

- b) Ratification to replace the Skill Based Elective Courses II – Basics of Nanotechnology (19UBT5SBE2B) as Lab in Bioinformatics (19UBT5SBE2BP) in Semester V of B.Sc. Biotechnology for 2019-20 batch and onwards
- c) Ratification to replace the Skill Based Elective Courses III – Nanotechnology in Health Care (19UBT5SBE3B) as Lab in Plant Tissue Culture (19UBT5SBE3BP) in Semester V of B.Sc. Biotechnology for 2019-20 batch and onwards
- d) the syllabi of Part III Core and Major based Elective Courses of Semester VI of B.Sc. Biotechnology for 2019-20 batch and onwards

Resolved to approve the

- a) Ratification of the syllabi of Core Practical V Lab in Plant and Animal Biotechnology (19UBT5CC5P) of B.Sc. Biotechnology for 2019-20 batch and onwards*
- b) Ratification to replace the Skill Based Elective Courses II – Basics of Nanotechnology (19UBT5SBE2B) as Lab in Bioinformatics (19UBT5SBE2BP) in Semester V of B.Sc. Biotechnology for 2019-20 batch and onwards*
- c) Ratification to replace the Skill Based Elective Courses III – Nanotechnology in Health Care (19UBT5SBE3B) as Lab in Plant Tissue Culture (19UBT5SBE3BP) in Semester V of B.Sc. Biotechnology for 2019-20 batch and onwards*
- d) the syllabi of Part III Core and Major based Elective Courses of Semester VI 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. R. Rameshwari** in the meeting and the same be approved as given in **Annexure P**.*

RESOLUTION 05/17

To approve the

- a) Ratification to replace the Skill Based Elective Courses II – Bakery and Confectionary (19UND5SBE2A) with Bakery and Confectionary-Practical (19UND5SBE2AP)/ Computer Applications in Nutrition and Dietetics (19UND5SBE2B) with Computer Applications in Nutrition and Dietetics- Practical (19UND5SBE2BP) in Semester V of B.Sc.

Nutrition & Dietetics for 2019-20 batch and onwards

- b) Ratification to replace the Skill Based Elective Courses III–Food Preservation (19UND5SBE3A) with Food Preservation - Practical (19UND5SBE3AP)/Food Packaging (19UND5SBE3B) with Food Product Development-Practical (19UND5SBE3BP) in Semester V of B.Sc. Nutrition & Dietetics for 2019-20 batch and onwards
- c) The syllabi of Part III Core and Major based Elective Courses of Semester VI of B.Sc. Nutrition & Dietetics for 2019-20 batch and onwards
- d) Ratification of the assessment criteria of the Project Work 19PFS4PW in the IV Semester of MSc Food Service Management & Dietetics for 2019-2020 batch and onwards

It is resolved to approve the

- a) *Ratification to replace the Skill Based Elective Courses II – Bakery and Confectionary (19UND5SBE2A) with Bakery and Confectionary-Practical (19UND5SBE2AP)/ Computer Applications in Nutrition and Dietetics (19UND5SBE2B) with Computer Applications in Nutrition and Dietetics- Practical (19UND5SBE2BP) in Semester V of B.Sc. Nutrition & Dietetics for 2019-20 batch and onwards*
- b) *Ratification to replace the Skill Based Elective Courses III–Food Preservation (19UND5SBE3A) with Food Preservation - Practical (19UND5SBE3AP)/Food Packaging (19UND5SBE3B) with Food Product Development-Practical (19UND5SBE3BP) in Semester V of B.Sc. Nutrition & Dietetics for 2019-20 batch and onwards*
- c) *The syllabi of Part III Core and Major based Elective Courses of Semester VI of B.Sc. Nutrition & Dietetics for 2019-20 batch and onwards*
- d) *Ratification of the assessment criteria of the Project Work 19PFS4PW in the IV Semester of MSc Food Service Management & Dietetics for 2019-2020 batch and onwards*

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

RESOLUTION 05/18

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

Resolved to approve the matters relating to the Conduct of End Semester

*Examinations and the Declaration of Results as given in **Annexure R.***

RESOLUTION 05/19

Any other matter of concern with the permission of the chair

The answer script retention has been planned as 3 + 1 years.

- sd -

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



ANNEXURE A

Eligibility Criteria

Student should have studied **Computer Science / Mathematics / Physics / Chemistry** subjects during their higher secondary.

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

Expectation check list for AIP integrated Program Admission
Medium of Education during HSC should be English
12 years of School Education without a break
Over all Aggregate % in 10th, 11th and 12th Std should be minimum 75%

Programme Outcomes

- To gain knowledge in the core topics of Computer Science and to develop an equal appreciation of current industry standards
- To equip industry ready students and teaching ecosystem that provide values to business needs in the area of IT Infrastructure and IT Application, Maintenance & Service Support
- Learn to comprehend and integrate learners research practice in Computational Languages, Artificial Intelligence, Machine Learning, Robotics and Human Computer Integration
- To create awareness on current issues and latest trends in technological development and thereby implement innovative ideas and solutions to existing problems in society

Programme Structure

Courses Offered by TCS (Semesters I to V)

S.No	Sem	Subject	Theory	Practical	Software Requirements
1	I	Operating System	T	P	Windows 10 & Windows 2012 server iso files, oracle virtual box
2	1	Introduction to Worksheet		P	MS Excel
3	II	Computer Networks	T	P	Cisco packet tracer software
4	II	HTML, CSS, JavaScript		P	
5	III	Infrastructure Management	T	P	Microsoft SCCM 2016 suite,
6	III	Virtualization and Cloud	T		VMWare, AWS
7	III	Python Programming	T	P	Python
8	III	IT Infrastructure Library	T	-	Prerequisite for process mgt, CRM course
9	IV	DBMS	T	P	Oracle 18c/ 12c
10	IV	Process Management	T		
11	V	Client Relationship Management	T	P	ServiceNow

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B.Sc Computer Science with Cognitive Systems

(For the Candidates admitted from the Academic year 2021-2022onwards)

Semester	Part	Course	Title	Inst.Hrs/week	Credits	Exam			Total
						Hrs.	Marks		
							Int.	Ext.	
I	I	Language Course-I (LC) Tamil/Other Languages		6	3	3	25	75	100
	II	English Language Course- I(ELC)		6	3	3	25	75	100
	III	Core Course –I(CC)	Operating System (Theory+Practical)	4+2	5	2	50*	50*	100
		Core Practical – I (CP)	Introduction to Work Sheets	2	2	3	40	60	100
		Core Course II (CC)	IT Cognition and Problem Solving	4	3	3	25	75	100
		First Allied I	Essential Mathematics	4	3	3	25	75	100
	IV	UGC Jeevan Kaushal Life Skills	Universal Human Values	2	2	3	25	75	100
TOTAL				30	21				700

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I	Language Course- II(LC) Tamil/ Other Languages		6	3	3	25	75	100
	II English Language Course- II(ELC)		6	3	3	25	75	100
II	III Core Course – III (CC)	Computer Networks (Theory + Practical)	4+2	5	2	50*	50*	100
	Core Course - IV(CC)	Information Technology Infrastructure Library- ITIL	2	2	3	25	75	100
	First Allied II	Statistics	4	3	3	25	75	100
	First Allied III	Operations Research	4	3	3	25	75	100
IV	Environmental Studies	Environmental Studies	2	2	3	25	75	100
TOTAL			30	21				700

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I	Language Course-III (LC)-Tamil/Other Languages		6	3	3	25	75	100
	II English Language Course-III (ELC)		6	3	3	25	75	100
III	Core Course – V(CC)	Java Programming (Theory + Practical)	4+2	5	2	50*	50*	100
	III Core Course– VI(CC)	Infrastructure Management (Theory + Practical)	4+2	5	2	50*	50*	100
	Second Allied I	Digital Computer Fundamentals	4	3	3	25	75	100
IV	Non Major Elective I (For Other Department)	Office Automation Lab				40	60	100
		Basic Tamil	2	2	3			
		Special Tamil				25	75	
TOTAL			30	21				600

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IV	I	Language Course - IV (LC) - Tamil /Other Language		6	3	3	25	75	100	
	II	English Language Course- IV(ELC)		6	3	3	25	75	100	
	III		Core Course –VII(CC)	Relational Database Management Systems	5	4	3	25	75	100
			Core Practical - II (CP)	Relational Database Management Systems Lab	3	2	3	40	60	100
			Second Allied II	Digital & Microprocessor Lab	3	3	3	40	60	100
		Second Allied III	Microprocessor & Microcontrollers	3	3	3	25	75	100	
	IV	Non Major Elective II (For Other Department)		Multimedia Lab	2	2	3	40	60	100
				Basic Tamil				25	75	
				Special Tamil						
			Skill Based Elective – I	Web Technologies Lab	2	2	3	40	60	100
		Computer Hardware and Trouble Shooting Lab								
TOTAL				30	22				800	

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V	III		Core Course – VIII(CC)	Data Structures & Algorithms	5	5	3	25	75	100
			Core Course IX (CC)	Introduction to Digital Technologies (Theory + Practical)	3+2	5	2	50*	50*	100
			Core Course – X(CC)	Client Relationship Management (Theory + Practical)	3+2	5	2	50*	50*	100
		Core Course X(CC)	Cloud Computing (Theory + Practical)	4+2	5	2	50*	50*	100	
	Major Based Elective – I		Computer Organization & Architecture	5	4	3	25	75	100	
			Process Management							
			Computer Graphics							
	IV	Skill based Elective –II		Data Structures Lab Using C	2	2	3	40	60	100
				Graphics Lab using OpenGL						
		UGC Jeevan Kaushal Life Skills	Professional Skills	2	2	3	25	75	100	
TOTAL				30	28				700	

31

VI	III	Core Course – XI(CC)	Software Engineering & Testing	6	5	3	25	75	100
		Core Course – XII(CC)	Python Programming (Theory + Practical)	4+2	5	2	50*	50*	100
		Core Course – XIII(CC)	Open Source Technologies (Theory + Practical)	4+2	5	2	50*	50*	100
		Major Based Elective – II	Artificial Intelligence & Machine Learning	5	4	3	25	75	100
			Mobile Computing						
			Data Mining & Warehousing						
		Major Based Elective – III	Human Computer Interaction	4	4	3	25	75	100
			Network Security						
			Big Data & IOT						
		IV	Skill Based Elective – III	Mobile Application Development Lab Software Testing Lab	2	2	3	40	60
V	Gender Studies	Gender Studies	1	1	3	25	75	100	
	Extension activity		0	1	0	-	-	0	
TOTAL			30	27				700	
			180	140				4200	

Mandatory Core Courses given by TANSICHE

1	Programming in C	15	Operating systems
2	Lab: C Programming	16	Programming in Java
3	Digital computer fundamentals	17	Lab: Java programming
4	Data structures and algorithms	18	Computer Networks
5	Lab: Data structures using C	20	Open source technology
6	Computer Organization and Architecture	21	Lab: Open source technology
7	RDBMS	22	SBS: Android programming
8	Lab: SQL & PL/SQL	23	Programming in python
9	System software	24	Lab: Python programming
10	SBS: Office automation	25	Software engineering
11	Web technology	26	Linux & Shell programming (doubt)
12	Lab: Web technology	27	Shell programming
13	Computer graphics	28	Mobile computing
14	SBS: Quantitative aptitude	29	Distributed computing

Non-mandatory Elective Courses given by TANSICHE

1	Microprocessor and Assembly Language programming
2	Internet Programming
3	Discrete Structure
4	Object Oriented Programming using C++
5	PHP Programming
6	Multimedia systems
7	Wireless network
8	Data Mining and Warehousing
9	Ecommerce technologies
10	Network security
11	System administration and maintenance
12	Software testing

BSc Computer Science & BSc Computer Science with Cognitive Systems

Part No	Courses	No of Courses		Credits		Total Credits
		COG	C.SC	COG	C.SC	
Part I	Language	4	4	12	12	12
Part II	English	4	4	12	12	12
Part III	Core	16	15	68	66	98
	Allied	6	6	18	18	
	Major Based Electives	3	3	12	14	
Part IV	Non Major Electives	2	2	4	4	16
	Skill Based Electives	3	3	6	6	
	Value Education	1	1	2	2	
	Environmental Studies	1	1	2	2	
	Communication Skills	1	1	2	2	
Part V	Gender Studies	1	1	1	1	2
	Extension Activities	0	0	1	1	
Total		42	41	140		140

Distribution of Internal and External marks for Theory, Practical and Theory + Practical Courses

Course	Max Marks	CIA	ESE
Theory	100	25	75
Practical	100	40	60
*Theory Practical	100	50 10(T)+40(P)	50 (T)

Theory Courses	
Components	CIA-Marks
Assignment	5
CIA Tests	2*5=10
Seminar	5
Library	5
Total	25

Practical Courses	
Components	CIA-Marks
Observation	5
Record Note	10
Continuous Performance in Practical	10
Model Exam	15
Total	40

Theory + Practical Courses	
Components	CIA-Marks
CIA Tests- Theory	2 * 5 = 10
Internal Practical Exam by External Examiner	30

Record	05
Viva-voce	05
Total	50

Question Paper format for Theory part of
Theory + Practical Courses

BSc Degree Examination	
Time: 2 Hrs	Marks:50
Section A	
Answer ALL Questions	(10 * 1=10 Marks)
1. To 10. Choose the best Answer	
Section- B	
Answer ALL Questions	(5*3=15 Marks)
11 (a) or (b)	
12 (a) or (b)	
13 (a) or (b)	
14 (a) or (b)	
15 (a) or (b)	
Section- C	
Answer any FIVE Questions	(5*5=25 Marks)
16.	
17.	
18.	
19.	
20.	
21.	
22.	
23.	

ANNEXURE B

**CAUVERY COLLEGE FOR WOMEN
(AUTONOMOUS)
VALUE ADDED COURSES
INTRODUCED FROM (2021- 2022)
ONWARDS**

S.No	Course Code	Course Title	Offered by	Date of Introduction
1	VATA01	Kalvettiyal	Tamil	05.10.2021
2	VATA02	Kamarasarin Aalumai	Tamil	05.10.2021
3	VATA03	Kavidhai Punaithal	Tamil	05.10.2021
4	VATA04	Pottithervu Tamil Ilakkanam	Tamil	05.10.2021
5	VATA05	ThiruppavaiThiruvempavai	Tamil	05.10.2021
6	VATA06	Medaipechu	Tamil	05.10.2021
7	VATA07	Electronic Media and Job Opportunity	Tamil	05.10.2021
8	VAHI01	Abhiruchi Hindi	Other Language	05.10.2021
9	VASA01	Sarala Samskrith Sikshak Part -I	Other Language	05.10.2021
10	VAFR01	Basic French Course	Other Language	05.10.2021
11	VAEN01	English Speaking Course	English	1.10.2021
12	VAEN02	Leadership for Professionals	English	1.10.2021
13	VAEN03	English Career Enrichment	English	1.10.2021
14	VAEN04	Celebration of Life	English	1.10.2021
15	VAEN05	Food, Travel and Culture	English	1.10.2021
16	VASW01	Counselling for Wellbeing	Social Work	05.10.2021
17	VASW02	Photography for Documentation	Social Work	05.10.2021
18	VASW03	Human Resource Management	Social Work	05.10.2021
19	VASW04	Sustainable Management in Third Sector Organization	Social Work	05.10.2021
20	VASW05	Visual Arts – Painting	Social Work	05.10.2021
21	VASW06	Parenting	Social Work	05.10.2021
22	VABA01	Basics of Banking	BBA	01.10.2021
23	VABA02	Managing Event Venues	BBA	01.10.2021
24	VABA03	Stock Market Practices	BBA	01.10.2021
25	VACO01	Basic Concepts of Income Tax and GST	Commerce	04.10.2021

26	VACO02P	Carnatic Music - Vocal	Commerce	04.10.2021
27	VACO03P	Tally ERP - 9	Commerce	04.10.2021
28	VACO04P	Art of Aari and Embroidery	Commerce	04.10.2021
29	VACO05P	Beauty care	Commerce	04.10.2021
30	VAMA01	Vedic Mathematics - I	Maths	04.10.2021
31	VAMA02	Analytical Reasoning Skills	Maths	04.10.2021
32	VAMA03	Quantitative Aptitude - I	Maths	04.10.2021
33	VAMA04	Statistical Techniques using Excel	Maths	04.10.2021
34	VAPH01	Printed Circuit Board Designing	Physics	01.10.2021
35	VAPH02	Utilization of Solar Energy	Physics	01.10.2021
36	VAPH03	Scientific Training on Software Tools	Physics	01.10.2021
37	VACH01	Hands on Approach to UV-Visible Spectroscopy ++	Chemistry	01.10.2021
38	VACH02	Chemistry of Cosmetics	Chemistry	01.10.2021
39	VACH03	Homemade Herbal Medicines	Chemistry	01.10.2021
40	VACS01	Python Programming **	ComputerScience	04.10.2021
41	VACS02P	e-Content Development	ComputerScience	04.10.2021
42	VACS03P	Introduction to worksheets	ComputerScience	04.10.2021
43	VACA01P	Basic Mobile Application Development	Computer Applications	01.10.2021
44	VACA02	Open Broadcaster Software	Computer Applications	01.10.2021
45	VACA03	Mobile Repair and Trouble Shooting	Computer Applications	01.10.2021
46	VAIT01	Data Analysis and Presentation Tools	Information Technology	04.10.2021
47	VAIT02	Content Management Tools	Information Technology	04.10.2021
48	VAIT03	Graphics and Basic Animation Tools **	Information Technology	04.10.2021
49	VAMB01	Entrepreneurial Microbiology @@	Microbiology	01.10.2021
50	VAMB02	Diagnostic Microbiology @@	Microbiology	01.10.2021
51	VAMB03	First Aid and Emergency Care	Microbiology	01.10.2021
52	VAMB04	Microbial Inoculant Production Technology	Microbiology	01.10.2021
53	VAMB05	Herbal Cosmetics	Microbiology	01.10.2021

54	VABT01P	Food Adulterants in everydaylife	Biotechnology	04.10.2021
55	VABT02P	Water Quality Analysis ++	Biotechnology	04.10.2021
56	VABT03	Basic Research forUndergraduates	Biotechnology	04.10.2021
57	VAFS01	Principles of Interior Design	FSM&D	01.10.2021
58	VAFS02	Dietary Counselling -Skills and Techniques @@	FSM&D	01.10.2021
59	VAFS03	Nutritional Care for Pregnancy	FSM&D	01.10.2021
60	VAED01	Skin Care and Hygiene	EDC	05.10.2021
61	VAED02P	Bridal Makeover -FoundationLevel	EDC	05.10.2021
62	VAED03P	Bridal Makeover-Advanced Level	EDC	05.10.2021
63	VAED04P	Hair Styling -Foundation Level	EDC	05.10.2021
64	VAED05P	Hair Styling- Advanced Level	EDC	05.10.2021
65	VAED06P	Tailoring-Basic Level	EDC	05.10.2021
66	VAED07P	Tailoring- Blouse Stitching	EDC	05.10.2021
67	VAED08	Zardhosi Designing Level I	EDC	05.10.2021
68	VAED09P	Mehandi- Traditional	EDC	05.10.2021
69	VAED10P	Mehandi-Modern Art	EDC	05.10.2021
70	VAED11	Baking Skills- Bread Making - I	EDC	05.10.2021
71	VAED12P	Baking Skills - Bread Making -II	EDC	05.10.2021
72	VAED13	Cake Decoration skill - I	EDC	05.10.2021
73	VAED14P	Bridal flower making	EDC	05.10.2021
74	VAED15P	Cake decoration Skill - II	EDC	05.10.2021
75	VAED16P	Pastry skill sets	EDC	05.10.2021
76	VAED17P	Self Grooming	EDC	05.10.2021
77	VAED18P	Silk Thread Jewellery	EDC	05.10.2021
78	VAED19P	Pedicure	EDC	05.10.2021
79	VAED20P	Manicure	EDC	05.10.2021
80	VAED21P	Nail art	EDC	05.10.2021
81	VAED22P	Tailoring – Cutting Skill	EDC	05.10.2021
82	VAED23P	Indian Snack Making	EDC	05.10.2021
83	VAED24P	Kitchen skills	EDC	05.10.2021
84	VAED25P	Herbal sanitary napkin	EDC	05.10.2021

85	VAED26P	DIY Crafts	EDC	05.10.2021
86	VAED27P	Zardhosi Designing – Level II	EDC	05.10.2021
87	VAED28	Arduino Coding - Basics	EDC	05.10.2021
88	VAED29P	Pickle Making	EDC	05.10.2021
89	VAED30P	Jam Making	EDC	05.10.2021
90	VAPS01	Introduction to Job oriented Competitive Examinations	OTHER	09.10.2021
91	VANC01	NCC for Youth	NCC	09.10.2021

** Offered to other departments only

@@ Offered to parent department only

++ Offered to Science departments only

தமிழாய்வுத்துறை		
மதிப்புக் கூட்டப்பட்ட படிப்பு	கல்வெட்டியல்	30 மணி
பாடக் குறியீடு VATA01	அனைத்துத் துறை மாணவியருக்கானது	அறிமுகப்படுத்தப்பட்ட நாள் 05.10.2021

நோக்கம்

1. தமிழின் தொன்மையை உணரச்செய்தல்
2. எழுத்துகளின் வகையை அறியச் செய்தல்
3. கல்வெட்டுகளின் பாரம்பரியத்தை எடுத்துரைத்தல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO.NO	CO STATEMENT	KNOWLEDGE LEVEL
CO1	தமிழ் மொழியின் தொன்மையை அறிதல்	K1
CO2	எழுத்துக்களின் வகை, எழுதும் முறைகளை விளக்குதல்	K2
CO3	கல்வெட்டுகளில் காலக்கணிப்பு முறைகளைப் பகுத்தறிதல்	K3
CO4	கல்வெட்டுகள் படியெடுத்தல்	K4

பாடத்திட்டம்

அலகு 1 :

(6 மணி)

கல்வெட்டியல் ஓர் அறிமுகம் - எழுத்துக்களின் தோற்றம் - எழுத்துக்களின் வகைகள் - இந்திய எழுத்துக்களின் தோற்றம் - எழுது பொருட்கள் - அசோகன் பிராமி - கரோஷ்டி.

அலகு 2 :

(6 மணி)

தமிழ் எழுத்துக்களின் தோற்றம் - தமிழ் அறிமுகம் - தமிழ் எழுத்துப் பயிற்சி - தமிழிக் கல்வெட்டுக்கள்

அலகு 3 :

(6 மணி)

வட்டெழுத்து அறிமுகம் - வட்டெழுத்தின் வளர்ச்சி - வட்டெழுத்துப் பயிற்சி - நடுகற்கள் - கிரந்தம் - கிரந்த எழுத்துக்களின் தோற்றம் - வளர்ச்சி - கிரந்த எழுத்துப் பயிற்சி.- கிரந்தக் கல்வெட்டுக்கள்.

அலகு 4 :

(6 மணி)

தமிழிக் கல்வெட்டுகள் அறிமுகம் - பல்லவர் - சோழர் - பாண்டியர் - காடவராயர் - சம்புவராயர் - விஜயநகரர் - நாயக்கர் - மராட்டியர் - சேதுபதி அரசர்கள் - பிற அரச குலங்கள். - கல்வெட்டுகளின் அமைப்பு.

அலகு 5 :

(6 மணி)

கல்வெட்டுகளில் காலக்கணிப்பு முறைகள் - கலி - சக - கொல்லம் - ஆண்டுகள் - வியாழவட்டம் - பஞ்சாங்கக் குறிப்புகள் - ஆட்சியாண்டு - எதிராமாண்டு - எழுத்தமைதி அடிப்படையில் காலம் - செப்பேடுகள் - கல்வெட்டுகள் படியெடுத்தல் - படித்தல் பயிற்சி.

பார்வை நூல்கள் :

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	K. ராஜன்	கல்வெட்டியல்	மனோ பதிப்பகம்	2003
2	நாகசாமி .R நடன. காசிநாதன், K. தாமோதரன், S.ஹரிஹரன்	கல்வெட்டியல்	தொல்லியல்துறை தமிழ்நாடு அரசு	2010
3	K.K.பிள்ளை சென்னை 1978	தமிழிக் வரலாறும் மக்கள் பண்பாடும்	தமிழ்நாடு பாடநூல் கழகம்	1978

4	Mahalingam, T.V	Early South Indian Palaeography	University of Madras,	1967
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கற்பித்தல் முறைகள் :

விரிவுரை, PPT, எழுத்துப் பளிற்சி, கலந்தாய்வு.

தாள் வடிவமைப்பாளர்

1. முனைவர் வி.கவிதா, இணைப்பேராசிரியர், தமிழாய்வுத்துறை, காவேரி மகளிர் கல்லூரி (தன்னாட்சி), திருச்சிராப்பள்ளி - 18
2. முனைவர் எஸ்.வசந்தி, மேனாள் தொல்லியல் துணைக்கண்காணிப்பாளர், தமிழ்நாடு தொல்லியல் துறை, சென்னை.

தமிழாய்வுத்துறை		
மதிப்புக் கூட்டப்பட்ட சான்றிதழ் படிப்பு	காமராசரின் ஆளுமை	30 மணி நேரம்
பாடக்குறியீடு - VATA02	(அனைத்து துறை மாணவியருக்கானது)	அறிமுகப்படுத்தப்பட்ட நாள் 05.10.2021

நோக்கம்

1. மாணவர்களிடையே பன்முக ஆளுமைத் திறனை வளர்க்கச் செய்தல்.
2. உழைப்பு, உண்மை விடாமுயற்சியினை தூண்டுதல்.
3. தலைமைப் பண்பை இளைய சமுதாயத்திடம் விதைத்தல்.

பயன்கள்

1. மாணவிகளின் தனித்திறனை வெளிப்படச்செய்தல்.
2. அரசியல் அறிவுத்திறனைக் கூட்டுதல்.
3. சமூக அக்கறையுடன் நடக்கத் தூண்டுதல்.

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO.NO	CO STATEMENT	KNOWLEDGE LEVEL
CO1	தனித்திறன் மேம்பாட்டை வெளிக்கொணரச் செய்தல்	K1
CO2	வாழ்வியல் முறையையும் எளிமையையும் வெளிப்படுத்துதல்	K2
CO3	காமராசரின் சமூகப்பார்வை மற்றும் பணியை மதிப்பிடல்	K3
CO4	ஆட்சித்திறன் மற்றும் மக்களின் மேம்பாட்டினை மதிப்பிடல்	K4
CO5	கல்விப் பணியையும் அணுகுமுறையையும் ஆராய்தல்	K5

பாடத்திட்டம்

அலகு 1 :

(6மணி)

தொடக்ககால வாழ்க்கை - சிறை வாழ்க்கையும் படிப்பும் - காமராசரின் பொது வாழ்க்கை - இறுதிக்காலம்.

அலகு 2 :

(6மணி)

அரசியல் குரு - தமிழக ஆட்சிப்பொறுப்பு - அமைச்சரவை - முதலமைச்சராக ஆற்றிய பணிகள் - தேர்தல் தோல்வி.

அலகு 3 : (6மணி)

காமராசர் காலம் ஏன் பொற்காலம்? - முதல் திருத்தத்தின் மூலவர் - சமூக நீதிக்கான ஆட்சி - கல்விப் புரட்சி - எளிமையும் உண்மையும் .

அலகு 4 : (6மணி)

தொழில் வளர்ச்சி - தொழிற்பேட்டைகள் - பாசனத் திட்டங்கள் - மின் உற்பத்தி - நிலச்சீர்திருத்தம் - பஞ்சாயத்து ராஜ்.

அலகு 5 : (6மணி)

கர்மவீரர் காமராசர் ஆட்சியின் சாதனைகள் - நினைவுச் சின்னங்கள் - திரைப்படங்கள் காமராசர் பற்றிய கருத்துக்கள்.

பாட நூல் :

வ.எண்	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	எஸ். கே. முருகன்	பெருந்தலைவர் காமராசர்	விகடன் பதிப்பகம் சென்னை- 2	2011

பார்வை நூல்கள் :

வ.எண்	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	கோபி சரபோஜி	வாழ்வும் அரசியலும்	கிழக்குப் பதிப்பகம் சென்னை- 17	2014

கற்பித்தல் முறைகள் :

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடநெறி வடிவமைப்பாளர் :

முனைவர் பா. கவிதா, உதவிப்பேராசிரியர்,

தமிழாய்வுத்துறை

காவேரி மகளிர் கல்லூரி (தன்னாட்சி)

திருச்சி - 18

முனைவர் க. ராதிகா, உதவிப்பேராசிரியர்,

தமிழாய்வுத்துறை

காவேரி மகளிர் கல்லூரி (தன்னாட்சி)

திருச்சி - 18

தமிழாய்வுத்துறை		
மதிப்புக் கூட்டப்பட்ட படிப்பு	கவிதை புனைதல்	30 மணி
பாடக் குறியீடு VATA03	அனைத்துத் துறை மாணவியருக்கானது	அறிமுகப்படுத்தப்பட்ட நாள் 05.10.2021

நோக்கம்

- புதிய படைப்பாளிகளை இனங்கண்டு ஊக்குவித்தல்
- இளம் மாணவர்களின் புதிய சிந்தனைகளைத் தூண்டுதல்
- கவிதை படைத்தலின் வழி மாணவ சமுதாயத்திற்கு சமூகம் பற்றி விழிப்புணர்வை ஊட்டுதல்
- புதுக்கவிதை, ஹைக்கூ கவிதை முதலான புதிய இலக்கிய வடிவங்களை அறிமுகப்படுத்துதல்.

பயன்கள்

- கவிதை எழுதும் ஆற்றலை ஊக்குவித்தல்.
- கவிதைகளின் தனித்தன்மைகளைக் கற்றுத்தருதல்
- கவிதையின் பல்வேறு கூறுகளை (வகைகளை)க் கற்பித்தல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர்பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	புதுக்கவிதைகள் புனையும் முறையை அறிதல்	K1
CO2	ஹைக்கூ மற்றும் சென்றியு கவிதை எழுதும் முறையை விவரித்தல்	K2
CO3	கவிதை புனைதல் வழியாக கற்பனைத் திறன் பெறுதல்	K3
CO4	கவிதைகள் மூலம் வாழ்வியல் நெறிகளை இணைத்தறிதல்	K4
CO5	கவிதையின் வகைகளை இனங்காணச் செய்தல்	K3

பாடத்திட்டம்

- அலகு : 1 (6 மணி)
- கவிதை வகைகள் (மரபுக்கவிதை, புதுக்கவிதை, ஹைக்கூ, சென்றியு...) - விளக்குதல்
- அலகு : 2 (6 மணி)
- மரபுக் கவிதை - புதுக்கவிதை - வேறுபாடுகள்
- அலகு : 3 (6 மணி)
- புதுக்கவிதை விளக்கம் - பாடுபொருள் அறிதல் - பயிற்றுவித்தல் - உத்திகள் - பயிற்சிகள்
- அலகு: 4 (6 மணி)
- ஹைக்கூ கவிதை விளக்கம் - நுணுக்கம் கற்றல் - பயிற்றுவித்தல் - உத்திகள் - ஹைக்கூ கவிதை எழுதச் செய்தல்
- அலகு : 5 (6 மணி)

சென்ரியு கவிதை விளக்கம் - கவிதை இயற்றும் ஈடுபாடு - நுணக்கம் கற்றல் - பயிற்றுவித்தல் - உத்திகள் - பயிற்சிகள்

பார்வை நூல்கள் :

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	முனைவர் பெ.சுபாசு சந்திரபோசு	எது புதுக்கவிதை?	சுபாலிகா பதிப்பகம்	2003
2	முனைவர் ச. அகத்தியலிங்கம்	கவிதை உருவாக்கம் தொகுதி 1	மணிவாசகர் பதிப்பகம்	2012
3	முனைவர் ச. அகத்தியலிங்கம்	கவிதை உருவாக்கம் தொகுதி 2	மணிவாசகர் பதிப்பகம்	2016
4	கி.வா. ஜகன்நாதன்	கவி பாடலாம்	அமுத நிலைய பதிப்பகம்	2012

இணையதளம் :

<http://www.tamilvu.org/ta/courses-degree-p203-p2031-html-p2031440-29902>

<http://dhivyabharathy51097.blogspot.com/2017/04/blog-post.html>

கற்பித்தல் முறைகள்

விரிவுரை, குழுக் கலந்தாய்வு, கரும்பலகை, பயிற்சி

தாள் வடிவமைப்பாளர்

முனைவர் மு.அனு, உதவிப்பேராசிரியர், தமிழாய்வுத்துறை, காவேரி மகளிர் கல்லூரி (தன்னாட்சி), திருச்சிராப்பள்ளி - 18

தமிழாய்வுத்துறை		
மதிப்பு கூட்டப்பட்ட படிப்பு	போட்டித் தேர்வுத் தமிழ் இலக்கணம்	30 மணி நேரம்
பாடக் குறியீடு : VATA04	அனைத்துத் துறை மாணவியருக்கும் உரியது	பாடம் அறிமுகப்படுத்தப்பட்ட நாள் 05.10.2021

நோக்கம்

1. போட்டித் தேர்விற்குரிய இலக்கணப் பகுதிகளை அறியச் செய்தல்
2. தமிழ் இலக்கண அமைப்பைத் தேர்வுக்கேற்ற முறையில் பயிற்றுவித்தல்
3. பிழையின்றித் தமிழ் எழுதக் கற்றுத்தருதல்
4. போட்டித் தேர்வை எதிர்கொள்ளும் திறன் பெறச் செய்தல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO NO.	CO STATEMENT	KNOWLEDGE LEVEL

CO1	போட்டித் தேர்விற்குரிய தமிழ் இலக்கணப் பகுதிகளைக் கண்டறிதல்	K1
CO2	சொற்கள் மற்றும் வாக்கிய வகைகளைக் கண்டறிந்து விளக்குதல்	K2
CO3	சொற்களைப் பிழையின்றிப் பயன்படுத்துதல்	K3
CO4	தமிழ் இலக்கண அமைப்பினைப் போட்டித் தேர்வுகளுக்கு ஏற்றவகையில் ஆராய்ந்தறிதல்	K4

பாடத்திட்டம்

அலகு 1 :

(6

மணி)

வேர்ச்சொல்லைக் கண்டறிதல் - வேர்ச்சொல்லிலிருந்து சொற்களை உருவாக்குதல் - ஒலி வேறுபாடறிந்து சொற்களின் சரியான பொருள் அறிதல் - ஒரெழுத்து ஒருமொழி

அலகு 2 :

(6

மணி)

இலக்கணக் குறிப்பறிதல் - பெயர் வகைகள் - வினை வகைகள் - பெயரடை - வினையடை - இடைச்சொற்கள்

அலகு 3 :

(6

மணி)

வாக்கிய வகைகள் - தன்வினை, பிறவினை, செய்வினை, செய்ப்பாட்டு வினை வாக்கியங்கள்

அலகு 4 :

(6

மணி)

பிழை திருத்தம் - சந்திப்பிழை நீக்குதல் - ஒருமை பன்மைப் பிழைகளை நீக்குதல் - வழுஉச் சொற்களை நீக்குதல் - பிறமொழிச் சொற்களை நீக்குதல்

அலகு 5 :

(6

மணி)

உவமை விளக்கம், வகைகள் - எதுகை, மோனை, இயைபு அறிதல்

பார்வை நூல்கள் :

வ.எண்	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	அ.கி.பரந்தாமனார்	நல்ல தமிழ் எழுத வேண்டுமா	அல்லி நிலையம்,	1988

			சென்னை - 7	
2	ஆறுமுக நாவலர்	தமிழ் இலக்கணம்	முல்லை நிலையம், சென்னை	1993
3	எம்.ஏ.நுஃமான்	அடிப்படைத் தமிழ் இலக்கணம்	அடையா ளம் பதிப்பகம், திருச்சி	1997
4	ந.மு.வேங்கடசா மி நாட்டார் (உ.ஆ.)	யாப்பருங்கலக்காரி கை	சாரதா பதிப்பகம், சென்னை	2010
5	கொ.இராமலிங் கத் தம்பிரான்	தண்டியலங்காரம்	கழக வெளியீடு, சென்னை	1938
6	டாக்டர் சங்கர நாராயணன்	பொதுத்தமிழ்க் களஞ்சியம்	விகடன் பிரசுரம், சென்னை	2012
7	சி.கலா சின்னதுரை	பொதுத்தமிழ்	விகடன் பிரசுரம், சென்னை	2012

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம், படக்காட்சிவழி விளக்கம்

பாட உருவாக்கம்

முனைவர் மா.ஆசியா தாரா, உதவிப் பேராசிரியர், தமிழாய்வுத்துறை.

தமிழாய்வுத்துறை		
மதிப்புக் கூட்டப்பட்ட படிப்பு	திருப்பாவை - திருவெம்பாவை	30 மணி
பாடக் குறியீடு VATA05	அனைத்து துறை மாணவியருக்கானது	அறிமுகப்படுத்தப்பட்ட நாள் 05.10.2021

நோக்கம்

1. பாசரங்களின் வழி பக்தி இலக்கியச்சிறப்பை உணர்த்துதல்.
2. மனதை ஒருநிலைப்படுத்தும் திறனை வளர்த்தல்.
3. தமிழர்களின் இந்து சமயங்களான சைவ, வைணவ பெருமையினை எடுத்துரைத்தல்.

பயன்கள்

1. சைவ, வைணவ இலக்கியங்களை ஒப்பிட்டு அறிவர்.
2. பக்திச் சுவைப் பெறுவர்
3. ஆண்டாள், மாணிக்கவாசகரின் தனித்தன்மைகளை அறிவர்.

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர்பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	சைவ, வைணவ இலக்கியங்களுக்கிடையேயான தனித்தன்மைகளை மதிப்பிடுதல்	K5
CO2	சைவ, வைணவ இலக்கியங்களின் வழி சமுதாய நிலையை ஆராய்ந்தறிதல்	K4
CO3	பாசுரங்களின் அடிப்படை நோக்கம் குறித்து விளக்குதல்	K2
CO4	மனித குல மேம்பாட்டிற்கான கொள்கைகளைத் திட்டமிடல்	K6
CO5	புக்திப்பாடல்கள் காட்டும் வாழ்வியல் விழுமியங்களைப் பயன்படுத்துதல்	K3

பாடத்திட்டம்

அலகு : 1 மணி)		(6
அலகு : 2 மணி)	திருப்பாவை - 1 முதல் 10 பாசுரங்கள் வரை	(6
அலகு : 3 (6 மணி)	திருப்பாவை - 11 முதல் 20 பாசுரங்கள் வரை	
அலகு : 4 (6 மணி)	திருப்பாவை - 21 முதல் 30 பாசுரங்கள் வரை	
அலகு : 5 மணி)	திருவெம்பாவை - 1 முதல் 10 பாடல்கள் வரை	
அலகு : 5 மணி)	திருவெம்பாவை - 11 முதல் 20 பாடல்கள் வரை	(6

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	டாக்டர் நாராயணவேலு பிள்ளை	நாலாயிரத் திவ்யப் பிரபந்தம்	முல்லை நிலையம்	2000
2	ஸ்ரீமத் சுந்தரமூர்த்தி (ப.ஆ.)	பன்னிரு திருமுறைகள்	ஞானசம்பந்தம் பதிப்பகம்	2011

கற்பித்தல் முறைகள்

குழுக் கலந்தாய்வு, வினாடிவினா, திட்டக்கட்டுரை, கரும்பலகை, விவாதம், இசையோடு ஒதுதல், ஒப்புவித்தல்
தாள் வடிவமைப்பாளர்

முனைவர் இர.கீர்த்தனா, உதவிப்பேராசிரியர், தமிழாய்வுத்துறை, காவேரி மகளிர் கல்லூரி (தன்னாட்சி), திருச்சிராப்பள்ளி - 18

தமிழாய்வுத்துறை		
மதிப்புக் கூட்டப்பட்ட படிப்பு	மேடைப்பேச்சு	30 மணி
பாடக் குறியீடு VATA06	அனைத்துத் துறை மாணவியருக்கானது	அறிமுகப்படுத்தப்பட்ட நாள் 05.10.2021

நோக்கம்

- மேடைப்பேச்சின் முக்கியத்துவத்தை உணர்த்துதல்
- மேடையில் பேசும் வழிமுறைகளைக் கற்பித்தல்
- மேடைப்பேச்சாளர்களை உருவாக்குதல்
- தனித்தியங்கும் திறன்பெற வழிவகை செய்தல்

பயன்கள்

- ✓ பேச்சின் முக்கியத்துவத்தை அறிவர்
- ✓ பேச்சாளர்களாக உருமாறி பயன் பெறுவர்
- ✓ தன்னம்பிக்கையுடன் வலம் வருவர்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர்பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	காலமாற்றத்திற்கேற்ப மேடைப்பேச்சை வகைப்படுத்தி அறியச்செய்தல்	K1
CO2	பங்கேற்பாளர்களின் தன்மை அறிந்து உரையாற்ற தயார் செய்தல்	K4
CO3	மேடைப்பேச்சில் கையாளவேண்டிய உத்திகளை விளக்குதல்	K2
CO4	தகவல் தொழில்நுட்ப சாதனங்களின் வாயிலாக தங்களை முன்னிலைப்படுத்த ஊக்குவித்தல்	K6
CO5	மேடைப்பேச்சுக்கலை வாயிலாக பொருளாதார சிக்கலுக்குத் தீர்வு காணுதல்	K3

பாடத்திட்டம்

அலகு - 1 (6 மணி)

பேச்சும், மொழியும் - எடுத்தல் - தொடுத்தல் - முடித்தல் - விளக்கிக்கூறல்

அலகு - 2 (6 மணி)

துணிவுடன் பேசுதல் - உடல் அசைவுகள் - செய்தி சேகரித்தல் - குரல் வளத்தை மேம்படுத்துதல் - பார்வையாளர்களின் உணர்வுகளைப் புரிந்து பேசுதல்

அலகு - 3 (6 மணி)

மேடைப்பேச்சு - சொற்பொழிவு - வேறுபாடுகள் - மேடைத்தோற்றம் - மேடைப்பேச்சின் நடை - பேச்சில் புதுமை - பார்வையாளர்களை ஈர்த்தல்

அலகு - 4 (6 மணி)

பட்டிமன்றம் - விவாத மேடை - வேறுபாடுகள் - உரைகள்

அலகு - 5 (6 மணி)

நிகழ்ச்சித் தொகுப்பு - நேர்முக வர்ணனை - வேறுபாடுகள் -
 திறன்மேம்படுத்துதல் - கோயில் திருவிழா - விளையாட்டு விழா - நேர்முக வர்ணனை

பார்வை நூல்கள்

வ.எண்	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	முனைவர் ம.திருமலை	பேச்சுக்கலை	மீனாட்சி புத்தக நிலையம், மதுரை	2009
2	அறந்தை நாராயணன்	மேடையில் பேசலாம் வாருங்கள்	நியூ செஞ்சுரி புக்ஹவுஸ், சென்னை	2011
3	குமரி ஆனந்தன்	நீங்களும் பேச்சாளராகலாம்	பூம்புகார் பிரகரம், மதுரை	2010
4	கு.ஞானசம்பந்தன்	பேசும் கலை	நியூ செஞ்சுரி புக்ஹவுஸ், சென்னை	2004

கற்பித்தல் முறைகள்

கலந்தாய்வு, பேச்சுப்பயிற்சியளித்தல், குழுவிவாதம், கரும்பலகை
 தாள் வடிவமைப்பாளர்
 திருமதி செ.புனிதா, உதவிப்பேராசிரியர், தமிழாய்வுத்துறை, காவேரி மகளிர் கல்லூரி
 (தன்னாட்சி), திருச்சிராப்பள்ளி - 18

DEPARTMENT OF TAMIL		
Value Added Course	Electronic Media and Job Opportunity	30 Hours
Course Code VATA07	(Offered to Students of All Programmes)	Date of Introduction 05.10.2021

OBJECTIVES :

To introduce students to the historical growth of electronic media.

COURSE OUTCOMES :

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

CO Number	CO Statement	Knowledge Level
CO1	To Explain the students with special focus to Cinema, Radio and Television programme productions, New media	K1
CO2	To Describe the students in the areas of Media research, Media management, Advertising and Corporate communication	K2
CO3	To apply to be aware of the Media impact on Culture and Society, Ethical and Legal aspects of Media profession	K3
CO4	To classify in multimedia and emerging communication technology	K4

Unit : I (8 Hours)

Introduction to Electronic Media: Introduction to Mass media, Electronic media, Print, Radio, Cinema, Television, Internet, New media, Media Laws and ethics.

Unit : II (4 Hours)

Cinema: Characteristics; Origin and development of cinema in India – silent and talkies era, cinema after independence, commercial and new wave cinema; Status of the Indian film industry.

Unit : III (8 Hours)

Television Production process: Television Characteristics, History of Indian television- DD: Organizational setup, Private television channels in India; Educational television, Status and trends in television broadcasting, Television production format, programme contents, News Gathering and Writing, Presentation Skills.

Unit : IV (4 Hours)

Radio programme Production: Characteristics of radio, historical perspective of AIR; organizational setup; Commercial radio; Educational radio; Emerging trends; AM & FM; Community radio; Internet Radio, Status of radio in world. News Gathering and Writing for Presentation & Reporting Skills.

Unit : V (6 Hours)

New Media: Computer revolution and its impact; Growth of online Journalism; Alternate media, Media convergence, Problems and prospects of new media, Social media.

Reference Books :

S. No.	Author	Title	Publishers	Year of Publication
01	Afeque Shamci, N.	Electronic Media	Anmol Publication, New Delhi	2006
02	Herbert Zettl	Television Production Handbook	US: Wadsworth	2006
03	Arvind Singhal and Everett M. Rogers	India's Communication Revolution	Sage, London	2001
04	Keval J. Kumar	Mass Communication in India	Jaico, Mumbai	2013
05	S. Moses	The Terminology of Technological Arts	Krushshe Publication, Sri Lanka	2012
06	P.C. Chatterjee	Broadcasting in India	Sage, New Delhi	1991
07	Dan Harries (Ed)	The New Media Book	Bloomsbury, London	2002

PEDAGOGY:

Lecture, Power Point Presentation, Group Discussion

COURSE DESIGNER:

Dr. P. Sasireha, Assistant Professor, Department of Tamil, Cauvery College for Women,

Trichy.

Dr. S. Moses, Founder, Yezhukural Social Research Institution, Sri Lanka.

OTHER LANGUAGES- HINDI

Value Added Course	ABHIRUCHI HINDI	30 hours
Course Code VAHI01	(offered to Students of all Programmes)	Date of Introduction 05. 10.2021

OBJECTIVE

- To enable the learners to understand the curriculum of Hindi. Language.
- To understand & respond in a predictable pattern to simple questions about familiar things.
- To be able to write an application.

COURSE OUTCOMES

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

CO.NO.	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Understand the History of Hindi Language	K1
CO2	Classify the pronunciation of Alphabets	K2
CO3	Apply the Grammar in the sentences	K3
CO4	Use the sentences in the different situations	K3
CO5	Write simple sentences	K5

ABIRUCHI HINDI SYLLABUS

UNIT I AN INTRODUCTION TO HINDI

(6 Hours)

- Alphabets, Pronunciations,
- Words & Sentences,
- Greetings
- Numbers
- Common vocabulary and short informal salutations.
- Nationalities, Professions, Days & Months.

UNIT II BASIC GRAMMAR

(6 Hours)

- Noun, Pronoun
- Adjectives
- Verbs
- Case endings

- adverb
- Tense
- Genders & Numbers
- Conjunction, Interjunction

UNIT III PREFERENCES , SIMPLE DIALOGUES

(6 Hours)

- Like and Dislike, to habitations.
- Engage in buy & sell situation.
- Ask about the day, time and the date.
- Accept & Refuse.

UNIT IV LISTENING & SPEAKING SKILLS

(6 Hours)

- Recognizing familiar words and basic Hindi Phrases, about oneself, about family & activities, about personal like and dislikes.
- Using simple phrases and sentences (for today speech): describing where one lives, describing people
- Read simple notices, posters and catalogues.

UNIT-5- READING, WRITING & SPOKEN SKILLS

(6 Hours)

- Read the sentences.
- Write the simple sentences.
- Speak the simple Dialogues.

REFERENCE BOOKS

S.No.	Author	Title	Publishers	Year of Publication
01	Dhakshin Bharat Hindi Prachar Sabha	HINDI BALA BODHINI -1	Dhakshin Bharat Hindi Prachar Sabha	2010
02	Dhakshin Bharat Hindi Prachar Sabha	ROZMARRA HINDI	Dhakshin Bharat Hindi Prachar Sabha	2010
03	Ravichandran	Concise Try Lingual Dictionary	Lotus Publication	2010

PEDAGOGY

Power Point Presentations, Black Board & White Board, Videos, Interaction, Discussion.

COURSE DESIGNER:

Dr. R. Vijayalakshmi

Value Added Course	SARALA SAMSKRITH SIKSHAK PART - I	30 hours
COURSE CODE: VASA01	(offered to students of all programs)	5.10.21

COURSE OBJECTIVE :

- To enable the learners to understand the curriculum of Sanskrit. Language.
- To understand & respond in a predictable pattern to simple questions about familiar things.
- To be able to write an application.

COURSE OUTCOMES

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

CO.NO.	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Understand the History of Sanskrit Language	K1
CO2	Classify the pronunciation of Alphabets	K2
CO3	Apply the Grammar in the sentences	K3
CO4	Use the sentences in the different situations	K3
CO5	Write simple sentences	K5

**SARALA SAMSKRITH SIKSHAK PART - I
SYLLABUS**

UNIT – 1

(6 hours)

- Alphabets, Pronunciations
- Two Letter words & Three Letter Words
- Greetings
- Numbers

UNIT – 2

(6 hours)

- Noun, Pronoun
- Adjectives
- Verbs
- Case endings
- Adverb
- Tense
- Genders & Numbers
- Conjunction, Interjunction

UNIT – 3 – PREFERENCES, SIMPLE DIALOGUES

(6 hours)

- Like and Dislike, to habitations.

- Engage in buy & sell situation.
- Ask about the day, time and the date.
- Accept & Refuse.

UNIT – 4 – LISTENING 7 SPEAKING SKILLS (6 hours)

- Recognizing familiar words and basic Sanskrit Phrases, about oneself, about family & activities, about personal like and dislikes.
- Using simple phrases and sentences(for to day speech): describing where one lives, describing people
- Read simple notices, posters and catalogues.

UNIT – 5 (6 hours)

- Read the sentences.
- Write the simple sentences.
- Speak the simple Dialogues

TEXT BOOK:

SANSKRIT BALA BODHI – 1, Published by Dhakshin Bharat Sanskrit Prachar Sabha-Tamil Nadu, Tiruchirapalli.

Course Designer

Mr. D. Varadhan

OTHER LANGUAGES - FRENCH

Value Added Course	BASIC FRENCH COURSE	Hours:30
Course Code: VAFR01	(Offered to Students of all programmes)	Date of Introduction 05.10.21

COURSE OBJECTIVE

To enable the students to interact in a simple way, introduce oneself and ask others their name, age, address etc., use basic expressions of greeting, farewell and politeness, express lack of understanding, understand and respond in a predictable pattern to simple questions about familiar things.

COURSE OUTCOME

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

CO.NO	CO-STATEMENT	KNOWLEDGE LEVEL
CO1	To learn the alphabets, pronunciation and phonetics. Greetings and short informal salutations.	K1
CO2	To learn to conjugate some basic verbs and use them in sentences.	K2
CO3	To use some simple verbs to talk about themselves, talk about day& time.	K3
CO4	To recognise familiar words and basic French phrases, to use them in day to day speech.	K4
CO5	To learn to write a simple postcard.	K5

SYLLABUS

UNIT I AN INTRODUCTION TO FRENCH (6 hours)

- Alphabets, Phonetics and Pronunciation
- Greetings
- Numbers
- Common Vocabulary; Short Informal Salutations.
- Voici voila + proper name,

UNIT II INTRODUCING ONESELF, ASKING AND TELLING (6hours)

- Nationalities, Professions, Days and Months
- Articles – Definite and indefinite, Present Indicative of verb être, with negation and verbs ending in ‘er’ Personal pronouns.
- The verbs ‘s’appeler’ and ‘habiter’ “être”, how to say the names of some countries and cities in French.

UNIT III PREFERENCES, SIMPLE DIALOGUES (6 hours)

- Like and dislike, “aimer, adorer, préférer, détester” >Conjugation “er” verbs, Negation.
- Engage in a simple buy-and-sell situation.
- Ask about the day, the time and the date.
- Accept and refuse.

UNIT IV LISTENING AND SPEAKING SKILLS (6 hours)

- Recognizing familiar words and basic French phrases: about oneself, about family and activities, about personal likes and dislikes.
- Using simple phrases and sentences (for day to day speech): describing where one lives, describing people.
- Read simple notices, posters and catalogues.

UNIT V READING AND WRITNG SKILLS (6 hours)

- Fill in a simple form.
- Write a simple postcard

REFERENCE BOOKS

S.No.	Author	Title	Publishers	Year of Publication
01	Annie Berthet, Catherine Hugot, Beatrix Samsonis	Alter Ego	Goyal Publishers	2007
02	Mahitha Ranjit, Monica Singh	Apprenons le Français	New Saraswathi House	2016
03	Archna Khurana, Harpreet Likhari	Enchanté	Rachna Sagar Pvt. Limited	2017
04	Preeti Bhutani	Mon passeport pour le monde	Unisec Publication	2017

PEDAGOGY

Power point presentation, videos, Assignments, Quiz, online apps and interaction.

COURSE DESIGNER

Mrs. M.Manjula

DEPARTMENT OF ENGLISH		
Value added Course	ENGLISH SPEAKING COURSE	30 Hours
Course Code: VAEN01	(Offered to student of all Programme)	Date of Introduction 01.10.2021

OBJECTIVES

- To enable the learners to communicate English Language effectively and appropriately in real life situations.
- To use English effectively for study purpose and to meet the challenges of the world
- To develop and integrate the use of the language skills to enhance effective communication

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Relate key ideas and terms in a spoken and written text.	K1
CO2	Demonstrate knowledge of communication skills	K2
CO3	Illustrate and enhance their speaking ability in English both in terms of fluency and comprehensibility	K2
CO4	Develop competence in the four modes of literacy: Listening, Speaking, Reading and Writing	K3
CO5	Build confidence in reading skills and reading speed	K3

SYLLABUS

UNIT I

(6 Hours)

Meeting people- exchanging greetings- self-introduction- introducing people to others- giving personal information.

UNIT II

(6 Hours)

Answering the telephone call-taking and leaving messages- making inquiries on the phone- calling for help in an emergency

UNIT III

(6 Hours)

Getting people's attention and interrupting- giving instructions and seeking clarifications- making requests and responding to requests- asking for directions and giving directions- thanking someone and responding to thanks

UNIT IV

(6 Hours)

Inviting, and accepting and refusing an invitation- apologizing and responding to an apology- congratulating and responding to congratulations- paying compliments, showing appreciation, offering encouragement and responding to them- asking for, giving and refusing permission

UNIT V

(6 Hours)

Asking for and giving an opinion- agreeing and disagreeing with opinions

Seeking and giving advice and making suggestions- persuading and dissuading people- making a complaint and responding to one

TEXT BOOK

S.No	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Kamlesh Sadanand & Susheela Punitha	Spoken English : A Foundation Course-Part I	Orient Blackswan	2008

REFERENCE BOOKS

S.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	P.Sasikumar and P.V.Dhamija	Spoken English	Tata McGraw Hill, New Delhi	2001

PEDAGOGY

Group Discussion, Quiz, Assignment

COURSE DESIGNER

Dr.Prema Joshua, Associate Professor

Ms.C.Chithra, Assistant Professor

Ms.A. Edel Flora Mary Assistant Professor

DEPARTMENT OF ENGLISH		
Value added Course	LEADERSHIP FOR PROFESSIONALS	Hours : 30
Course code: VAEN02	(Offered to student of all Programmes)	Date of Introduction 01.10.2021

OBJECTIVES

The main goal of this course is to help the students to be good leaders. To enable the learners to acquire confidence to face the society as an efficient leader.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Classify key ideas regarding leadership qualities	K4
CO2	Adapting interpersonal skills, team building, and acquiring leadership traits.	K6
CO3	Accessing knowledge to understand and evaluate organizational management, and leadership problems and possibilities.	K5
CO4	Building knowledge and skills to design and change work organization, to contribute to working environments to organizational learning and success.	K6
CO5	Role play- the purpose of leadership, the ethical dimensions of leadership, and the relationship between leaders and followers in a free society.	K6

SYLLABUS

Unit I **(6 hours)**
 Personal leadership and leadership styles: Democratic, Visionary, Coaching, Affiliative, Pacesetting and Commanding.

Unit II **(6 hours)**
 Appreciative leadership, Inquiry, Illumination, Inclusion, Inspiration, Integrity

Unit III **(6 hours)**
 Leadership of change

The 3 C's of Change Leadership: Communicate, Collaborate, Commit.

Unit IV **(6 hours)**

- Building and leading efficient teams
- Reaching the target (team member)
- Lead with positive approach

Unit V **(6 hours)**

Problem solving situations

The five problem solving styles: Collaborating, Competing, Avoiding, Accommodating, Compromising.

TEXT BOOK

S.No.	Author	Title of the Book	Publisher	Year of Publication
1	Simon Sinek	Start with Why: How Great Leaders Inspire Everyone to Take Action	Portfolio	2009- Reprinted 2011

REFERENCE BOOK

S.No.	Author	Title of the Book	Publisher	Year of Publication
1.	Robin Sharma	Leadership Wisdom	Jaico Publishing House	November 2003
2.	Radhakrishnan Pillai	Corporate Chanakya on Leadership	Jaico Publishing House	2012
3.	Kam Jgup	Leader's corner: the learning guide to leadership	Notion Press	2020

PEDAGOGY

Group Discussion, Team Building, Quiz, Assignment, Role Play

COURSE DESIGNERS

Ms. Cecilia Merlin Wilton

Ms. U. Sree Arun

DEPARTMENT OF ENGLISH		
Value Added Course	ENGLISH CAREER ENRICHMENT	Hours : 30
Course code: VAEN03	(Offered to student of all Programme)	Date of Introduction 01.10.2021

OBJECTIVES

- To enhance Vocabulary and its usage
- To improve language skills to achieve professional goals by focusing on interview skills.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Understand pronunciation, words and sentences in English	K2
CO2	Use English language in a more meaningful way with an enriched word power.	K3

CO3	Teach to write professional documents.	K3
CO4	To write a clear, concise resume and covering letter.	K6
CO5	Develop interviews skills for career enhancement	K6

SYLLABUS

UNIT I LEADERSHIP SKILLS (6 Hours)

- Decision Making
- Team Building
- Aspects of Leadership

UNIT II AVOID COMMON MISTAKES IN ENGLISH USAGE (6 Hours)

- Vocabulary
- Commonly Confused Words
- Redundancies

UNIT III RESUME WRITING (6 Hours)

- Creating an Effective Resume
- Resume Tips and Suggestions
- Covering letter: Tips and Suggestions

UNIT IV INTERVIEW SKILLS (6 Hours)

- Tips for Improving Interview Skills
- Types of Interviews
- Mock Interview

UNIT V: GROUP DISCUSSION (6 Hours)

- Group Discussion – Introduction
- Useful Sub-Skills
- Importance of Group Discussion

TEXT BOOK

S.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1	Thomas Elliott Berry	The Most Common Mistakes in English	TATA McGraw-Hill, India	2007
2.	R. Gupta	Group Discussions and Interviews	Ramesh publishing house	2014

Reference Books

S.No	Author(s)	Title of the Book	Publisher	Year of Publication
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1	WWS Bhaskar and NS Prabhu	English Through Reading	Macmillan, India	2008
2	Meenakshi Raman & Sangeethe Sharma	Professional Skills	Oxford University Press	2018

PEDAGOGY:

Group Discussion, Quiz, Assignment

COURSE DESIGNERS:

Dr.G.Gayathri,

Ms.N.Yoga

Ms.L.Samyuktha

DEPARTMENT OF ENGLISH		
Value Added Course	CELEBRATION OF LIFE	Hours : 30
Course Code VAEN04	(Offered to students of all Programmes)	Date Of Introduction 01.10.2021

Course Objectives:

- To facilitate positive development of holistic perspective among students towards life
- To inculcate Ethics and Human values in young minds
- To create ethical vision and harmony in life by understanding one's self and others

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	To recognise holistic perspective towards life and profession	K1
CO2	Discover essential complementary values and habits to ensure sustained happiness and prosperity	K3
CO3	To understand values of human relationship in life	K4
CO4	To create a self-motivated individual	K5
CO5	Interpreting to reach success and goals with the positive attitude of life	K6

SYLLABUS

UNIT – I: EXPERIENCE IS THE GURU

(6 Hours)

Social, religious and emotional experience

- Lessons of good and bad experiences
- UNIT – II: HEALTHY PRACTICES** (6 Hours)
 Rituals for radiant living
 Breaking out bad life habits
- UNIT – III: BUILDING RELATIONSHIPS** (6 Hours)
 Importance of relationship in one’s life
 How to handle toxic relationships
- UNIT – IV: SELF MOTIVATION** (6 Hours)
 Facing challenges, breaking barriers to attain positive outlook
- UNIT – V: REALIZATION OF SELF (PODCAST)** (6 Hours)
 Vedanta Society – Isha Upanishads (Series of 10 audios)

TEXT BOOKS:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1	Shiv Khera	You Can Win: A step-by-Step tool for Top Achievers	A&C Black	2014.
2	Spencer Johnson	Who Moved My Cheese	Putnam Adult	1998

BOOKS FOR REFERENCE:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1	Gaur Gopal Das	Life’s Amazing Secrets	Penguin Publishers	2018
2.	Norman Vincent Peale	The Power of Positive Thinking : A practical Guide to Mastering the Problems of Everyday Living	Prentice Hall	1952

PEDAGOGY:

Group Discussion, Team Building, Quiz, Assignment

COURSE DESIGNERS:

Ms. S. Srinidhi
 Ms. Vanmathi. Siva

DEPARTMENT OF ENGLISH		
Value Added Course	FOOD, TRAVEL AND CULTURE	Hours : 30
Course Code VAEN05	(Offered to students of all Programmes)	Date of Introduction 01.10.2021

COURSE OBJECTIVES:

- To introduce students to the varied food and culture of places and people, through the eyes of lifestyles and artifacts
- To build the consciousness of the students into understanding how to interface with tourists from various environments and a deep sense of respect for people, food and places of interest.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	To teach the role that tourism plays in cuisines and world's heritage and culture	K3
CO2	Connect the diverse nature of travelling, including food, culture and place, global/local perspectives	K4
CO3	Appraise empathy and respect for diversity and multicultural perspectives	K5
CO4	Critical understanding of the relationships between culture, heritage and tourism	K5
CO5	Review tourism practices for their implications locally and globally.	K6

SYLLABUS

- UNIT I – INTRODUCTION TO FOOD, TRAVEL AND CULTURE (6 Hours)**
 What is tourism? What is culture? - Defining Food Tourism and Culture Tourism – Funding Recourses for Tourism – Asian Food and Culture
- UNIT II – INDIAN FOOD, TRAVEL AND CULTURE (6 Hours)**
 Bengali – Gujarati – Kashmiri – Punjabi – Southern States
- UNIT III – CHINESE FOOD, TRAVEL AND CULTURE (6 Hours)**
 Beijing – Xi'an – Guilin – Chengdu
- UNIT IV – GULF COUNTRIES FOOD, TRAVEL AND CULTURE (6 Hours)**
 United Arab Emirates – Saudi Arabia – Kuwait – Bahrain – Iraq – Oman
- UNIT V- SRI LANKAN FOOD, TRAVEL AND CULTURE (6 Hours)**
 Northern Province – Southern Province – Food, Travel and Culture of other Continents – An Overview

Text Books:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
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1	M.Michel & Van Nostrand Reinhold Cortman	Introduction to travel and Tourism: An international Approach	New York	1989
2	SP Lal Gupta & M.K. Bhattacharya	Cultural Tourism in India	D.K.Print	2003

Books for Reference:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1	C.Michael Hall	Tourism in South and South East Asia: Issues and Cases	Routledge, 1st Edition	2000
2	Vijay Dhawan	Food and Beverage Service	Frank bros Ltd. Frank Bros Publishers	2008

PEDAGOGY:

Group Discussion, Team Building, Quiz, Assignment

COURSE DESIGNERS:

Dr.S.Senthilkumari

Ms.T.Mothika

	DEPARTMENT OF SOCIAL WORK	
Value Added Course	COUNSELLING FOR WELLBEING	Hours: 30
Course Code: VASW01	(Offered to students of other programmes)	Date of Introduction 05.10.2021

OBJECTIVES

- To orient the students on the concept of Counselling.
- To make the students to understand the role of Family in Child Development.
- To orient the students in the forms of Marriages

COURSE OUTCOMES

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

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1	Define Counselling.	K1
CO2	Explain the role of family in Child Development	K2
CO3	Examine factors contributing to problems of adolescents	K3
CO4	Describe the process of Types of marriages	K3
CO5	Apply Couple Therapy	K3

SYLLABUS

Unit I – Counselling (6 hours)

Meaning and definition; Principles and Skills.

Unit II - Child Development (6 hours)

Role of Family in Child Development

Unit III - Adolescent Development (6 hours)

Physical and Psychological changes; Most common and critical issues among adolescents - substance abuse, suicides, bullying.

Unit IV – Marriage (6 hours)

Definition, Functions and Types. Marriage in India. Problems of Older Persons

Unit V - Marriage Counselling (6 hours)

Marital Conflict; Couple Therapy; Counselling children, adolescents, youth, women and older persons

BOOKS FOR REFERENCE

S. No.	Authors	Title of the book	Publisher	Year of Publishing
1.	Deacon, Ruth E. & Firebaugh, F.M.	Home Management: contexts & Concepts,	-	1975
2	Jon Carlson and Shannon B. Dermer	The SAGE Encyclopedia of Marriage, Family, and Couples Counselling	Sage	2016
3.	Rao, S. Narayana & Sahajpal, Prem	Counselling and Guidance	McGraw Hill Education	2013

Pedagogy:

Chalk & Talk, e -content, PPT, Group Discussions, Videos, Quiz & Assignments

Course Designer:

Dr. G. Mettilda Buvaneswari

DEPARTMENT OF SOCIAL WORK		
Value Added Course	PHOTOGRAPHY FOR DOCUMENTATION	Hours: 30
Course Code: VASW02	(Offered to students of all programme)	Date of Introduction 05.10.2021

OBJECTIVES

- This course aims to facilitate the understanding about the creative process in documenting the social life by photography.

COURSE OUTCOMES

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

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1	Enlighten with a conceptual understanding of photography	K2
CO2	Identify the factors contributing for effective documentation by photography	K3
CO3	Orientation on nuances of photography for documentation.	K4

SYLLABUS

Unit I - BASICS OF PHOTOGRAPHY (6 hours)

Photography – Concept, Elements, Principles of Photography & What makes a good photograph

Unit II - DOCUMENTATION (6 hours)

Documentation - Concept, types, formats & Do's and Don'ts in documentation

Unit III - SKILLS OF A PHOTOGRAPHER (6 hours)

Creativity – Technical photography – Patience & Concentration – Attention to details – Strong networking skills – Team working.

Unit IV - ROLE OF PHOTOGRAPHY IN DOCUMENTATION (6 hours)

Techniques for effective photography for documentation

Unit V - PRACTICUM (6 hours)

Hands-on training (Technical elements – light & composition, shooting in location, shooting people, shooting in studio) by a professional photographer.

BOOK FOR REFERENCE

S.No	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Chitrabongs M.R	Role of Photography in Research & Documentation	Penguin	1989

Online links:

- chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/viewer.html?pdfurl=http%3A%2F%2Fwww.makinglearningvisibleresources.org%2Fuploads%2F3%2F4%2F1%2F9%2F3419723%2Fphotographs_as_documentation_some_guidelines_.pdf&clen=476785&chunk=true
- <https://collab.its.virginia.edu/wiki/toolbox/Photographic%20Documentation%20in%20the%20Field.html>

Pedagogy:

Lecture, Peer Discussion, PPT & Group Discussion.

Course Designer:

Dr. T. Amirtha Mary

DEPARTMENT OF SOCIAL WORK		
Value Added Course	HUMAN RESOURCE MANAGEMENT	Hours: 30
Course Code: VASW03	Offered to the students of other programmes	Date of Introduction 05.10.2021

OBJECTIVES

- This course will help the students to understand the Human Resource Management and related aspects in the industry

COURSE OUTCOMES

On Successful Completion of the course, the students will be able to

CO NO	CO Statement	Knowledge Level
CO1	Find the Meaning and Functions of Human Resources Management.	K1
CO2	Outline the Process of Performance Management and Types of Performance Appraisal	K1
CO3	Identify the Concept of Compensation Management	K2
CO4	Explain the Concept of Labor welfare in the Industry	K3
CO5	Apply the knowledge on Industrial Relations	K3

SYLLABUS

UNIT I - Human Resource Management

(6 hours)

Definition, scope and evolution, Functions – Human Resource Planning, Recruitment, Selection, Induction & Placement, Training and Development.

UNIT II - Performance Management

(6 hours)

Meaning, Purpose of Performance Management, Dimension of Performance Management Performance appraisal-Meaning, Process and Types - Traditional and Modern Method of Performance Appraisal.

UNIT III - Compensation Management (6 hours)

Meaning, Purpose, Process and Types –Indirect and Direct Compensation and Job Evaluation-Meaning and Purpose.

UNIT IV - Labour Welfare (6 hours)

Meaning, Need and Importance of Labour Welfare, Types of Labour Welfare in Industries.

UNIT V - Industrial Relations (6 hours)

Meaning, Definition, Characteristics of Industrial relations system, Collective Bargaining & disciplinary procedure. Workers Participation in management in Indian Industries.

BOOKS FOR REFERENCE

S. No	Author(S)	Title of the Book	Publishers	Year of Publication
1.	Aswathappa K	Human Resource Management Text and Cases	Mcgraw-Hill Publishing company Limited, NewDelhi	2008
2.	Bhatia, B. S., and Batra G.S.	Human Resource Development	Deep and Deep Publications.	2001
3.	Khanka S. S	Human Resource Management – Text and Cases	S.Chand publications	2007
4.	Gosh B.	Human Resource Development and Management	Vikas Publishing House pvt ltd	2000
5.	Rao T.V.	Performance Management towards excellence	SAGE Publications Pvt Ltd.	2015
6.	Sharma R.C and Sharma N.	Human resource management -theory and Practice	SAGE Publications Pvt Ltd.	2018

Pedagogy:

Chalk & Talk, Seminar, PPT Presentation, Group Discussion and Case Study.

Course Designer:

Dr. S. Vidhya,
Ms. S. Hema

DEPARTMENT OF SOCIAL WORK		
Value Added Course	SUSTAINABLE MANAGEMENT IN THIRD SECTOR ORGANIZATIONS	Hours: 30
Course Code: VASW04	(Offered to the students of Social Work)	Date of Introduction 05.10.2021

OBJECTIVES

- To facilitate the understanding about sustainable management
- To help the students to know the factors contributing to sustainable outcomes of an organization, strategic challenging and about Management and Organizational Sustainability Tool.

COURSE OUTCOMES

On Successful Completion of the course, the students will be able to

CO No.	CO Statement	Knowledge Level
CO1	Enlighten with a conceptual understanding of sustainability and its social, economical and environmental dimensions.	K2
CO1	Enlighten with a conceptual understanding of sustainability and its social, economical and environmental dimensions.	K2
CO1	Enlighten with a conceptual understanding of sustainability and its social, economical and environmental dimensions.	K2
CO1	Enlighten with a conceptual understanding of sustainability and its social, economical and environmental dimensions.	K2

SYLLABUS

Unit I - NATURE OF SUSTAINABLE & ITS DIMENSIONS (6 hours)

Sustainability – Concept, Principles, Dimensions of Sustainability - Environmental Sustainability. Social Sustainability. Economic Sustainability, Triple Bottom Line. and Barriers to Organizational sustainability.

Unit II - SUSTAINABLE MANAGEMENT IN ORGANIZATIONS (6 hours)

Sustainability Management – Concept of Sustainability & Management, Approaches & Synthesis of Sustainability & Management.

Unit III - ETHICAL & SUSTAINABLE POLICIES IN ORGANIZATIONS (6 hours)

Culture of Sustainability, Initiatives – ethical & sustainable policies in organizations.

Unit IV - STRATEGIC CHALLENGES TO ORGANIZATIONAL SUSTAINABILITY

(6 hours)

Strategic challenges of sustainability - Ecological impacts of a firm, building sustainability culture, instability, implementation, governance.

Unit V - MANAGEMENT AND ORGANIZATIONAL SUSTAINABILITY TOOL

(6 hours)

Management and Organizational Sustainable Tool (MOST) – Concept, Application and Limitations.

BOOKS FOR REFERENCE

S. No	Author(s)	Title of the Book	Publisher	Year of Publication
1.	United Nations Economic and Social Commission for Asia and Pacific	Integrating the three dimensions of Sustainable Development	United Nations Publications	2015
2.	Management Sciences for Health	Management and Organizational Sustainable Tool (MOST)	-	2010

Pedagogy:

Lecture, Peer Discussion, PPT & Group Discussion.

Course Designer:

Dr. T. Amirtha Mary

DEPARTMENT OF SOCIAL WORK		
Value Added Course	VISUAL ARTS - PAINTING	Hours: 30
Course Code: VASW05	Offered to the students of all programme	Date of Introduction 05.10.2021

OBJECTIVES

- To teach the basics of sketching and painting
- To understand the different types of painting
- To provide co-curricular opportunities for productive collaboration and teamwork.

COURSE OUTCOMES

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1	Outline the basics of sketching & Painting	K1
CO2	Understanding the different types of painting	K2
CO3	Explain how to handle painting tools & materials	K2
CO4	Describe the tips & technique in paintings	K3
CO5	Experimenting the types of Painting	K3

SYLLABUS

Unit I (6 Hours)

Pencil sketching- how to start Sketching - tools and materials- Shading study

Unit II (6 Hours)

Painting-Introduction, types of Painting - Water colors, Acrylic painting ,glass painting

Unit III (6 Hours)

Water colour, Loading paints in brush, How to paint with water colour , Tips & Techniques & acrylic painting & Practice session

Unit IV (6 Hours)

Oil pastel Painting, Tips & techniques while using oil pastel, Warli Painting-Basic -Human figures,Houses, Plants & Practice session

Unit V (6 Hours)

Glass Painting-Types of glass, Pigments, styles & techniques , Blending & mixing colours & Practice session

BOOK FOR REFERENCES:

S. No	Author	Title of The Book	Publisher	Year of Publications
1.	Gill Baron	Acrylic Secrets: 300 Tips and Techniques for Painting the Easy Way	Readers Digest	2009
2.	Marcia Baldwin	Oil & Acrylic: Flowers: Discover techniques for painting fresh and lively floral scenes (How to Draw & Paint)	Walter Foster Publishing	2012
3.	1500 Color Mixing Recipes for Oil	Acrylic & Watercolor: Achieve precise color when painting landscapes	Walter Foster Publishing	2021
4.	Anna L. Dallapiccola	Reverse Glass Painting in India	Niyogi Books	2017

Pedagogy:

Chalk & Talk, Brush & Paint, Power point, Assignments, Quiz and Practical sessions on painting

Course Designer:

Ms. P L. Rani

Dr. O. Aisha Manju

DEPARTMENT OF SOCIAL WORK		
Value Added Course	PARENTING	Hours 30
Course Code: VASW06	Offered to the students of all programme	Date of Introduction 05.10.2021

OBJECTIVES

- To orient the students on the concepts of parenting
- To prepare them to become responsible as future parents.

COURSE OUTCOMES

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

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1	Define Parenting	K1
CO2	Understand Parenting Styles	K2
CO3	Examine factors influencing parenting	K3
CO4	Explain challenges in parenting	K3
CO5	Describe Alternative parenting categories	K3

SYLLABUS

Unit I – Parenting

(6 hours)

Definition, Becoming Parents; role of child, parent and society in the process of parenting. Parenting is a Process. Parenting Children from Birth to Two years; Nurturing Close Family Relationships; Supporting Children's Growth and Development;

Unit II - Parenting Styles

(6 hours)

Authoritative parenting, Authoritarian parenting, permissible parenting & uninvolved parenting

Unit III - Cultural Influences on Parenting

(6 hours)

Socio-economic and cultural factors affecting parenting.

Unit IV - Challenges in Parenting

(6 hours)

Working Parents; Parenting in Challenging Child's need for normalization, fundamental fairness, and respect; Conflicts, stress, developmental issues; influence of work on family life;

Unit V - Alternative parenting categories

(6 hours)

Adoption, foster parent, single-parent, unmarried, divorced, re-married with step-children. Approaches to behavior management; Methods of resolving parenting problems.

BOOK FOR REFERENCES

S. No	Authors	Title of the book	Publisher	Year of Publishing

1	Chayanika Singh	How Your Personality Makes or Breaks Your Child – A Self Assessment Guide For Parent	Unicorn Books.	2013
2.	Deepa Chaudhury	Parenting Tips for Indian Parents: Pre-conception to Adulthood,	-	2017
3	Suchitra Shenoy	Mindful parenting: First 1000 days	Harper Collins publications	2016
4	Sushant Kalra	Perfect Parenting: How to raise Happy and Successful Children	-	2021

Pedagogy:

Chalk & talk, e-content, PPT, Group Discussions, Videos, Quiz & Assignments

Course Designer:

Dr. G. Mettilda Buvaneswari

DEPARTMENT OF BUSINESS ADMINISTRATION		
Value Added Course	BASICS OF BANKING	Hours: 30
Course Code: VABA01	(Offered to students of other Programme)	Date of Introduction 01.10.2021

OBJECTIVES

- To obtain knowledge of working of Indian Banking system.
- To make the students to understand the various services offered banks.
- To know the merchant banking services.

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 of Banking and its functions.	K1
CO2	Discuss the relationship with customer and the different types of account.	K2
CO3	Applications and Procedure for taking Demand Drafts and crossing the cheques	K3
CO4	Utilize the modern banking services such Online Banking, Mobile Banking, NEFT,IMPS and RTGS.	K2

SYLLABUS

Unit I (5 Hours)

Definition of a bank – kinds of Banks – Functions of a Commercial Banks.

Unit II (6 Hours)

Opening of Bank Account- procedures – Documents required- Types of Accounts – Special Types of Customers.

Unit III (6 Hours)

Loan Application- Types of Loan - Education Loan-Procedure for obtaining Education Loan.

Unit IV (7 Hours)

Essentials of Cheque – procedure for obtaining cheque book-Specimen for Cheque book – Procedure for filling the Cheque – Crossing of Cheque – Types of Crossing – Dishonouring of a Customer’s Cheque - - Demand Draft- Applications and Procedure for taking Demand Drafts.

Unit V (6 Hours)

Modern Banking Services – ATM – Functions - Net Banking, NEFT, RTGS, IMPS –Mobile Banking- Debit Card and Credit Card –Cheque Deposit Machines- Cash Deposit Machines.

TEXT BOOK:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Gordon E and Natarajan K	Banking Theory, Law and Practice	Himalaya Publishing House, Mumbai.	2020
2.	K.P.M. Sundaram and P. N. Varshney	Banking Law and Practice	Sultan Chand & Sons Publishing House, New Delhi	2015

BOOKS FOR REFERENCE:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Varshney P.N	Banking Law and Practice	Sultan Chand & Sons, New Delhi.	2018.
2.	Gurusamy S	Banking Theory Law and Practice	Vijay Nicole Imprints Pvt Ltd, Chennai.	2017

Pedagogy:

Lectures, Quiz, Power Point Presentation, Assignments and Seminar

Course Designer:

Dr. M. Neela

DEPARTMENT OF BUSINESS ADMINISTRATION		
Value Added Course	Managing Event Venues	Hours: 30
Course Code: VABA02	(Offered to students of other Programme)	Date of Introduction 01.10.2021

OBJECTIVES

- To impart the practical knowledge of Event Management.
- To upgrade the students regarding the concept of event, they will develop and nurture their skills and Techniques involved in Event Management.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Preparing Event proposal.	K1
CO2	Planning organization chart.	K1
CO3	Production of Special, Corporate and Sports event.	K3
CO4	Analysis of Event Technology and Event evaluation.	K2

SYLLABUS

UNIT I

(7 Hours)

Event Planning– Aim of Event- Develop a Mission– Establish Objectives– Preparing Event proposal.

UNIT II

(4 Hours)

Five C's of successful Event– How to Plan an Event - Planning organization chart -Venue selection.

UNIT III

(6 Hours)

Event organizing - Job Responsibility of Events Organizer– Sponsorship and Production of Special, Corporate and Sports event.

UNIT IV

(7 Hours)

Event Technology –Creativity – Co-ordination - Music & Entertainment – Audio – video – Lighting – Catering.

UNIT V

(6 Hours)

Event Evaluation–Measuring performance – Financial analysis - Report Writing.

TEXT BOOKS

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Ms.Annie Stephen And Mr. Hariharan	Principles of Event Management	Himalaya Publishing House	2014
2.	Anukrati Sharma & Shruti Arora	Event Marketing and Management	Bharati Publications, New Delhi	2018

BOOKS FOR REFERENCE

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Sanjaya singh Gaur & Sanjay V Saggere	Event Marketing and Management	Vikas Publishing House Pvt.Ltd	2014
2.	R.K.Singh	Event Management	Aman Publication. New Delhi	2011
3.	Dr. Joe Goldblatt	Special Events	CSEP Publisher: Wiley & Sons	2013

Pedagogy:

Lectures, Quiz, Power Point Presentation, Assignments and Seminar

Course Designer:

Dr. A. SIVARANJANI

DEPARTMENT OF BUSINESS ADMINISTRATION		
Value Added Course	STOCK MARKET PRACTICES (Offered to students of all programme)	Hours: 30
Course Code: VABA03		Date of Introduction 01.10.2021

OBJECTIVES

- To impart practical knowledge to the students about the basics of stock marketing
- To predict the movements in the stock in various investment avenues and to rate them.

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 & K3
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

SYLLABUS

UNIT I

(6 Hours)

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

UNIT II

(7 Hours)

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

UNIT III

(5 Hours)

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

UNIT IV (5 Hours)

Mechanics of Trading in Stock Exchanges – Registration of Stock Brokers.

UNIT V (7 Hours)

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

TEXT BOOKS

S. 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

BOOKS FOR REFERENCE

S.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

Pedagogy:

Lectures, Quiz, Power Point Presentation, Assignments and Seminar

Course Designer:

Dr. M. Gayathri

PG & RESEARCH DEPARTMENT OF COMMERCE		
Value Added Course	Basic Concepts of Income Tax and GST	Hours: 30
Course Code: VACO01	(Offered to students of all Programme)	Date of Introduction: 04.10.2021

COURSE OBJECTIVE

- To help the students understand and apply basic concepts and provisions of Income Tax Act.
- To lay down a foundation for computing gross total income and total tax liability.
- To gain procedural knowledge about GST

COURSE OUTCOME

At the time of completion of the course, students will be able to

CO No.	CO Statement	Knowledge Level
CO1	Define the basic concepts of Income Tax and Residential status of an individual	K1

CO2	<ul style="list-style-type: none"> ➤ Explain the various heads of income namely Income from Salary. ➤ House Property, Profits and Gains of Profession or Business, Capital Gains and Other Sources. 	K2
CO3	Apply and practice the computation of Total Income	K3
CO4	Examine the application of Goods and Service Tax	K4

SYLLABUS

Unit I - Introduction to Income Tax (6 Hours)

Basic of Income Tax – Assessment Year – Previous Year – Assessee – Person – Total Income – Gross Total Income – Agriculture Income – Residential Status of An Individual- Exempted Income.

Unit II - Income from Salaries (6 Hours)

Computation of Salary – House rent Allowance – Provident Fund – Gratuity – Pension – Perquisites – Rent Free accommodation – Motor car allowance

Unit III - Income from House Property & Income from Profits and Gains of Business or Profession (6 Hours)

Computation of Income from House Property – Computation of Profit and Gains of Business or Profession.

Unit IV - Income from Capital Gains & Other Sources (6 Hours)

Income from Capital Gains – Important Deductions – Income from Other Sources

Unit V - GST (6 Hours)

Overview of Goods and Service Tax

TEXT BOOK

S. No.	Authors	Title	Publishers	Year of Publication
1.	Dr. H. C. Mehrotra	Income Tax Law and Practice	Sahithya Bhavan Publications	2020
2.	Dr. N. Hariharan	Income Tax Law and Practice	Vijay Nicole Chennai	2020

BOOK FOR REFERENCE

S. No.	Authors	Title	Publishers	Year of Publication
1	T. S. Reddy and Y. Hari Prasad Reddy	Income Tax Theory, Law and Practice	Margham Publications, Chennai	2020

Pedagogy

Lecture, Power Point Presentation, Group Discussion, Seminar, Quiz, Assignment & Experience Discussion

Course Designer

Ms. A. Vinodhini

PG & RESEARCH DEPARTMENT OF COMMERCE		
Value Added Course	Carnatic Music – Vocal	Hours: 30
Course Code: VACO02P	(Offered to students of all Programme)	Date of Introduction 04.10.2021

COURSE OBJECTIVE

- Enable the students to understand the fundamentals of Carnatic Music and could able to identify the basic ragas, talas and also some popular compositions which will be helpful for their voice culture and for the advanced level performances.

COURSE OUTCOME

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

CO Number	CO Statement	Knowledge Level
CO1	Describe the Origin of Carnatic Music and their Technical Terms	K1
CO2	Explain the Varisais and Akaara Practice methods	K2
CO3	Demonstrate the various Ragas and Talas by Learning Alankarams and Geethams	K3
CO4	Outline the essentials of Varnams and Swarajatis	K4
CO5	Develop the Raga Alapana with Composition and Chandams in Thirupugazh	K5

SYLLABUS

Unit I – Introduction (6 Hours)

Introduction to Carnatic Music - Technical terms - Voice Culture Exercises – Phrases – Sapta Swarams – 16 Swasthanas and Sulaadi Sapta talas – Pancha Jatis

Unit II - Varisais and Akaarams (6 Hours)

Sarali varishais - Jantai varishais - Datu varishais - Melsthayi varishais - Exercises in Akaaras Varisais.

Unit III – Alankarams & Geethams (6 Hours)

Alankarams (in minimum 2 speeds) - Introduction to Geetham – 4 Geetams in different Ragas

Unit IV – Swarajatis & Varnams (6 Hours)

Introduction to Swarajathi – Swarajathi in different ragas - Varnam - Introduction – Adi Tala Varnams – Tamil Varnams.

Unit V - Thiruppugazh & Keerthanais (6 Hours)

Arunagirinadhar Thiruppugazh – Introduction to Keerthanais - Thyagaraja Compositions – Chitravina N Ravikiran Kritis – Other Compositions – Basics of Manodharma Sangeeth.

TEXT BOOK FOR REFERENCES

S.No.	Authors	Title	Publishers	Year of Publication
1.	Sangeet Samraat Chitravina N Ravikiran	Perfecting Carnatic Music Level I	IFCM Publication	2012
2.	Sangeet Samraat Chitravina N Ravikiran	Perfecting Carnatic Music Level II	IFCM Publication	2012

REFERENCE BOOK

S.No.	Authors	Title	Publishers	Year of Publication
1.	Sangeetha Vidwan A.S. Panchapakesa Iyer	Ganamrutha Bothini Sangeetha Bala Padam 1	Ganamrutha Prachuram, Chennai	2014
2	Sangeetha Vidwan A.S. Panchapakesa Iyer	Ganamrutha Varna Malika Sangeetha Bala Padam 2	Ganamrutha Prachuram, Chennai	2013
3	T.K.Govinda Rao.	Varnasagaram	Ganamandir Publications	2010

Pedagogy

Lecture, Power Point Presentation, Assignment & Quiz

Course Designer

Ms. N.Akilandeswari

VALUE ADDED COURSE

PG & RESEARCH DEPARTMENT OF COMMERCE		
Value Added Course	Tally ERP 9	Total Hours: 30
Course Code: VACO03P	(Offered to students of all Programmes)	Date of Introduction: 04.10.2021

Course objective

- To enable students to learn the basic concepts of accounting packages
- To impart knowledge about goods and service tax.

Course Outcome

At the time of completion of the course, students will be able to

CO No.	CO Statement	Knowledge Level
CO1	Define the basic concept of accounting in tally ERP 9	K1
CO2	Explain the accounting procedures for ledger, voucher and cost creation	K2
CO3	Applying GST	K3

CO4	Analyze stock group, stock category, stock item and stock category summary	K4
CO5	Estimate the budget	K5

Tally ERP 9

(30 Hours)

1. Creation, alteration and deletion of company
2. Creation, alteration and deletion of ledger
3. Preparation of Final Accounts with adjustments
4. Display of Profit & Loss Account and Balance Sheet
5. Voucher entries in double entry mode.
6. Creation of Stock Groups, Stock Category, Unit of Measure & Stock Items
7. Alteration and deletion of inventory masters
8. Generating Accounting and Inventory Reports
9. Creation, Alteration & Deletion of Cost Centres and Cost Categories
10. Creation, Alteration & Deletion of Bank Reconciliation Statement
11. Creation, Alteration & Deletion of Budgets
12. Creation of Bills Wise Details
13. GST Registration and E-filing of returns
14. Creation of GST Ledger in Tally ERP 9
15. Creation of Sales and Purchase Ledger in Tally ERP 9

REFERENCE BOOK:

S.No	Author	Title	Publishers	Year of Publication
1.	Vishnu P. Singh	Tally ERP with GST	Sultan Chand & Sons	2019
2.	V Srinivasa Vallabhan	Computer Application in Business	Sultan Chand & Sons	2019
3.	A. K. Nandhini	Implementing Tally ERP	BPB Publications, Chennai	2019
4.	Tally Education Private Ltd, Bengaluru	Tally ERP 9	BPB Publications, Chennai	2019

Course Designer

Ms. A. Vinodhini

PG & RESEARCH DEPARTMENT OF COMMERCE		
Value Added Course	Art of Aari & Embroidery	Total Hours: 30
Course Code: VACO04P	(Offered to students of all Programmes)	Date of Introduction: 04.10.2021

Course Objective:

- The course is designed to gain theoretical knowledge and practical experience as an embroiderer.

- Impart skill training in Aari & Embroidery to enable trainees to earn income through the acquired skill.

Course Outcome:

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

CO No.	CO Statement	Knowledge Level
CO1	Define the basic concepts of Aari and Embroidery	K1
CO2	Compare the types of Aari and Embroidery	K2
CO3	Identify tools and materials for Aari and Embroidery	K3
CO4	Classify the usage of Tools and Materials used in Aari	K4
CO5	Explain finishing process of Aari & Embroidery	K5

Art of Aari & Embroidery

(30 Hours)

1. How to fix Aari Iron Stand
2. Making and Designing of blouse
3. How to fix cloth in Aari Frame
4. Basic Chain Stitch – Different Shapes in Chain Stitch
5. Stone Chain and Beads Work
6. Zigzag, Load & Piping Load Stich
7. Zardosi and Off Load Stitch
8. Applik Work
9. Cut Work
10. Basic Embroidery Stitches & Designs

Course Designer

Ms. S. Praveena

PG & RESEARCH DEPARTMENT OF COMMERCE		
Value Added Course	Beauty Care	Total Hours: 30
Course Code: VACO05P	(Offered to students of all Programmes)	Date of Introduction: 04.10.2021

Course Objective:

- To offer training that prepares the successful student to acquire the knowledge and skills.
- To maximize the development and personal growth of each student as a total person and to help each student discover his / her potential and hopefully function as cosmetology entrepreneurs and teachers of the future.

Course Outcome:

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

CO No.	CO Statement	Knowledge Level
CO1	Define basic knowledge of professional ethics and attitude of Beauty Care	K1
CO2	Demonstrate skills needed for manicure and pedicure treatments	K2
CO3	Identify the Conditions of the Nail & Skin	K3
CO4	Analyse the issues & challenges of beauty care products in the current Scenario	K4
CO5	Develop a professional image	K5

Beauty Care

(30 Hours)

1. Fundamentals of Skin Mask, Bleach, Clean Ups & Facials
2. Threading & Waxing
3. Essentials of Health Glowing Skin – Manicure & Pedicure
4. Latest Designs, Trends & Techniques of Nail Art – Nail Cutting, Filling and Polishing
5. Hair & Scalp Consultation – Hair Cuts, Hair Colour, Setting and Styling
6. Smoky Eyes and Neon Lips
7. Saree Draping
8. Basic Bridal Makeup

Course Designer

Ms. S. Praveena

PG AND RESEARCH DEPARTMENT OF MATHEMATICS		
VALUE ADDED COURSE	VEDIC MATHEMATICS - I	HOURS - 30
COURSE CODE – VAMA01	(Offered to students of all Programmes)	DATE OF INTRODUCTION 04.10.2021

Objectives:

- To eradicate the fear of Mathematics and instils confidence.
- To improve calculation speed and numerical skills.
- Facilitate the habit of analytical thinking and measured approach towards any problem.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Apply the tricks of multiplication with 2-digit numbers.	K3
CO2	Illustrate the methods of multiplication with 3-digit numbers.	K2
CO3	Solve the division problems with basic methods	K3
CO4	Classify the division problems with denominators.	K3
CO5	Compute the short cut methods of finding square of a number.	K3

**VALUE ADDED COURSE
VEDIC MATHEMATICS-I
SYLLABUS**

UNIT I – Multiplication **(6 Hours)**

Multiplication of 2-digit numbers by 2-digit numbers – Multiplication of 3-digit numbers by 3-digit numbers – Multiplication of numbers near 100 – Multiplication of numbers near 50 – Multiplication of numbers near 200 – Choosing a base.

UNIT II – Multiplication **(6 Hours)**

Multiplication of 3-digit numbers by 2-digit numbers – Multiplication of 4-digit numbers by 2-digit numbers – Multiplication of 5-digit numbers by 2-digit numbers – Multiplication of 4-digit numbers by 3-digit numbers.

UNIT III – Division **(6 Hours)**

Conventional Method – Nikhilam Method – Paravartya Method.

UNIT IV – Division **(6 Hours)**

Denominator ending with 9 – Denominator ending with 8 – Denominator ending with other digits.

UNIT V – Square **(6 Hours)**

Forward Method: the square of an adjacent number – Reverse Method.

TEXT BOOKS:

S. No	Authors	Title of the Book	Publishers/Edition	Year of Publication
1.	Ronak Bajaj	Vedic Mathematics	Black Rose Publications	2005

REFERENCE BOOKS:

S. No	Authors	Title of the Book	Publishers/ Edition	Year of Publication
1.	Bharati KrsnaTirthaji Maharaja	Vedic Mathematics	Motilal Banarsidass Publishers Private Ltd, Delhi	Re-Print 2004
2.	Dhaval. Bathia	Vedic Mathematics Made Easy	Jaico Publishing House, Mumbai	2006

Weblinks:

1. <https://youtu.be/mKamfXTytgM>
2. <https://youtu.be/ZzYTITbCVpI>
3. <https://youtu.be/f0W32SwhAwM>
4. <https://youtu.be/zADj0k0waFY>
5. <https://youtu.be/TLTNLcEn7w0>

Pedagogy:

Chalk and Talk, PPT, Discussion and Quiz.

Course Designer:

Dr.S.Sasikala

PG AND RESEARCH DEPARTMENT OF MATHEMATICS		
VALUE ADDED COURSE	ANALYTICAL REASONING SKILLS	HOURS - 30
COURSE CODE – VAMA02	(Offered to students of all Programmes)	DATE OF INTRODUCTION 04.10.2021

Objectives:

- To analyse, interpret and solve mathematical Problems.
- To improve one's ability to think critically.
- To learn a variety of strategies for problem solving.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Illustrate the concept of coding and decoding.	K2
CO2	Explain the tricks to find the direction.	K2
CO3	Describe the problems of blood relation.	K2

CO4	Identify the short cuts of alphabet test.	K1
CO5	Solve the concept of number, letter, word, figure analogy.	K2

**VALUE-ADDED COURSE
ANALYTICAL REASONING SKILLS
SYLLABUS**

UNIT I Coding Decoding Test.	(6 Hours)
UNIT II Direction Test.	(6 Hours)
UNIT III Blood Relation.	(6 Hours)
UNIT IV Alphabet Test.	(6 Hours)
UNIT V Analogy.	(6 Hours)

TEXT BOOKS:

S. No	Authors	Title of the Book	Publishers/Edition	Year of Publication
1.	K.P.Singh, P.Singh	Reasoning Test. General Intelligence Test	Source Books A Unit of Viva Books Pvt. Ltd	Reprint 2016

REFERENCE BOOKS:

S. No	Authors	Title of the Book	Publishers/ Edition	Year of Publication
1.	Edgar Thorpe	Test of Reasoning for Competitive Examinations	Tata McGraw-Hill Publishing Company Limited, New Delhi, 2 nd Edition,	3 rd Re-Print 2000.
2.	R.V.Praveen	Quantitative Aptitude and Reasoning	Phi Learning, New Delhi, 2 nd Edition.	2013

Web links:

1. <https://www.youtube.com/watch?v=-KYF8ZZznwY>
2. https://www.youtube.com/watch?v=3OPBR3_L4y8
3. <https://www.youtube.com/watch?v=g9d0yORWrt4>
4. <https://www.youtube.com/watch?v=bvSkWnAxwIs>
5. <https://www.youtube.com/watch?v=ZmA1059rCfs>

Pedagogy:

Chalk and Talk, PPT, Discussion and Quiz.

Course Designer:

Ms.V.Manimozhi

PG AND RESEARCH DEPARTMENT OF MATHEMATICS		
VALUE ADDED COURSE	QUANTITATIVE APTITUDE-I	HOURS: 30
COURSE CODE – VAMA03	(Offered to students of all Programmes)	DATE OF INTRODUCTION 04.10.2021

Objectives:

- To provide the knowledge to analyze, interpret and solve the Mathematical problems.
- To develop the thinking capacity.
- To inquire many short tricks to solve problems.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Classify the Problems on Numbers.	K2
CO2	Illustrate the notions of decimal fractions.	K2
CO3	Describe the problems on simplification.	K2
CO4	Explain the concept of square roots and cube roots.	K2
CO5	Identify the ideas of Odd Man Out and Series.	K3

**VALUE-ADDED COURSE
QUANTITATIVE APTITUDE-I
SYLLABUS**

UNIT I Numbers.	(6 Hours)
UNIT II Decimal Fractions.	(6 Hours)
UNIT III Simplification.	(6 Hours)
UNIT IV Square Roots & Cube Roots.	(6 Hours)
UNIT V Odd Man Out & Series.	(6 Hours)

TEXT BOOKS:

S. No	Authors	Title of the Book	Publishers/Edition	Year of Publication
1.	R. S. Aggarwal	Quantitative Aptitude – For Competitive Examinations (Fully Solved)	S.Chand & Company Pvt.Ltd,	Reprint 2015

REFERENCE BOOKS:

S. No	Authors	Title of the Book	Publishers/ Edition	Year of Publication
1.	T.K. Sinha	80+ Practice Sets of Quantitative Aptitude for Bank PO Exams	Arihant Publication (India) limited	2002.
2.	S.P. Gupta and P.K.Gupta	Quantitative Aptitude	Sultan Chand and Sons, New Delhi	2008.

Web links:

1. <https://www.youtube.com/watch?v=wqKpV2edSdE>
2. <https://www.youtube.com/watch?v=n6AsChcbebo>
3. <https://www.youtube.com/watch?v=bile8UT7F6s>
4. <https://www.youtube.com/watch?v=ye6Bz8EPZK0>
5. <https://www.youtube.com/watch?v=tnc9ojITRg4&t=1815s>

Pedagogy:

Chalk and Talk, PPT, Discussion and Quiz.

Course Designer:

1. Ms. V. Manimozhi
2. Dr. B. Nisha

PG AND RESEARCH DEPARTMENT OF MATHEMATICS		
Value added course	STATISTICAL TECHNIQUES USING EXCEL	HOURS: 30
Course code – VAMA04	(Offered to students of all Programmes)	DATE OF INTRODUCTION 04.10.2021

OBJECTIVES:

- To analyze the statistical problems.
- To provide the knowledge to interpret and solve the statistical problems.
- To ensure with the ideas of statistical tools in Excel.

COURSE OUTCOME:

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Compute Mean, Median and Mode using Excel.	K3
CO2	Apply Correlation and Regression in Excel.	K3

CO3	Explain Statistical diagrams with Excel.	K2
CO4	Illustrate the Hypothesis testing with Excel.	K2
CO5	Classify the Statistical data.	K3

SYLLABUS

UNIT I **(6 Hours)**
 Measures of Central tendency: Arithmetic Mean – Median – Mode – Geometric Mean – Harmonic Mean.

UNIT II **(6 Hours)**
 Karl Pearson's Coefficient of Correlation – Regression.

UNIT III **(6 Hours)**
 Plotting: 2D Plot

UNIT IV **(6 Hours)**
 Testing of Hypotheses: Test of Significance using t-Test, F-Test and Chi-Square Test.

UNIT V **(6 Hours)**
 Collection and Interpretation of Sample Data.

Related Experience:

- 1) Arithmetic Mean, Geometric Mean and Harmonic Mean.
- 2) Median and Mode.
- 3) Karl Pearson's Co-efficient of correlation.
- 4) Regression.
- 5) Test the significance of hypothesis using 't' test.
- 6) Test the significance of hypothesis using 'F' test.
- 7) Test the significance of hypothesis using chi-square test.
- 8) Plotting of Bar Diagram.
- 9) Plotting of Pie Diagram.
- 10) Plotting of Scatterplot Diagram.

TEXT BOOKS:

S. No	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	R.S.N. Pillai and Bagavathi.	Practical Statistics	Sultan Chand & Sons.	2008
2.	R. S. N. Pillai & Bhagavathi	Statistics, Theory and Practice	S. Chand & Company	2016

REFERENCE BOOKS:

S. No	Authors Name	Title of the book	Publishers Name	Year of Publication
1.	V. Rajagopalan	Selected Statistical Tools	New Age International (P) Ltd Publishers	2006
2.	G. S. S. Bhisma Rao	Probability and Statistics	Scitech Publications (India) Private Limited, New Delhi	2011

3.	Veer Bala Rastogi	Fundamentals of Biostatistics	Ane Books India	2008
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WEBLINKS:

1. <https://youtu.be/ehxwGufdAiw>
2. <https://youtu.be/2CEGh1emkzM>
3. <https://youtu.be/SQ3MZelRtr8>
4. <https://youtu.be/gp5xQHdbwwI>
5. <https://youtu.be/--Tc4TqNrPA>

PEDAGOGY:

Power point presentation, Group Discussion, Seminar, Quiz, Assignment.

Course Designer:

Dr. B. Nisha

DEPARTMENT OF PHYSICS		
Value added course	PRINTED CIRCUIT BOARD DESIGNING	HOURS: 30
Course code-VAPH01	(Offered to students of physics department)	Date of introduction 01.10.2021

OBJECTIVES:

- Introduction PCB designing concepts
- Component introduction and their categories
- To make students capable to design their own projects PCB up to industrial grade.
- Detailed description and practical of PCB designing

OUTCOMES:

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

CO NO.	CO Statement	Knowledge level
CO1	Identify the Electronic Components	K1
CO2	Understand basics of PCB designing	K2
CO3	Understand the PCB Layout	K2
CO4	Classify the types of laminations	K2
CO5	Demonstrate drilling and Soldering the Components on PCB	K3

SYLLABUS

UNIT-I: INTRODUCTION TO PRINTED CIRCUIT BOARD (6 Hours)

Fundamental of electronic components, basic electronic circuits, Basics of printed circuit board designing: Layout planning, general rules and parameters

UNIT-II: LAYOUT AND PLANNING (6 Hours)

Layout scale – Grid system – Board types PCB production facilities – Layout approaches – Documentation. Realizing supply and ground conductors – Component placing

UNIT-III: AUTOMATION AND COMPUTERS IN PCB DESIGN (6 Hours)

Limitations of manual design – Automatic artwork draughting – Computer aided design – Design automation – Limitations of automation in PCB design. Computer Software for PCB design.

UNIT-IV: LAMINATIONS (6 Hours)

Properties of copper-clad laminates – Manufacturing process – Types of laminates Phenolic, Epoxy, Polyester laminates – Polyamide laminates.

UNIT-V: DRILLING AND SOLDERING (6 Hours)

Drilling and soldering – Drilling of designed PCB – Soldering Process of components – Testing and troubleshooting –screen printing and masking

TEXT BOOKS:

S. No.	Authors	Title of the book	Publishers	Edition	Year of Publication
1.	R. S. Khandpur	Printed circuit board design ,fabrication assembly and testing	Tata McGraw Hill	-	2006
2.	Clyde F. Coombs, Jr, Happy T. Holden	Printed Circuits Handbook	Tata McGraw-Hill	Sixth Edition	2016

REFERENCE BOOKS:

S. No.	Authors	Title of the book	Publishers	Edition	Year of Publication
1.	Walter C. Bosshart	PCBs Design and Technology	Tata McGraw Hill	-	1990.

TEACHING PEADOGY

Power point presentation, Chalk and Talk

COURSE DESIGNER

Ms. T. Noorunnisha

DEPARTMENT OF PHYSICS		
Value added course	UTILIZATION OF SOLAR ENERGY	30 HOURS
Course code: VAPH02	OFFERED TO STUDENTS OF ALL PROGRAMME	DATE OF INTRODUCTION:01.10.2021

OBJECTIVES:

- To expose the students with the different aspects of measurement, harvesting and utilization of solar energy.

- To encourage the preferential use of solar energy.
- To Develops solar energy and energy efficiency.

OUTCOMES:

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

CO Number	CO Statement	Knowledge Level
CO1	Access solar energy potential energy	K1
CO2	Identify the different ways of utilization of solar energy	K1
CO3	Understanding of direct usage of solar energy	K2
CO4	Understand the maintenance of solar energy	K2
CO5	Understand the features of different solar energy	K2

SYLLABUS

UNIT I: Introduction

(6 Hours)

Basic Heat Transfer Principles- Availability of Solar Energy- Nature of Solar Energy- Solar Energy & Environment- Sun as the source of radiation- Solar radiation.

UNIT II: Solar water Heater

(6 Hours)

Principals of solar thermal systems-Technology's in solar water heating systems-salient features of solar water heating systems- Application of solar water heating systems-installing of solar water heating systems

UNIT III: Solar lighting system

(6 Hours)

Description of main parts of solar lighting system: Solar Lantern-street light- home light-Charge controller- Storage battery- Inverter-Maintenance of solar lighting system.

UNIT IV: Solar cooking

(6 Hours)

Benefits of solar cooking-advantages and disadvantages solar cooking.

UNIT V: Roof Top

(6 Hours)

Technical Standards and Specification-Types of Roof top-Capacity Limiting-Technical Considerations-Standards and Specifications.

TEXT BOOKS:

S. No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Soteris A. Kalogirou	Solar Energy Engineering: Processes and Systems	Academic Press, London	2009	-
2.	Tiwari G.N	Solar Energy – Fundamentals Design, Modelling and applications	Narosa Publishing House, New Delhi	2002	-

REFERENCE BOOKS:

S. No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	G.D Rai	Non-conventional Sources of Energy	Khanna Publishers, Delhi	2008	-
2.	Dr. H. Naganagouda	Solar Power Hand Book	Khanna Publishers, Delhi	2014	-
3.	Chetan Singh Solanki	Renewable Energy Technologies	PHI School Books	2008	-
4.	Kothari D.P. and Signal K.C	Renewable Energy Sources and Emerging Technologies	New Arrivals – PHI	2011	2 Edition

Teaching Pedagogy

Power point presentation and chalk & talk.

Course Designer

Dr. K. KANNAGI

DEPARTMENT OF PHYSICS		
Value added course	SCIENTIFIC TRAINING ON SOFTWARE TOOLS	HOURS: 30
Course code: VAPH03	OFFERED TO STUDENTS OF ALL PROGRAMME	DATE OF INTRODUCTION 01.10.2021

OBJECTIVES:

- To make them understand the principles of software.
- To educate MS-office system, internet operations, online, offline working areas.
- To train them to work on the comment based activities in MS-office system.

OUTCOMES:

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

CO Number	CO Statement	Knowledge Level
CO1	Identify work on text and numerical data	K1
CO2	Classify the experience on spread sheet and word	K1
CO3	Understanding of computer operations	K2
CO4	Understand the features of different tools	K2
CO5	Explain the Work on Word, Excel and Power Point	K2

SYLLABUS

UNIT I

(6 Hours)

Computer Fundamentals Computer and Operating system Fundamentals – Components of a computer system –Input and Output devices – Memory Handling –Storage Devices

UNIT II

(6 Hours)

MS -Word Introduction to MS-Word and User Utilities – Exploring Template and

Formation of Documents

UNIT III (6 Hours)

MS – Excel Spreadsheet –workbook window –Formatting Cells / Worksheet – Working with Formula, Function and Charts – Filtering data and Printing a Presentation

UNIT IV (6 Hours)

MS – Power Point Introduction to MS –Power Point –Creating Templates – Font and color editing –Consolidating using MS-Power Point

UNIT V (6 Hours)

Officer Appliances Accounting machine – Addressing machine – Envelope Sealing machine – Franking machine.

TEXT BOOKS

S. No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Dr.S.V.Srinivasa Vallabhan	Computer Application in Business	Sultan Chand and Sons, New Delhi	2011	-
2.	Alexis Leon	MS-Office and Internet	Vikas Publishing	-	-
3.	K.Mohan Kumar and Vijay Nicole	Computer Application in Business	Nicole imprints Private Limited	2009	-

REFERENCE BOOK

S. No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	V. Rajaraman	Computer Basics and C Programming	PHI	2008	-
2.	R. S. N. Pillai & Bagavathi	Office Management	S.Chand	2013	-

Teaching Pedagogy

Power point presentation and chalk & talk.

Course Designer

R. A. KIRUTHIKA

PG DEPARTMENT OF CHEMISTRY		
Value Added Course	Hands on approach to UV – Visible Spectroscopy	Hours: 30
Course Code : VACH01	(Offered to students of all the Science Programme)	DATE OF INTRODUCTION 01.10.2021

OBJECTIVES

- Acquire skills on quantitative technique used to measure how much a chemical substance absorbs light.
- Obtain knowledge on Sample preparation for UV

- Determining λ max and ϵ values

COURSE OUTCOMES

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

CO	CO Statement	Knowledge Level
CO1	Understand why molecules absorb UV-visible light and how the spectrum changes with molecular structure	K1
CO2	Learn how to select and use sample cells correctly	K1
CO3	Understand the possible causes of poor-quality measurements and deviations from Beer's Law	K1
CO4	This course gives a favor or weightage to the students during the interview in securing jobs or research opportunities.	K2

SYLLABUS

Unit - I (6 Hours)

Ultraviolet and visible radiation electronic transitions and the UV spectrum – calculating absorption maxima - The Beer-Lambert Law.

Unit - II (6 Hours)

Instrumentation - Components of a UV–visible spectrometer light sources and detectors Single-beam and double-beam -instruments Sample cell (cuvette).

Unit - III (6 Hours)

Analysis of the sample – concentration - choice of solvent- solution preparation -base correction - sample recording.

Unit - IV (6 Hours)

Data interpretation – calculation. Applications - purity checks and quantitation.

Unit - V (6 Hours)

Hands on training with different types of samples. (Water samples & Metal nanoparticles)

TEXT BOOKS:

S. No.	Author (s)	Title of the Book	Publisher	Year of Publication
1.	Douglas A. Skoog, F Holler	Instrumental Analysis	Thomson Press (India) Ltd	2009
2.	Gurdeep R Chatwal and Sham K. Anand	Instrumental methods of chemical Analysis	Himalaya publishing house	2005

REFERENCE BOOK:

S. No.	Author (s)	Title of the Book	Publisher	Year of Publication
1.	Vogel A.I	Book of Quantitative Inorganic analysis	The English Language Book Society Douglas	2000

Pedagogy

E-content, Lecture, Power Point Presentation, Quiz, Group discussion, Video/Animation.

Course Designers

Dr. G. Sivasankari

Dr. S. Saranya

PG DEPARTMENT OF CHEMISTRY		
Value Added Course	Chemistry of Cosmetics	Hours: 30
Course Code : VACH02	(Offered to students of all the Programme)	DATE OF INTRODUCTION 01.10.2021

OBJECTIVES

- Cosmetic plays an important role in our everyday lives as they make an individual's appearance more attractive and boost one's self-esteem and confidence.
- Keeping in view the tremendous potential which the cosmetic industry has today around the globe, this course will be useful for introducing students to the world of cosmetic chemistry.
- This has been designed to impart the theoretical and practical knowledge on basic principles of cosmetic chemistry, manufacture, formulation of various cosmetic products.

COURSE OUTCOMES

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

CO	CO Statement	Knowledge Level
CO1	Learn basic of cosmetics, various cosmetic formulation, ingredients and their roles in cosmetic products.	K1
CO2	Learn the use of safe, economic and body-friendly cosmetics	K1
CO3	Prepare new innovative formulations.	K2

SYLLABUS

- Unit – I** (6 Hours)
Preparation of soft soap.
- Unit – II** (6 Hours)
Ingredients- composition - preparation of organic lip balm.
- Unit – III** (6 Hours)
Constituents- configuration- preparation of shampoo and room freshener.
- Unit – IV** (6 Hours)
Ingredients- composition -preparation of organic hair dye.
- Unit – V** (6 Hours)
Constituents- Configuration -Preparation of nail polish, nail polish remover and organic kajal.

TEXT BOOK:

S. No.	Author (s)	Title of the Book	Publisher	Year of Publication
1.	Barel, A.O.; Paye, M.; Maibach, H.I.	Handbook of Cosmetic Science and Technology	CRC Press	2014

REFERENCE BOOK:

S. No.	Author (s)	Title of the Book	Publisher	Year of Publication
1.	Garud, A.; Sharma, P.K.; Garud, N	Text Book of Cosmetics	Pragati Prakashan	2012

Pedagogy

E-content, Lecture, Power Point Presentation.

Course Designers

- Dr. P. Pungayee alias Amirtham , Assistant Professor, Department of Chemistry.
- Dr. G. Sivasankari, Assistant Professor, Department of Chemistry

PG DEPARTMENT OF CHEMISTRY		
Value Added Course	Homemade Herbal Medicines	Hours : 30
Course Code: VACH03	(Offered to students of all the Programme)	DATE OF INTRODUCTION 01.10.2021

OBJECTIVES

- Herbal medicines are one type of dietary supplement. They are sold as tablets, capsules, powders, teas, extracts, and fresh or dried plants.
- Herbal medicines help us to maintain or improve our health. In light of its numerous health benefits, this course has been designed to provide the necessary background for the students to begin to incorporate herbal medicines into routine practice.

- This course imparts the theoretical and practical knowledge on herbal medicines, formulation of various herbal products.

COURSE OUTCOMES

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

CO	CO Statement	Knowledge Level
CO1	Learn basics of herbal medicines, formulation of various herbal products and therapeutic properties.	K1
CO2	Learn the uses of safe, economic homemade medicines.	K1
CO3	Enhance the applicability of herbal medicine in routine life.	K2

SYLLABUS

Unit I (6 Hours)

Introduction-Herbal Medicines in Healthcare

Unit – II (6 Hours)

Homemade vapor rub- therapeutic properties-ingredients-composition-preparation-storage-directions to use.

Unit – III (6 Hours)

Homemade aloe vera gel-therapeutic uses-material required- therapeutic properties-material required-preparation-storage-directions to use.

Unit – IV (6 Hours)

Homemade cough syrup–therapeutic properties-ingredients-preparation-storage-directions to use.

Unit – V (6 Hours)

Essential oil–therapeutic properties-material required-preparation-storage-directions to use.

Text Book:

S. No.	Author (s)	Title of the Book	Publisher	Year of Publication
1.	Carmen Reeves	Homemade Herbal Medicine	Kindle Unlimited	2015

Reference Book:

S. No.	Author (s)	Title of the Book	Publisher	Year of Publication
1.	Rao, A.P.	Herbs that heal.	Diamond Pocket Books (P) Ltd, New Delhi.	1999

Pedagogy

E-content, Lecture, Power Point Presentation.

Course Designers

- Dr. G. Sivasankari, Assistant Professor, Department of Chemistry.
- Dr., S. Saranya, Assistant Professor, Department of Chemistry

PG & RESEARCH DEPARTMENT OF COMPUTER SCIENCE		
Value Added Course	PYTHON PROGRAMMING	Hours: 30
Course Code: VACS01	(Offered to Students of Other Programmes)	Date of Introduction: 04.10.2021

Objective:

- To have a fundamental understanding of the Python programming language
- To learn different types of sequence structures, related operations and their usage. Also learn diverse ways of opening, reading, and writing to files
- To understand how to create your own Python applications

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Understand Python programming basics and paradigm	K2
CO2	Write and debug simple python programs with loop and condition statements	K3
CO3	Use Python lists, tuples, dictionaries for representing compound data	K3
CO4	Apply file concept in python	K3
CO5	Construct own Python applications	K4

Syllabus:

UNIT-1

(4 HOURS)

Introduction- History- Features-setting up path-working with python-basic syntax - variables-data types-operators.

UNIT-2:

(6 HOURS)

Conditional Statements: If-else-Nested if-else-Looping statements: For-While-Nested loops- Control statements: Break-continue-pass.

UNIT-3:

(6 HOURS)

Lists:Accessing list-list operations-working with lists-Tuple: Accessing tuples-operations-working with tuples-ranges-String manipulation-string slices.

UNIT-4:

(6 HOURS)

Dictionaries: Accessing values in dictionaries- Working with dictionaries-sets-functions: Defining a function- Calling a function- Function Arguments – modules-Packages.

UNIT-5:

(8 HOURS)

File operations: Opening and closing file- Reading and writing files-Database-Data visualization-Project Development: QR Code generation- GUI application for Calendar with Python using Tkinter- Convert Image to a Pencil Sketch using Python-Text to speech-website blocker creation.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER / EDITION	YEAR OF PUBLICATION
1	Jeeva Jose & P.Sojan Lal	Introduction to Computing and Problem Solving with PYTHON	KHANNA Book Publishing Co.(P).Ltd	2016

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER / EDITION	YEAR OF PUBLICATION
1	Dr.R.Nageswara Rao	Core Python Programming	Dreamtech Press	2017
2	Allen B. Downey	Think Python	O'Reilly Publishers 2 nd edition	2015

Web References:

- <https://www.geeksforgeeks.org/python-programming-examples/>
- <https://pynative.com/python-exercises-with-solutions/>
- <https://pythonistaplanet.com/python-programming-exercises-and-solutions/>

Pedagogy:

Power Point Presentation, Live Demonstration

Course Designer:

Dr.K.Reka

PG & Research Department of Computer Science		
Value Added Course	E-Content Development	Hours: 30 Hours
Course Code VACS02P	(Offered to Students of all Programmes)	Date of Introduction: 04.10.2021

Objective:

- To learn the process of designing and development of e-content module
- To describe the use of various tools for editing graphics , audio and video
- To create e-content for a particular topic

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the principles of script writing	K2
CO2	Analyze the basic editing techniques	K3

CO3	Apply the transition effects	K3
CO4	Demonstrate an understanding of Video making	K2
CO5	Construct own E-Content on particular topic	K3

Lab Exercises:

1. Script writing
2. Select Aspect ratio of Project, Choose Media and Add Layers
3. Prepare and Edit a content video
4. Add voice and music to the content
5. Live capture and recording
6. Add transitions effects
7. Visual corrections and special effects
8. Export and share video to Media
9. e-Content development for a particular topic

Web References:

1. https://www.researchgate.net/publication/313822939_E-learning_and_E-content_Development
2. <https://sites.google.com/site/bethanycollegeofteacheredn/e-content-and-open-educational-resources>
3. https://www.dit.ie/media/ittraining/msoffice/MOAC_Powerpoint_2016.pdf
4. https://www.youtube.com/watch?v=TeKRsmO_6Rw
5. <https://www.youtube.com/watch?v=WSXq0xrSUlo>

Pedagogy:

Demonstration, PPT,e-Content

Course Designer:

Ms.R.Ramya

PG & RESEARCH DEPARTMENT OF COMPUTER SCIENCE		
Value Added Course	Introduction to worksheets	Hours: 30 Hours
Course Code VACS03P	(Offered to Students of all Programmes)	Date of Introduction: 04.10.2021

Objective:

- To learn the basics of formatting, creation of tables and charts
- To perform advanced data analysis with functions, formulas, and charts
- To optimize the manipulation time in excel with the use of VBA

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Demonstrate the use of basic functions, formatting custom data	K2
CO2	Apply conditional formatting	K3
CO3	Implement Lookup for performing analysis	K3
CO4	Analyze content using pivot table	K3
CO5	Build Applications using VBA code	K3

Lab Exercises:

1. Create a Worksheet and Workbook
2. Apply formatting and functions
3. Apply Conditional Formatting
4. Create a table, sort data and apply filter
5. Mark Sheet Preparation
6. Create a Pivot table and generate a pivot chart
7. Lookup for worksheet
8. Hide all Worksheets except the active sheet using VBA
9. Change the Letter Case of Selected Cells using VBA
10. Highlight Blank Cells with VBA

Web References:

1. http://www2.cs.uregina.ca/~cs104/what_to_do/check_the_lab_outline/Seminar5Excel/exercises/exercise.html
2. <https://excel-practice-online.com/>
3. <https://www.automateexcel.com/vba-code-examples/>

Pedagogy:

Live Demonstration , PPT, Youtube videos

Course Designer:

Ms.P.Muthulakshmi

DEPARTMENT OF COMPUTER APPLICATIONS		
Value Added Course	Basic Mobile Application Development	30 Hours
Course Code: VACA01P	(Offered to students of all Programme)	01.10.2021

OBJECTIVES

- To design and develop user Interfaces for the Android platform.
- To learn the basic and important design concepts and issues of development of mobile applications.

COURSE OUTCOME

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
<u>CO1</u>	Install and configure Android application development tools.	<u>K2</u>
<u>CO2</u>	State information across important operating system events.	<u>K3</u>
<u>CO3</u>	<u>Apply Java programming concepts to Android application development.</u>	<u>K3</u>

LIST OF EXPERIMENTS

1. To study Android Studio and android studio installation. Create “Hello World” application.
2. To understand Activity, Intent, Create sample application with login module.(Check username and password).
3. Design simple GUI application with activity and intents e.g. calculator.
4. Develop an application that makes use of RSS Feed.
5. Write an application that draws basic graphical primitives on the screen
6. Create an android app for database creation using SQLite Database.
7. Develop a native application that uses GPS location information
8. Implement an application that writes data to the SD card.
9. Design a gaming application
10. Create an application to handle images and videos according to size.

BOOKS FOR STUDY

S.No	Author(s)	Title of the book	Publisher	Year of Publications
1	Reto Meier	“Professional Android 4 Application Development”	1st Edition, Wile Publication	2012

BOOKS FOR REFERENCE

S.No	Author(s)	Title of the book	Publisher	Year of Publications
1	Ian G. Clifton	“Android User Interface Design: Turning Ideas and Sketches into Beautifully Designed Apps”	Addison-Wesley	2013

PEDAGOGY

Power Point Presentation, Live Equipment demonstration, Video Lectures.

COURSE DESIGNER

Ms. V. Infine Sinduja, Assistant Professor, Department of Computer Applications.

DEPARTMENT OF COMPUTER APPLICATIONS		
Value Added Course	Open Broadcaster Software	30 Hours
Course Code: VACA02	(Offered to students of all Programme)	01.10.2021

OBJECTIVES

- To learn how to use Open Broadcaster Software to create professional live streams and video recordings
- Create live streams to Facebook or YouTube
- How to use OBS with Zoom, Google meet

COURSE OUTCOME

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Identify technologies behind broadcasting	K1
CO2	Improves creativity in subject matters	K2
CO3	Explain and express views and opinions in broadcasting software	K2
CO4	Prepare and practice live stream techniques	K3

SYLLABUS

UNIT I

(5 HOURS)

Introduction :Introduction of broadcasting software>About Open Broadcaster Software-Downloading & installing OBS-OBS Interface Overview.

UNIT II (Related Experience)

(5 HOURS)

OBS instruments: OBS Sources-Scenes-Audio and Video Bitrates-OBS Basic Settings.

UNIT III (Related Experience)

(6 HOURS)

Effects & additional Tools : Tools-Filters-Managing layers-Adding overlay.

UNIT IV (Related Experience)

(7 HOURS)

Video Recording: Optimizing OBS for Recording-Video recording and editing of live event-Recording virtual platform event.

UNIT V (Related Experience)

(7 HOURS)

Streaming: Optimizing OBS for Streaming-Live Streaming Techniques-Streaming in YouTube and Facebook.

BOOKS FOR REFERENCE

S.No	Author(s)	Title of the book	Publisher	Year of Publications
1	Paul William Richards	“The Unofficial Guide to Open Broadcaster Software”	Independently Published	2019
2	Walt Roberts	“Live Streaming Kit: How to Live Stream Online for Beginners & Gamers”	One Jacked Monkey, LLC	2019

PEDAGOGY

Power Point Presentation, Live Equipment demonstration, Video Lectures.

COURSE DESIGNER

Ms. M. Ellakkiya, Assistant Professor, Department of Computer Applications.

DEPARTMENT OF COMPUTER APPLICATIONS		
Value Added Course	Mobile Repair and Trouble Shooting	30 Hours
Course Code: VACA03	(Offered to students of all Programme)	01.10.2021

OBJECTIVES

- To understand the Concepts & Structure of Mobile Hardware
- To learn the capabilities and limitations of mobile devices.

COURSE OUTCOME

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
<u>CO1</u>	Identify the components of mobile	<u>K2</u>
<u>CO2</u>	Illustrate installation of operating systems	<u>K3</u>
<u>CO3</u>	<u>Apply mobile trouble shooting</u>	<u>K3</u>
<u>CO4</u>	Change the screen and battery of the mobile	<u>K3</u>

SYLLABUS

UNIT I

(6 HOURS)

Introduction to mobile phones, Generations of mobile phones, FHSS networks, GSM, Spread spectrum, CDMA, TDMA & Basic electronics components.

UNIT II

(6 HOURS)

Handset Specific operating systems, Handset features & applications, working principle of mobile handset & Components used in mobile handsets.

UNIT III (Related Experience)

(6 HOURS)

Tools & equipment used for repairing & maintenance of mobile handsets, types of power supply & batteries, boosting a battery, Troubleshooting basics.

UNIT IV (Related Experience)

(6 HOURS)

Network problems, Power failure (dead), Mobile phone hardware troubleshooting (water damage, hanging, charging & keypad problems), Handsets assembly & disassembly, Soldering & desoldering & SMD rework station.

UNIT V (Related Experience)

(6 HOURS)

Mobile softwares, Data cable, Card reader, Mobile display, Remove/replace Component & Mobile phone hardware troubleshooting.

Books for References:

S.No	Author(s)	Title of the book	Publisher	Year of Publications
1	Muhammad Asif Azeemi	“Learn Cell Phone Repair: A Do-It-Yourself Guide To Troubleshooting and Repairing Cell phones”	Kindle Edition	2019
2	J. F. DiMarzio	“Beginning Android Programming with Android Studio”	John Wiley & Sons	2017

PEDAGOGY

Power Point Presentation, Live Equipment demonstration, Video Lectures.

COURSE DESIGNER

Ms. V. Infine Sinduja, Assistant Professor, Department of Computer Applications.

DEPARTMENT OF INFORMATION TECHNOLOGY		
Value Added Course	DATA ANALYSIS AND PRESENTATION TOOLS	Course Duration 30 Hours
Course Code VAIT01	Offered to students of all programmes	04-10-2021

COURSE OBJECTIVES

- To create ,format and present using MS-Office tools

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	To create, format and analyse a document using Ms-Word	K1
CO2	To use various advanced tools in Ms Excel for Data analysis	K2
CO3	To retrieve online data set for Statistical analysis	K3
CO4	To develop a simple E-content using Ms PowerPoint	K2
CO5	To create a Video content by employing various multimedia tools	K3

DATA ANALYSIS AND PRESENTATION TOOLS

Ms-Word -I **(4 Hrs)**

Basics of Word - Hyperlinks - Language Tools - Cross-Referencing - Line Numbers - Watermarks - Footnotes/Endnotes - Citations/Bibliographies - Captions

Ms-Word – II **(4 Hrs)**

Indexing - Adding Comments - Track Changes - Accepting/Rejecting Changes - Comparing Documents-Understanding Google Docs and Google Forms.

Ms-Excel **(8 Hrs)**

Overview of the Basics of Excel-Customizing common options in Excel - Absolute and relative cells - Protecting and un-protecting worksheets and cells

Ms-Excel **(7 Hrs)**

Working with Functions - Writing conditional expressions –(using IF)- Using logical , functions (AND, OR, NOT) –Using -Using lookup and reference functions - Data Validations - Working with Templates - Sorting and Filtering Data - Working with Reports –Using Google Sheets - Analysing online data set .

Ms-Power Point **(7 Hrs)**

Introduction to Microsoft Word 2013--- The Basics of Creating Presentations- Applying Themes and Layouts to Slides- Working with Objects- Entering, Editing, and Formatting Text- Working in Outline View- Proofing Presentations- Inserting Pictures, Graphics, Shapes, and Other Things- Inserting Tables into Presentations-Charts and SmartArt- Adding Sound and Video- Conversion from PPT to Mpeg file format-Adding Transitions and Animation- Master Slides- Printing and Running Slide Shows- Saving, Sharing, and Exporting Presentations- Using Google Slide

REFERENCE BOOKS:

SNO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	Mike Van Niekerk	VBA Automation for Excel 2019 Cookbook: Solutions to automate routine tasks and increase productivity with Excel and other MS Office applications	Packt Publishing Limited	2017
2.	Linda Foulkes	Learn Microsoft Office 2019: A comprehensive guide to getting started with Word,	Packt Publishing Limited	2020

		PowerPoint, Excel, Access, and Outlook		
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Web References

<https://www.tutorialspoint.com/word/index.htm>

<https://www.tutorialspoint.com/powerpoint/index.htm>

<https://www.tutorialspoint.com/excel/index.htm>

Course Designer : S.Suguna Devi

Pedagogy : System, White Board

DEPARTMENT OF INFORMATION TECHNOLOGY		
Value Added Course	CONTENT MANAGEMENT TOOLS	Course Duration 30 Hours
Course Code - VAIT02	Offered to students of all programmes	04-10-2021

COURSE OBJECTIVES

- To create and publish content using word press

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	To understand the basics of Content management	K1
CO2	To develop a simple content using Ms PowerPoint	K2
CO3	To design a website using Word press	K2
CO4	To develop and publish simple content using Word Press	K2

CONTENT MANAGEMENT TOOLS

Introduction to Content management System (6 Hrs)

What is Content Management System (CMS) - Features- Advantages - Disadvantages

Word Press Basics (6 Hrs)

Overview - Installation-Dashboard - Create a Permanent link for user website and make it as public site - Set your website title and tagline

Designing a Website (6 Hrs)

Pick a theme and design a website - Create categories for website post - Write a blog and post
 - Customize word press theme

Creating Links and Comments (6 Hrs)

Create and Manage links in word press pages - Add and mange comments in blog posts -
 WordPress Tags - Links-Add plugins to websites abilities

Word Press Add-Ons (6 Hrs)

Access word press media libraries - Create and publish pages in website - Adjust site navigation
 using menus and widgets

REFERENCE BOOKS:

SNO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	Stephen Burge	WordPress Explained: Your Step-by-Step Guide to WordPress: 3	Prentice Hall	2020
2.	Martin Fowler	Teach Yourself VISUALLY WordPress	John Wiley & Sons	2015
3.	Kevin Wilson	Using PowerPoint 2019: The Step-by-step Guide to Using Microsoft PowerPoint 2019 (Using Microsoft Office Book 3)	Elluminet Press	2020

Web References : <https://www.tutorialspoint.com/wordpress/index.htm>
Course Designer : Ms.P.Tamilselvi
Pedagogy : System, White Board

DEPARTMENT OF INFORMATION TECHNOLOGY		
Value Added Course	GRAPHICS AND BASIC ANIMATION TOOLS	Course Duration 30 Hours
Course Code VAIT03	(Offered to student of other Programme)	04-10-2021

COURSE OBJECTIVES

- To create images and apply animations

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	To understand the basics of photo editing tools	K1

CO2	To create different formats of images	K2
CO3	To demonstrate various techniques for animation	K2
CO4	To apply special effects on animated images	K2

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

GRAPHICS AND BASIC ANIMATION TOOLS

Basic Photo Editing Tools

(3 Hrs)

Introduction – Selection Tools - Selection Shading - Transformation of Objects - Cropping An Image In Photoshop - Perspective Distortion Correction - Retouching Tools In Adobe Photoshop - Painting Tools In Adobe Photoshop - Editing Tools in Adobe Photoshop - Filling Tools in Adobe Photoshop - Eyedropper Tool Tips - Brush Tool Tips - Load New Brushes - Using Custom Shapes

Working with Images

(5 Hrs)

Rotate and Flip an Image - Color Correction with Curves - Change Image Size to view on Screen - Image Size for Printing - Change Image Resolution

Working with Layers

(6 Hrs)

Creation of Layer – Adjustment of Layer – Applying Layer Mask – Vector Mask – Filtering – Creation of 3D Images

Creating Animation

(8 Hrs)

Animating Text – 2D Animation Techniques – 3D Animation Techniques

Special Effects on Animation

(8 Hrs)

Lights Camera & Special Effects – Character Animation – Rendering

REFERENCE BOOKS:

SNO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	Faulkner Andrew, Chavez Conrad	Adobe Photoshop CC Classroom in a Book	Pearson Education	2017

2.	David Dodds	Hands-On Motion Graphics with Adobe After Effects CC	Packt Publishing Limited	2019
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Web References

<https://akvis.com/en/photoshop-tips/painting-tools.php>

<https://www.udemy.com/course/animation-in-after-effects/>

Course Designer : Dr. A.Bhuvaneswari

Pedagogy : System, White Board

PG & RESEARCH DEPARTMENT OF MICROBIOLOGY		
Value added Course	Entrepreneurial Microbiology	30 Hours
Course Code: VAMB01	Offered to Microbiology students	Date of Introduction: 01.10.2021

OBJECTIVES:

- ✓ To make the students to understand important concepts of entrepreneurship.
- ✓ To acquire knowledge on basic requirements for establishing a bio-based startup company.

OUTCOMES:

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

CO Number	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 the types of fermented foods	K3
CO5	Relate on various mushroom production	K3

SYLLABUS

Unit I

Entrepreneur development- Definition and scope. National and International agencies for start-ups. Ethical and legal issues involved in bio-based technology company.

6 Hours

Unit II

Composting- types, methods, field applications, advantages and limitations.

6 Hours

Unit III

6 Hours

Biofertilizers *Rhizobium*, *Azotobacter*, *Azospirillum*– Mass production, Package and storage.

Unit IV

6 Hours

Fermented beverages- production of wine and beer; Fermented foods- sauerkraut, pickles; Fermented Dairy Products Curd, Buttermilk and Cheese.

Unit V

6 Hours

Mushroom cultivation – Preparation of spawn- *Calocybe* sps, *Pleurotus* sps. Post-harvest technology.

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	IK 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	IK 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.

Course Designer: Dr. R. Nithyatharani

PG AND RESEARCH DEPARTMENT OF MICROBIOLOGY		
Value Added Course	DIAGNOSTIC MICROBIOLOGY	30 Hours
Course Code: VAMB02	Offered to Microbiology Students	Date of Introduction: 01.10.2021

OBJECTIVES:

- The students will acquire the necessary knowledge and skill to ensure the quality services in health care sector.
- This is an innovative and need-based program meant to create employment opportunities.

OUTCOMES:

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

CO Number	CO Statement	Knowledge level
CO1	Understand the basics of clinical specimen	K2
CO2	Interpret the basics of sterilization, culture media and microscopic examinations	K3
CO3	Analyze the biochemical tests for microorganisms	K4
CO4	Explain the antimicrobial screening methods	K4
CO5	Determine the significance of Haematological techniques	K5

SYLLABUS

UNIT – I (6 Hours)

Collection, transport, processing of specimen and Identification of bacteria from clinical specimens –Urine, Blood, Sputum, Pus and Faeces – transport media and storage.

UNIT – II (6 Hours)

Principles and methods of sterilization, disinfection, antiseptics. Culture media-Methods of maintenance and preservation of microbes. Microscopic examination of Bacterial pathogens – simple, differential staining, motility.

UNIT – III (6 Hours)

Biochemical tests: Indole, Methyl red, Voges proskauer, Citrate utilization test, Catalase test, Oxidase test and Urease test.

UNIT – IV (6 Hours)

Antibiotic sensitivity tests: Disc diffusion- Kirby Bauer method and dilution methods, Determination of Minimum inhibitory concentrations, Minimum bactericidal concentrations and IC₅₀.

UNIT – V (6 Hours)

Haematological techniques: Blood grouping, total cell count (RBC and WBC), Agglutinations (WIDAL), Precipitation reactions (CPR), differential count, haemoglobin estimation-Sahli's method, Erythrocyte sedimentation test and Pregnancy kit test.

Text Books

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Connie R. Mahon	Textbook of Diagnostic Microbiology	Elsevier	2018
2.	Garry W. Procop, Deidre L. Church, Geraldine S. Hall, William M. Janda, Eimar W. Koneman, Paul C. Schreckenberger and Gail L.Woods	Koneman's Color Atlas and Textbook of Diagnostic Microbiology	Wolters Kluwer Health	2017
3.	Patricia Tille	Bailey & Scott's Diagnostic Microbiology Hardcover – Illustrated	Elsevier	2017
4.	<u>Kanai L. Mukherjee and Anuradha Chakravarthy</u>	Medical Laboratory Technology, Procedure Manual for Routine Diagnostic Tests	Mc Graw Hill India	2017
5.	Vasudevan D M, Sreekumari S and Vidhyanathan K	Textbook of Biochemistry for Medical students	Jaypee & Brothers Medical Publishers (P) Ltd	2016

Reference Books

S.No	Authors Name	Title of the Books	Publishers Name	Year
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1.	Kanai L. Mukherjee	Medical Laboratory Technology	Tata Mcgraw Hill	2017
2.	Ananthanarayan and Paniker's	Textbook of Microbiology	The Orient Blackswan	2017
3.	Connie Mahon Donald Lehman	Textbook of Diagnostic Microbiology 6th Edition	Elsevier	2016
4.	Gary W Procop and Elmer W Koneman	Koneman's Color Atlas and Textbook of Diagnostic Microbiology	Wolters Kluwer Health	2016
5.	Arora D R and Arora B B	Textbook of Microbiology	CBS Publishers & Distributors	2016

Web links:

1. <https://www.elsevier.com/books/textbook-of-diagnostic-microbiology/mahon/978-0-323-48218-9>
2. https://books.google.com/books/about/Textbook_of_Diagnostic_Microbiology_E_Bo.html?id=VloMBAAAQBAJ
3. <https://www.abebooks.com/book-search/title/diagnostic-microbiology-textbook-isolation-identification-pathogenic-microorganisms/>
4. <https://www.pdfdrive.com/medical-laboratory-technician-microbiology-afsc-90470-e17289142.html>
5. <https://www.microbiologyresearch.org/content/journal/jmm/10.1099/00222615-45-5-391?crawler=true&mimetype=application/pdf>

Pedagogy

Power Point Presentations, Group Discussion, Seminar, Quiz, Assignment and Brain Storming Activity

Course Designer: Ms.N.Jeenathunisa

PG AND RESEARCH DEPARTMENT OF MICROBIOLOGY		
Value added Course	First Aid and Emergency Care	30 Hours
Course Code: VAMB03	Offered to students of all Programmes	Date of Introduction: 01.10.2021

OBJECTIVES:

- To understand and acquire knowledge of First Aid treatment in emergencies.
- To educate the techniques for First Aid treatment.

OUTCOMES:

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

COs	CO Statement	Knowledge
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		level
CO1	Understand the basic needs of first aid	K2
CO2	Explain awareness about community emergencies	K5
CO3	Explain first aid measures for cardiovascular problems	K5
CO4	Demonstration of first aid measures for poisoning and animal bites	K2
CO5	Explain the techniques for First aid management	K5

SYLLABUS

Unit I **6 Hours**

First aid - Introduction, Definition , Scope and Basics of First Aid – First Aid Kit. Managing an incident, Action plan at an emergency- Traffic and Fire accidents, Electrical and Water incidents.

Unit II **6 Hours**

First aid - Community emergencies: fire explosions, earth quakes, flood and famine, Respiratory problems: Hypoxia, Airway obstruction, Choking - adult, infant and child.

Unit III **6 Hours**

Emergency medical conditions - Heart attack, Stroke, Hyperglycemia, Hypoglycemia, Seizures in adults and children.

Unit IV **6 Hours**

Poisoning and bites:Types of poisons- Swallowed, Drug, Alcohol.Bites - Animal, Insect, Ticks and Snake bite.

Unit V **6 Hours**

Techniques- First aid material- Dressings, Cold compresses, Types of bandaging, Techniques for First Aid Treatment – Airway, Breathing and Circulation.

Text Books

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	John Furst	The Complete First Aid Pocket Guide: Step-by-Step Treatment for All of Your Medical Emergencies	Simon &Schuster	2018
2.	Clement I	Textbook on First Aid & Emergency Nursing. II Edition	Jaypee Brothers Medical Publishers	2018
3.	Harris N	First Aid and Emergency Care	AITBS	2018
4.	John Furst	The Complete First Aid Pocket Guide: Step-by-Step Treatment for All of Your Medical Emergencies	Simon &Schuster	2018
5.	Liamson SN	First Aid and Emergency Care	Kumar Publications	2012

Reference Books

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Ajay Singh	First Aid & Emergency Care	NR Brothers	2019
2.	<u>Sharma Suresh</u>	Potter and Perry's Fundamentals of Nursing: Second South Asia Edition	Elsevier India	2017
3.	American Medical Association	American Medical Association Handbook of First Aid and Emergency Care	Random House Reference	2009
4.	<u>American Academy of Orthopaedic Surgeons (AAOS)</u>	First Aid, CPR, and AED, Standard (Emergency Care and Safety Institute)	Jones and Bartlett Publishers, Inc	2009
5.	Philip Jevon	Emergency care and First Aid for Nurses, A practical guide	Churchill Living Stone,	2007

Web Links

1. <https://www.slideshare.net/mohanasundariskrose/first-aid-ppt-69486097>
2. <https://slideplayer.com/slide/3559927/>
3. <https://slideplayer.com/slide/3874503/>
4. <https://slideplayer.com/slide/7116496/>

Pedagogy

Power point presentations, Group Discussion, Seminar, Quiz, Assignment, Brain Storming activity

Course Designer: Dr. P. Bhuvanewari

PG AND RESEARCH DEPARTMENT OF MICROBIOLOGY		
Value added Course	Microbial Inoculant Production Technology	30 Hours
Course Code:VAMB04	Offered to Students of all Programmes	Date of Introduction: 01.10.2021

OBJECTIVES:

- To make the students to know the importance of Microbial inoculants
- To learn the production methods and field applications of Microbial inoculants

Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Explain Microbial inoculants types and Production technology	K2
CO2	Illustrate Symbiotic and Non symbiotic Bacterial bioinoculants and study the mass cultivation methods	K2
CO3	Analyze Fungal Bioinoculants and study the mass cultivation methods	K4
CO4	Create Knowledge about Algal Bioinoculants and study the mass cultivation methods	K6
CO5	Expand view of liquid bioinoculants and study the mass cultivation methods	K6

SYLLABUS

UNIT I

6 Hours

Bioinoculants and types: Introduction, Definition and types of bioinoculants, Bacterial, Fungal, algal and Actinorhizal. Advantages and limitations of bioinoculants.

UNIT II

6 Hours

Bacterial Bioinoculants- Characteristics and Mass production of Bacterial Bioinoculants - Rhizobium, Azospirillum and Azotobacter.

UNIT III

6 Hours

Fungal Bioinoculants- Characteristics, Types, Mass production and Field applications of Mycorrhizae- vesicular-arbuscular mycorrhiza

UNIT IV

6 Hours

Algal Bioinoculants- Characteristics and Mass production of Blue green algae Spirulina and Azolla.

UNIT V

6 Hours

Liquid Bioinoculants- - Characteristics and Mass production of Jeevamrutha, Panchagavya and Dasagavya.

Text Books:

S.No	Authors Name	Title of the Books	Publishers Name	Year

1.	Krishnendu Acharya, Surjit Sen and Manjula Rai	Biofertilizer and Biopesticide	Techno world	2019
2.	Dr.Reeta Khosla	Biofertilizers and Biocontrol Agents for Organic Farming	Kojo Press	2017
3.	Dr. Hyma	Biofertilizers: Commercial Production Technology and Quality	Random publications	2017
4.	Mahendra K Rai	Hand book microbial biofertilizers	The Haworth press, Inc.	2015
5.	BorkarS.G.	Microbes as Biofertilizers and their Production Technology	Woodhead Publishing India in Agriculture	2015

Reference Books:

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Rao B.N S	Biofertilizers in Agriculture and Forestry	Oxford & IBH Publishing House	2019
2.	Sharma R.A.	Biofertilizer Technology	Agrotech Publishing Academy	2019
3.	Ameta O.P and Sharma U.S	Biopesticides for Sustainable Agriculture	Agrotech Publishing Academy	2018
4.	Somani L	Biofertilizers: Commercial Production Technology and Quality control	Agrotech Publishing Academy	2018
5.	Bikas R. Pati and Santi M. Mandal	Recent Trends in Biofertilizers	I K International Publishing House	2016

PG AND RESEARCH DEPARTMENT OF MICROBIOLOGY		
Value added course	Herbal Cosmetics	30 Hours
Course Code: VAMBO5	Offered to students of all Programmes	Date of Introduction: 01.10.2021

Weblinks:

1. https://agritech.tnau.ac.in/ta/org_farm/orgfarm_biofertilizers.html
2. https://agritech.tnau.ac.in/org_farm/orgfarm_biofertilizertechology.html
3. <http://www.techno-preneur.net/technology/new-technologies/food-agro/vam-fungi.html>
4. http://14.139.187.9/ta/org_farm/orgfarm_faq's.html

Pedagogy

Power Point Presentations, Group Discussion, Seminar, Quiz, Assignment and Brain Storming Activity

Course Designer: Dr.S.Jeyabharathi

OBJECTIVES:

- To enable students to get exposed to processes involved in the manufacturing of herbal cosmetics
- To understand the preparation of skin and hair care herbal products.

OUTCOMES:

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

CO Number	CO Statement	Knowledge level
CO1	Define the basic knowledge of herbal cosmetics	K1
CO2	Describe the skin care cosmetics production	K2
CO3	Preparation of hair care products	K3
CO4	Illustrate the active components of herbs	K2
CO5	Explain quality control of herbal cosmetics	K2

SYLLABUS

Unit I

6 Hours

Introduction: scope, Classification of herbal cosmetics. Processes used in the manufacture of herbal cosmetics. Importance of herbal Cosmetics.

Unit II

6 Hours

Skin care products: Sources and description of raw materials, methods and preparation of herbal skin care products.

Unit III**6 Hours**

Hair care products: Sources and description of raw materials, methods and preparation of herbal hair care products.

Unit IV**6 Hours**

General account on active components of following herbal and its products such as Aloe vera, Almond oil, Neem, Henna, Turmeric.

Unit V**6 Hours**

General principles of quality control and standardization of herbal cosmetics- shelf testing. Toxicity studies as per Drug and Cosmetics Act. BIS guidelines of herbal cosmetic products and its raw materials.

Text Books:

S.no	Author Name	Title Book	Publisher Name	Year
1.	M. Vimaladevi	Textbook of Herbal Cosmetics	CBS Publisher	2019
2.	EIRI	Handbook of Synthetic & Herbal Cosmetics (How to make Beauty Products)	Engineers India Research Inc.	2015
3.	EIRI	Herbal Cosmetics & Beauty Products with Formulations	Engineers India Research Inc.	2015
4.	H Panda	Herbal Cosmetics Handbook	Asia Pacific Business Press Inc	2015
5.	Shailendra Saraf Swarnlata Saraf	Cosmetics A Practical Manual	Pharma Med Press	2014

Reference Books:

S.no	Author Name	Title Book	Publisher Name	Year
1.	Stephen Barton , Allan Eastham & Amanda Isom	Discovering Cosmetic Science	Royal Society of Chemistry	2020
2.	R.Magazine	Drugs and Cosmetics Formulations	CBS Publisher	2019
3.	Nikita Upadhyay	Roots to Radiance: Wholesome Beauty Solutions for the Millennial Life	Penguin eBury Press	2019
4.	R.K. NEMA	Textbooks of Cosmetics	CBS Publisher	2017
5.	Malanie Sachs	Ayurvedic Beauty Care: Ageless Techniques To Invoke Natural Beauty	Motilal Banarsidass	2014

Web links

1. <http://www.bioline.org.br/pdf?pl08083>
2. https://personalcarescience.com.au/userfiles/files/Book_sample/Beginner%20book%20V7%20-%20SAMPLE.pdf
3. http://www.phdmsme.in/uploaded_files/project_report/1536151263_616.pdf
4. <http://www.ijcets.org/fulltext/17-1569161409.pdf>
5. <https://innovareacademics.in/journals/index.php/ijap/article/view/27377/16199>

Pedagogy

Power point presentations, Group Discussion, Seminar, Quiz, Assignment, Brain Storming activity.

Course Designer: Ms.S.Sathya

DEPARTMENT OF BIOTECHNOLOGY		
VALUE ADDED COURSE	FOOD ADULTERANTS IN EVERYDAY LIFE	HOURS - 30
COURSE CODE – VABT01P	OFFERED TO STUDENT OF ALL PROGRAMMES	DATE OF INTRODUCTION 04.10.2021

OBJECTIVES

- To create awareness among the students about common Food adulterants
- To protect themselves from harmful adulterants
- To create interest among students in identifying adulterants in day today life

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO 1	Define the adulteration of common foods	K1
CO 2	Comprehend skills pertaining to detecting food adulterants	K1
CO 3	Demonstration of detecting adulteration in Milk and Milk Products	K2
CO 4	Distinguish fake products from the original products	K4
CO 5	Qualitatively analyze the adulterant present in common food.	K5

**VALUE ADDED COURSE
FOOD ADULTERANTS IN EVERYDAY LIFE**

30 HOURS

1. Detection of starch and detergent in Milk.
2. Identification of starch in paneer & condensed milk.
3. Identification of vanaspathy or margarine in Ghee.
4. Detection of other oils in Coconut oil.
5. Identification of other oils in Vegetable oil.
6. Identification of sugar solution in Honey and Jaggery.
7. Identification of chalk/white powder in sugar, salt and wheat flour.
8. Detection of iron fillings & exhausted tea in tea leaves.
9. Detection of chicory powder/clay in coffee powder.
10. Identification of colouring agent in green peas, green chilli & vegetables.
11. Detection of foreign resin or earthy matter in asafoetida.
12. Identification of lead chromate in pulses.
13. Detection of adulterant seeds in cumin & mustard seeds.
14. Identification of papaya seeds in black pepper.
15. Detection of lead chromate/artificial colours in turmeric & Red chilli powder.
16. Identification of sawdust/powdered bran in spice powder.
17. Detection of coloured tendrils of maize cob in Saffron.
18. Detection of wax polishing in fruits.
19. Identification of aluminium foil in silver foiled sweets.
20. Identification of washing powder in Ice cream.

REFERENCE BOOKS

S. No.	Author name	Title of the book	Publisher name	Year of publication
1	Charis M. Galanakis	Innovative Food Analysis	Academic Press	2020
2	Alankar Shrivastava	Adulteration Analysis of Some Foods and Drugs	Bentham Science Publishers	2019
3	Rajan Sharma, Y.S. Rajput, Amit K. Barui and Laxmana Naik N.	Detection of Adulterants in Milk – A laboratory manual (Revised Edition)	Intech Printers & Publishers, Karnal, India	2017
4	Ramesh Kumar Sharma & Salvatore Parisi	Toxins and Contaminants in Indian Food Products 1st Edition	Springer	2017
5	Shyam Narayan Jha	Rapid Detection of Food Adulterants and Contaminants: Theory and Practice – 1 st edition	Academic Press	2015

WEB LINKS

- <https://vikaspedia.in/health/health-campaigns/beware-of-adulteration/methods-for-detection-of-common-adulterants-in-food>

- <https://fssai.gov.in/dart/>

PEDAGOGY

Power point presentation, Quiz, Assignment, Experience Discussion, Brain storming and Activity.

COURSE DESIGNER

Ms.P. Ilamathy, Ms.R. Nevetha and Ms.P. Jenifer

DEPARTMENT OF BIOTECHNOLOGY		
VALUE ADDED COURSE	WATER QUALITY ANALYSIS	HOURS - 30
COURSE CODE - VABT02P	OFFERED TO SCIENCE STREAMS	DATE OF INTRODUCTION 04.10.2021

OBJECTIVES

- To apply basic chemical principles to better understand water quality for drinking water treatment and for wastewater treatment.
- To apply basic analytical chemistry principles to understand how to measure common water and wastewater constituents.
- To provide employability for students

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO 1	Understand National Primary Drinking Water Regulations.	K1
CO 2	Comprehend knowledge about sources, cause and impacts of water pollutants.	K2
CO 3	Measure the concentration of constituents in quantity for characterization of water for different uses.	K3
CO 4	Experiment water quality criteria and parameters.	K3
CO 5	Evaluate the various parameters essential for potable water.	K4

VALUE ADDED COURSE
WATER QUALITY ANALYSIS

HOURS -30

1. Determination of Total Alkalinity of water
2. Determination of the total hardness of the water sample
3. Determination of pH of waste water
4. Determination of Dissolved oxygen of waste water
5. Determination of Chemical oxygen demand of waste water
6. Determination of Biological oxygen demand of waste water
7. Determination of Acidity of water
8. Determination of salinity of the given water sample
9. Bacteriological Analysis- Estimation of coliforms in the given water sample
10. Determination of Turbidity of various water sample
11. Estimation of the Nitrate level in water sample
12. Estimation of the Chloride level in Water sample
13. Estimation of the Fluoride level in Water sample.
14. Detection of Iron content present in water sample
15. Detection of Manganese content present in water sample

REFERENCE BOOKS

S. No.	Author name	Title of the book	Publisher name	Year of publication
1	<u>A G S. Reddy</u>	A Textbook on Water Chemistry: Sampling, Data Analysis and Interpretation	Rajiv Gandhi National Ground Water Training and Research Institute, Raipur, CG, India	2020
2.	Yuncong Li & Kati Migliaccio	Water Quality Concepts, Sampling, and Analyses	Taylor & Francis Ltd	2019
3	Leo M.L.Nollet, Leen S.P.De Gelder	Handbook of Water Analysis	CRC Press Taylor & Francis Groups	2014

4	Dean, J. R., Jones, A. M., Holmes, D., Reed, R., Weyers, J., & Jones, A	Practical skills in Chemistry	2nd Ed., Prentice Hall, Harlow	2011
5	Chatterje A.K.,	Water Supply, Waste Disposal and Environmental Engineering (8th ed.,)	New Delhi, Khanna Publisher	2010

Web Links

- <https://www.firestoneco.gov/199/Water-Quality-Reports-Testing>
- https://www.cdc.gov/healthywater/drinking/public/water_quality.html
- <http://www.fao.org/3/x5624e/x5624e05.htm>

PEDAGOGY

Power point presentation, Quiz, Assignment, Experience Discussion, Brain storming and Activity.

COURSE DESIGNER

Dr.R. Rameshwari, Dr.R. Uma Maheswari and Dr.M. Keerthiga

DEPARTMENT OF BIOTECHNOLOGY		
VALUE ADDED COURSE	BASIC RESEARCH FOR UNDERGRADUATES	HOURS - 30
COURSE CODE – VABT03	OFFERED TO STUDENTS OF ALL UNDERGRADUATE PROGRAMMES	DATE OF INTRODUCTION 04.10.2021

OBJECTIVES

- To familiarize with the basic concepts about the research for undergraduate students.
- To make them understand the processes involved in research
- To introduce the foundations of research writing and publishing

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO 1	Illustrate about research and its classification.	K1
CO 2	Describe about Problem Identification & Formulate research Question, Investigation Question and hypothesis.	K1

CO 3	Infer Literature collection and Literature citation.	K2
CO 4	Summarize thesis Report, Table, Figures, Format of Thesis.	K2
CO 5	Discover the Standard of Research journals – impact factors and citation index.	K3

**VALUE ADDED COURSE
BASIC RESEARCH FOR UNDERGRADUATES**

30 HOURS

UNIT I

Research – Introduction to research, Types of research: exploratory, descriptive and causal research. Steps involved in research.

UNIT II

Designing a research: Identification of research problem, Research Question and Investigation. Hypothesis - Qualities of a good Hypothesis, Null Hypothesis & Alternative Hypothesis.

UNIT III

Literature survey, citations, Different formats for citing reference and reference tools: Mendeley and End note.

UNIT IV

Dissertation writing - Component of Research report - Objectives, Methodology, Tables, Figures and Interpretation of results.

UNIT V

Publications: Types of articles, Journals – standards and metrics – Research databases. Publication ethics: Plagiarism.

REFERENCE BOOKS

S. No.	Author name	Title of the book	Publisher name	Year of publication
1	C.R. Kothari and Gaurav Garg	Research Methodology: Methods and Techniques	New Age International Publishers	2019
2	Mousami V. Munot, Vinayak Bairagi	Research Methodology: A Practical and Scientific Approach	CRC Press	2019

3	Deepak Chawla (Author), Neena Sondhi	Research Methodology: Concepts and Cases: Concepts & Cases	Vikas Publishing House	2016
4	Colin Robson	How to do a Research Project: A Guide for Undergraduate Students	Wiley	2014
5	Anne H. Charity Hudley, Cheryl L. Dickter, Hannah A. Franz	The Indispensable Guide to Undergraduate Research	Teachers College Press	2017

WEBLINKS:

- <https://www.mendeley.com/reference-management/reference-manager>
- <https://www.intechopen.com/chapters/68505>

PEDAGOGY

Power point presentation, Quiz, Assignment, Experience Discussion, Brain storming and Activity.

COURSE DESIGNER

Dr.S. Abinaya and Dr.G. Gomathi

DEPARTMENT OF FOOD SERVICE MANAGEMENT AND DIETETICS		
VALUE ADDED COURSE	PRINCIPLES OF INTERIOR DESIGN	HOURS-30
COURSE CODE - VAFS01	OFFERED TO STUDENTS OF ALL THE PROGRAMMES	DATE OF INTRODUCTION 01.10.2021

Objectives

- To understand the art elements and principles of design in interiors.
- To provide solution to create new ideas and innovation.
- To apply the acquired knowledge on selecting appropriate design to decorate the interiors.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Identify the role of good taste in interior design	K1
CO2.	Classify design	K2

CO3.	Explain the elements of design	K2
CO4.	Apply the principles of design to daily life	K3
CO5.	Make use of design concepts in interior decoration	K3

Syllabus

UNIT-I

INTRODUCTION TO INTERIOR DESIGN

(6 Hours)

Introduction to art and design, importance of design, objectives of aesthetic planning, role of good taste and good designer.

Related Experience

Record creation related to good taste in interior design.

UNIT II

TYPES OF DESIGN

(6 Hours)

Structural and decorative design. Classification of decorative design- naturalistic, stylized, abstract and geometrical design.

Related Experience

Illustrating the different types of design using various structural and decorative design.

UNIT III

ELEMENTS OF DESIGN

(6 Hours)

Line, direction, shape, form, size, texture, space and colour.

Related Experience

Discuss the role of elements of design in interior design.

UNIT IV

PRINCIPLES OF DESIGN

(6 Hours)

Harmony, balance, proportion, emphasis and rhythm.

Related Experience

Interpret the role of principles of design in interior design.

UNIT-V

Application of design concept in interior decoration.

(6 Hours)

Related Experience

Collection and application of elements and principles of design in daily life.

Text book

S.No.	Author name	Year of publication	Title of the book	Publisher s name
1.	G.Raghubalan & Smritee Raghubalan	2015	Hotel Housekeeping: Operations and Management	Oxford University Press India
2.	Andrews Sudhir	2017	Hotel Housekeeping	New York Mc graw Hill Companies
3.	Singh Malini	2012	Hotel Housekeeping	Delhi: Mcgraw Hill Plt

Reference books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Sushma Gupta	1991	Home Management Hygiene and Physiology	Madras: Kalyani Publishers
2.	Varghese, MA	2005	Home Management	Delhi New Age International Limited
3.	Kappa, Margaret M	1997	Housekeeping Management	Michigan: Educational Institute of the American Hotel & Motel Association

Web links

<https://titen.space/what-are-7-principles-of-interior-design-base-of-each-design/>

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

Course designers

- Ms. B.Thanuja
- Ms. M.Vinothini
- Ms. T.R.Revathi

DEPARTMENT OF FOOD SERVICE MANAGEMENT AND DIETETICS		
VALUE ADDED COURSE	DIETARY COUNSELLING – SKILLS AND TECHNIQUES	HOURS-30
COURSE CODE- VAFS02	OFFERED TO STUDENTS OF DEPARTMENT OF FOOD SERVICE MANAGEMENT AND DIETETICS- III UG, I PG & II PG	DATE OF INTRODUCTION 01.10.2021

Objectives

- To gain knowledge on the basic concept of counselling
- To study the different strategies and approaches used in counselling

- To familiarize and acquaint the students with basic principles of behavioural psychology that is essential for counselling

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	State the need for counselling	K1
CO2.	Build rapport and implement various other Counselling strategies	K2
CO3.	Examine and design the counselling in a systematic way	K2
CO4.	Differentiate various stages of life and interpret and formulate counselling based on their needs	K3
CO5.	Evaluate individuals and group according to the therapeutic protocols	K3

Syllabus

UNIT - I (6 Hours)

INTRODUCTION TO COUNSELLING

Definition, goals, ethics, scope, characteristics of counselling, types of counselling.

UNIT - II (6 Hours)

TECHNIQUES IN COUNSELLING

Strategies and Communication Skills, Rapport building and opening techniques, questioning, listening, reflecting, acceptance, silence, leading assurance, non - verbal communication.

UNIT - III (6 Hours)

PROCESS OF COUNSELLING

Initiating counselling, establishing structure, termination of counselling.

UNIT - IV (6 Hours)

COUNSELLING TECHNIQUES FOR DIFFERENT LIFE STAGES

Counselling techniques for preschool children, school going children, adolescents, adult and old age.

UNIT - V (6 Hours)

COUNSELLING FOR THERAPEUTIC GROUPS

Counselling during hospitalization, counselling out patients, Nutrition counselling protocols

Textbooks

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Srilakshmi B	2014	Dietetics	New Age International Publishers, New Delhi
2.	Krause M, Kathleen. L Mahan and Sylvia Escott Stump	2004	Food Nutrition and Diet Therapy	W.B Saunders Co, Philadelphia

Reference books

S.No.	Author name	Year of Publication	Title of the book	Publishers name
1.	Raheena Begum M	2008	Textbook of Foods, Nutrition and Dietetics	Sterling Publishers Pvt. Ltd., New Delhi
2.	Kathy King and Bridget Klawitter	2007	Nutrition Therapy: Advanced Counseling Skills	Lippincott Williams and Wilkins

Web links

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6780101/>

<https://www.sciencedirect.com/topics/food-science/diet-counseling>

Pedagogy

E-content, Lecture, Powerpoint, Seminars, Assignments, Group discussion

Course Designers

- Ms.B.Thanuja
- Ms.S.Fathima
- Ms. Mithila.K.S
- Ms. C. Nivetha

DEPARTMENT OF FOOD SERVICE MANAGEMENT AND DIETETICS		
VALUE ADDED COURSE	NUTRITIONAL CARE FOR PREGNANCY	HOURS-30
COURSE CODE – VAFS03	OFFERED TO STUDENTS OF ALL THE PROGRAMMES	DATE OF INTRODUCTION 01.10.2021

Objectives

- To able to understand the physiological changes during pregnancy.
- To understand the knowledge about the dietary problems during pregnancy.
- To acquire knowledge about nutritional requirement of pregnancy.

Course Outcomes

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

Co Number	CO statement	Knowledge level
CO 1	Identify the nutritional alterations during pre-conception	K1
CO 2	Classify the nutritional deficiencies of the pregnancy	K2
CO 3	Explain complications of pregnancy	K2
CO 4	Illustrate the nutritional requirements of pregnancy	K3
CO 5	Apply dietary principles in menu planning	K3

Syllabus:

UNIT I (7 hours)

PRE-CONCEPTION AND CONCEPTION

Introduction, nutritional alterations during pre-conception & conception, balanced diet plan during pre-conception.

UNIT II (6 hours)

PHYSIOLOGICAL CHANGES DURING PREGNANCY

Blood volume and composition, cardiovascular function, pulmonary function, gastro intestinal function, renal function, changes in uterus, breast and body fluids, weight gain.

UNIT III (5 hours)

COMPLICATIONS OF PREGNANCY AND THEIR DIETARY IMPLICATIONS

Obesity management, gestational diabetes mellitus, pregnancy induced hypertension, Ectopic pregnancy.

UNIT IV (5 hours)

DIETARY AND DEFICIENCY PROBLEMS DURING PREGNANCY

Nausea, vomiting, constipation, oedema and leg cramps, heart burn, iron deficiency anemia, folic acid deficiency anemia, maternal malnutrition.

UNIT V (7 hours)

NUTRITIONAL REQUIREMENTS AND DIET DURING PREGNANCY

Recommended Dietary Allowances, Macro and micro nutrient requirements – calorie, protein, fat, vitamin – A, D, E, C, B complex, iron, calcium, zinc and folic acid. Foods to be included and avoided.

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 Distributors Pvt. Ltd

Reference Books**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	Swaminathan M	2012	Handbook of Food and Nutrition	Bangalore Publishing Co Ltd
3	Townsend, Carolyn E	2000	Nutrition and Diet Therapy London:	I.T.P an International Thomson Publishing Company

Web links

- <https://www.moh.gov.sa/en/awarenessplatform/WomensHealth/DuringPregnancy/Documents/Nutrition%20During%20Pregnancy.pdf>
- <https://seasonsmedical.com/pregnancy-nutrition-diet.pdf>

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

Course Designers

- Ms.B.Thanuja
- Ms.S.Agalya
- Ms.E.Agalya

VALUE ADDED COURSE**ENTREPRENEURSHIP DEVELOPMENT CELL**

VALUE ADDED COURSE	SKIN CARE & HYGIENE	Hours- 30
COURSE CODE: VAED01	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

Objectives

- ✓ To create an awareness on skin care
- ✓ To generate the hygiene practices of oneself
- ✓ To provide an extensive knowledge in skin anatomy and its importance

Course outcome

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

CO	CO statement	Knowledge
CO1	Explain the anatomical structure of the skin	K2
CO2	State skin care techniques	K3
CO3	Suggest suitable treatments based on their skin disorders	K3
CO4	Describe the public health importance of personal hygiene	K5

SYLLABUS

UNIT I -SKIN THEORY

Skin Structure - Structure of Skin, Layers of Skin, Functions of Skin

Methodology: Power point presentation

UNIT II -BASIC SKIN CARE ROUTINE

Basic Skin Care- Cleansing, Scrubbing, Toning, Moisturising

Methodology: Demonstration and Power point presentation

UNIT III – SKIN CARE DISORDERS AND

Analysis of the Skin Disorders-open pores, acne, pigmentation, cracked heels, under eye dark circles, Symptoms-Causes-Treatment and Prevention

Methodology: Power point presentation

UNIT IV – TREATMENTS AND HOME REMEDIES

Edible skin care recipes- beverages and food control, external application methods and recipes for skin treatments

Methodology: Demonstration and Power point presentation

UNIT V-PERSONAL HYGIENE

Personal care – body image, menstrual hygiene, social practice, health image and motivation

Methodology: Power point presentation

Reference :

[THE SKINCARE RULES DOWNLOAD \(skinessentialsbymariga.com\)](http://skinessentialsbymariga.com)

[807-beauty-wellness ClassXII.pdf \(cbseacademic.nic.in\)](http://cbseacademic.nic.in)

<https://pdfroom.com/books/100-organic-skin-care-recipes-make-your-own-fresh-and-fabulous-organic-beauty-products/Y6g>

Course Designers

Dr.S.Sowmya, Assistant Professor in Commerce

Dr.R.Subha, Assistant Professor in Chemistry

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	BRIDAL MAKEOVER - FOUNDATION LEVEL	Hours- 30
COURSE CODE: VAED02	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To enrich the student's knowledge with basics of bridal touch ups
- To create awareness on the available market products and their usage to customers
- To gain ideas about blushing, contouring and eye shadow practices

Course outcome

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

CO	CO statement	Knowledge
CO1	To initiate the steps for personal hygiene of customers	K2
CO2	To understand the usage of brushes on skin types of customers	K3
CO3	Importance of various types of make ups as per requirement from customers	K3
CO4	To signify the usage of less toxic cosmetic products	K5

SYLLABUS

List of Experiments to be carried out

(30 hours)

1. Awareness on products available and personal hygiene
2. Knowledge on Brush, Skin type and Skin tone
3. Make up knowledge- Contouring, Blusher and Eye shadow application
4. Day makes up
5. Different types of Eye makeup
6. Nude makeup or Corporate make up
7. Party make up
8. Night party make up
9. Festival makeup
10. Engagement make up

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Navneet	2017	ADVANCE MAKE-UP & HAIRSTYLE	Navneet Educations
2	<i>Morris, Rae</i>	2018	Makeup: The Ultimate Guide	Antique and collectors book

Pedagogy: Kinesthetic learning, Powerpoint Presentation, Videos, training on shadowing practice

Course Designers :

1. Dr.R.Subha, Assistant Professor, Department of Chemistry
2. Dr.S.Sowmya, Assistant Professor, Department of Commerce

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	BRIDAL MAKEOVER- ADVANCED LEVEL	Hours- 30
COURSE CODE: VAED03P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To enrich the students knowledge with application of cosmetics to eye shadow
- To create awareness on different styles of dresses with make up
- To gain ideas about blushing, contouring and eye shadow practices

Course outcome

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

CO	CO statement	Knowledge
CO1	To initiate the steps for personal hygiene of customers	K2
CO2	To understand the usage of brushes on skin types of customers	K3
CO3	Importance of various types of make ups as per requirement from customers	K3
CO4	To signify the usage of less toxic cosmetic products	K4

SYLLABUS**List of Experiments to be carried out****(30 hours)**

1. Theory of make ups and Foundations
2. Foundation application
3. Shadow application
4. Glitter application
5. Kajal and Liner application
6. Lipstick application
7. Practice in Eye makeup
8. Full bridal wears
9. Self makeup
10. Practice in Saree dupatta draping

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Navneet	2017	ADVANCE MAKE-UP & HAIRSTYLE	Navneet Educations

2	Morris, Rae	2018	Makeup: The Ultimate Guide	Antique and collectors book
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Pedagogy: Kinesthetic learning, Powerpoint Presentation, Videos, training on shadowing practice.

Course Designers :

1. Dr.R.Subha, Assistant Professor, Department of Chemistry
2. Dr.S.Sowmya, Assistant Professor, Department of Commerce

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	HAIR STYLING – FOUNDATION LEVEL	Hours- 30
COURSE CODE: VAED04P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To make students practice with the different hair styles
- To create awareness on the hair styles available in the market
- To understand the different style of hair cut

Course outcome

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

CO	CO statement	Knowledge
CO1	Examine the cutting style for the required customer	K2
CO2	Updation of cutting styles regularly	K3
CO3	Importance of various types of hair styles as per requirement from customers	K3
CO4	To signify the usage of less toxic colors to the hair	K5

SYLLABUS

List of Experiments to be carried out

(30 hours)

1. Understanding Hair textures
2. Hair Consultation
3. Product knowledge
4. Hair drying Practice
5. Hair sectioning
6. Welcro setting

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Abhy smith	2019	The Ultimate Hairstyle Handbook: With Over 40 Step-by-step	Imusti publishers
2	Steph	2017	The Ultimate Hairstyle Handbook: Everyday Hairstyles	Thistookmoney

Pedagogy: Kinesthetic learning, PowerPoint Presentation, Videos, training on shadowing practice,

Course Designers:

- 1.Dr.R.Subha, Assistant Professor, Department of Chemistry
2. Dr.S.Sowmya, Assistant Professor, Department of Commerce

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	HAIR STYLING ADVANCED LEVEL	Hours- 30
COURSE CODE: VAED05P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To make students practice with the different hair styles
- To create awareness on the hair styles available in the market
- To understand the different style of hair cuts

Course outcome

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

CO	CO statement	Knowledge
CO1	Examine the cutting style for the required customer	K2
CO2	Update the cutting styles regularly	K3
CO3	Importance of various types of hair styles as per requirement from customers	K3
CO4	To signify the usage of bridal ware to customer	K5

SYLLABUS**List of Experiments to be carried out****(30 hours)**

1. Incurls and Out curls
2. Straightening
3. Curls with Ironing and tings
4. Bridal buns
5. Hot rollers setting

6. Applying hair extensions
7. Vintage buns
8. Different types of Braiding

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Abhy smith	2019	The Ultimate Hairstyle Handbook: With Over 40 Step-by-step	Imusti publishers
2	Steph	2017	The Ultimate Hairstyle Handbook: Everyday Hairstyles	Thistookmoney

Pedagogy:

Auditory learning: Videos, E contents, Lecture, PowerPoint Presentation, Group Discussion

Kinesthetic learning: Hands on training in baking skills, Discussion with professional experts

Visual Learning: Demonstration, Displays, online / offline Industrial visit.

Course Designers:

1. Dr.R.Subha, Assistant Professor, Department of Chemistry
2. Dr.S.Sowmya, Assistant Professor, Department of Commerce

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	TAILORING BASIC LEVEL	Hours- 30
COURSE CODE: VAED06P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To create interest among the students in practicing basic tailoring skills
- To provide entrepreneurial support in imparting stitching skills
- To Master the use of sewing machine and take care of the machine.

Course outcome

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

CO	CO statement	Knowledge
CO1	Practice the basic skills required in tailoring	K2
CO2	Learn and apply the measurement skills using tape	K3
CO3	Learn and apply hand stitching skills	K3
CO4	Demonstrate fitting of sewing machine components	K4

SYLLABUS

List of Practices to be carried out

(30 hours)

1. Practice in using Scissors, pencil, inch tape, scale
2. Practice in taking measurements using tape - Sequencing of measurement.
3. Hand stitches- Hemming visible and invisible
4. Hand stitches-running stitch
5. Hand stitches-hook stitch
6. Hand stitches-button stitch & Eye stitch
7. Hand stitches- Button hole & Practice stitching a handkerchief
8. Hand stitches-Stitching of mask
9. Introduction to Sewing Machine- Operating machine
10. Introduction to Sewing Machine- Removing parts & practice in refixing
11. Adjusting the parts for proper functioning & Practice in cleaning and oiling

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Denier Franz	2016	A Complete Handbook of Tailoring and Shop Management on the Sectional	Paper back books
2	Alison smith	2021	The Dressmaking Book: Over 80 Techniques	Cloud Tail India

Web Links:

[cutting & tailoring-azmat-1-117.p65 \(usha.com\)](http://cutting & tailoring-azmat-1-117.p65 (usha.com))

Pedagogy: Kinesthetic learning, Videos, training on design practice, Demonstration, Hands on training with sewing machines

Course Designers:

1. Dr.S.Sowmya, Assistant Professor, Department of Commerce
2. Dr.R.Subha, Assistant Professor, Department of Chemistry

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	TAILORING-BLOUSE STITCHING	Hours- 30
COURSE CODE: VAED07P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To create interest among the students in practicing blouse stitching skills
- To promote self employability competencies through blouse stitching skills

Course outcome

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

CO	CO statement	Knowledge
CO1	Practice the blouse stitching skills	K2
CO2	Learn and apply the hand stitching skills to stitch a blouse	K3
CO3	Learn and apply machine stitching skills	K3

SYLLABUS

List of Practices to be carried out

(30 hours)

1. Sequencing the blouse fabric cuts
2. Practice Hand stitching- Seam stitching
3. Practice Hand stitching- Drafts & Tucks
4. Practice Hand stitching- Pleats
5. Practice Hand stitching -Buttons Hole
6. Practice Hand stitching- Buttons Hooks
7. Practice Hand stitching- double cloth stitching
8. Machine stitching practices

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Denier Franz	2016	A Complete Handbook of Tailoring and Shop Management on the Sectional	Paper back books
2	Alison smith	2021	The Dressmaking Book: Over 80 Techniques	Cloud Tail India

Pedagogy: Kinesthetic learning, Videos, training on design practice, Demonstrations, Hands on training with sewing machines and hand stitches.

Course Designers:

3. Dr.S.Sowmya, Assistant Professor, Department of Commerce
4. Dr.R.Subha, Assistant Professor, Department of Chemistry

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	ZARDHOSI DESIGNING LEVEL I	Hours- 30
COURSE CODE: VAED08	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To gain knowledge on basics of stitching
- To impart the various stitching patterns with knots.
- To enrich the work done for customer satisfaction

Course outcome

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

CO	CO statement	Knowledge
CO1	To learn about the importance of stitching in cumulative patterns	K2
CO2	To create awareness on various types of designs	K3
CO3	Design making with various types of knots	K3
CO4	Impendent of beads, zardoshi and silk thread on design	K5

SYLLABUS

UNIT I Basics of Aria Design

(6 Hrs)

Fix Aria iron stand –fix cloth in Aari frame-Arai basic chain stitch-Different shape using chain stitch-knot in Arai-stone chain stitch-bead work-Zig zag stitch

UNIT II Zig zag stitches

(6 Hrs)

Zig zag stitch-Load stitch-Buttonhole stitch-Double Button hole stitch-Leaf stitch I-Leaf stitch –II, Long and short stitch-wheat stitch, Back stitch and cross stitch.

UNIT III Bose stistches and its applications

(6 Hrs)

Bose stitch-Fish stitch-Stripped button stitch-Y stiutch-Fern Stitch-Water fillingt stitch-Feather stitch-Heering bone stitch

UNIT IV French Knots

(6 Hrs)

French Knot-Longfrench Knot- Ring Knot-Arrow Stitch-Load Filling Stitch In Flower-Sevron Stitch-Butterfly Stitch 1 And 2

UNIT V Pattern stitch

(6 Hrs)

Pattern stitch-Thamboor stitch-measure sleeve fro aari-measure back and front neck-mark measurement in blouse for aria work

TEXTBOOKS

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Charan Sita gupta	1996	Zardoshi-Glittering Gold Embroidery	Abhinav Publications
2	Carter Houk	2018	White work: techniques and 188 Designs	Trans infoprenuer

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

Course Designers

5. Dr.S.Sowmya, Assistant Professor, Department of Commerce
6. Dr.R.Subha, Assistant Professor, Department of Chemistry

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL

VALUE ADDED COURSE	MEHANDI- TRADITIONAL	Hours- 30
COURSE CODE: VAED09P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To create awareness on the usage of fresh mehandi leaves for designing
- To update the market available products regularly for practice
- To minimize the usage of toxic chemicals for healthy life

Course outcome

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

CO	CO statement	Knowledge
CO1	Proper time management for completion of the design	K2
CO2	Preparation of mehandi powder with less chemicals	K3
CO3	Knowledge to avoid the usage of expired products for personal care	K3
CO4	Enrichment of various designs as per customer satisfaction	K4

SYLLABUS

List of Practices to be carried out

(30 hours)

1. Preparation of Fresh Leaves
2. Drying process for Powder form
3. How to Use a Mehandi Cone For Perfect Application
4. How to Make Mehendi Cone Darker
5. Indian Mehandi Designs
6. Arabic Mehandi Designs - Types of Mehendi Designs

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Vinita Kalyani	2016	Mehandi: The Creativity	Paper back books
2	Henna shah	2019	Mehnadi design Textbook	Antique & Collectors book

Pedagogy: Kinesthetic learning, Videos, training on design practice,

Course Designers:

1. Dr. R. Subha, Assistant Professor, Department of Chemistry
2. Dr. S. Sowmya, Assistant Professor, Department of Commerce

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	MEHANDI – MODERN ART	Hours- 30
COURSE CODE: VAED10P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To create awareness on various types of mehandi for designing
- To update the market available products regularly for practice
- To minimize the usage of toxic chemicals for healthy life

Course outcome

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

CO	CO statement	Knowledge
CO1	Proper time management for completion of the design	K2
CO2	Imparting and selection of design as per customer requirement	K3
CO3	Knowledge to avoid the usage of expired products for personal care	K3
CO4	Enrichment of various designs as per customer satisfaction	K4

SYLLABUS

List of Practices to be carried out

(30 hours)

1. Indo- Arabic Mehandi Designs
2. Pakistan Mehndi Design
3. Western Mehandi Designs - Types of Mehandi Designs
- 4. Indo Western Mehndi Design**
- 5. Moroccan Mehndi Designs**
6. Full bridal mehandi

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Vinita Kalyani	2016	Mehandi: The Creativity	Paper back books
2	Henna shah	2019	Mehnadi design Textbook	Antique & Collectors book

Pedagogy: Kinesthetic learning, Videos, training on design practice.

Course Designers:

1. Dr.R. Subha, Assistant Professor, Department of Chemistry
2. Dr.S.Sowmya, Assistant Professor, Department of Commerce

VALUE ADDED COURSE
ENTREPRENEURSHIP DEVELOPMENT CELL

VALUE ADDED COURSE	BAKING SKILLS - BREAD MAKING - I	Hours- 30
COURSE CODE: VAED11	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To enhance the knowledge on basic baking practices
- To promote extensive knowledge in bread making practices

Course outcome

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

CO	CO statement	Knowledge
CO1	Learn the basic terms, process with different flours	K2
CO2	Identify the methods of handling the baking oven	K3
CO3	Identify the usage of raw materials in bread making	K3

SYLLABUS (30 hours)

Unit I Introduction to basics

Introduction to baking skills- scope of bakery and confectionary, Bakery Terms, Organisation chart of bakery, Measurement basics in baking

Unit II Wheat and Flour

Different types of flours, Constituents of flour, PH value of flour, Water absorption power, Impact of Gluten, Grades of flour.

Unit III Basics of Yeast

elementary knowledge of yeast, fermentation role of the yeast, Effects of over and under fermentation, underproofing of dough and other fermented goods.

Unit IV Raw material for Bread making

Role of water, flour, yeast and salt, sugar, milk and fats, Bread improvers - improving physical quality

Unit V Oven and Baking

Knowledge of various types of oven, impact of different baking temperatures for breads and confectionaries

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	<i>Bretherton, Caroline</i>	2015	Step-By-Step Baking	Buttaba Books
2	Cauvain Stanley	2018	Baking Technology and Nutrition	Paper books

Weblinks

013524014X.pdf(Pearsonhighered.com)

01 Bakery student Manual-Cover page(CBSEACADEMIC. Nic in)

Baking 3.pdf(lcmrschooldistrict.com)

Pedagogy

Auditory learning: Videos, E contents, Lecture, PowerPoint Presentation, Group Discussion

Kinesthetic learning: Hands on training in baking skills, Discussion with professional experts

Visual Learning: Demonstration, Displays, online / offline Industrial visit.

Course Designers :

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

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

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	BAKING SKILLS - BREAD MAKING - II	Hours- 30
COURSE CODE: VAED12P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To enhance the knowledge on basic baking practices
- To make students equip with bread making skills
- To promote quality products through entrepreneurial skills

Course outcome

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

CO	CO statement	Knowledge
CO1	Practice the basic terms, process with different flours	K2
CO2	Learn the methods of handling the baking oven	K3
CO3	Regular practice on usage of raw materials	K4
CO4	Apply the practice to make different types of bread	K5

SYLLABUS

List of experiments to be carried out

1. Identification and uses of baking equipments
2. Scaling of measurements
3. Application of required materials
4. Mixing methods
5. Kneading strokes
6. Fermentation process
7. Different modes of temperature settings
8. Bread making recipes- Milk bread
9. Bread making recipes- Salt bread
10. Bread making recipes- masala bread
11. Bread making recipes- Wheat bread
12. Bread making recipes- burger buns
13. Bread making recipes- pizza base

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
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1	<i>Bretherton, Caroline</i>	2015	Step-By-Step Baking	Buttaba Books
2	Cauvain Stanley	2018	Baking Technology and Nutrition	Paper books

Web Links:

[013524014X.pdf \(pearsonhighered.com\)](#)

[01 Bakery Student Manual - Cover Page \(cbseacademic.nic.in\)](#)

[baking3.pdf \(lcmrschooldistrict.com\)](#)

Pedagogy:

Auditory learning: Videos, E contents, Lecture, PowerPoint Presentation, Group Discussion

Kinesthetic learning: Hands on training in baking skills, Discussion with professional experts

Visual Learning: Demonstration, Displays, online / offline Industrial visit.

Course Designers:

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

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

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	CAKE DECORATION SKILL - I	Hours- 30
COURSE CODE: VAED13	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To enhance the knowledge on basic cake decorating skills
- To make students equip with icing methods and practices
- To promote quality products through entrepreneurial skills

Course outcome

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

CO	CO statement	Knowledge
CO1	Practice the basic terms, process with different methods of icing	K2
CO2	Learn the methods of handling the decorating accessories	K3
CO3	Regular practice on usage of raw materials	K4

SYLLABUS

List of experiments to be carried out

Unit I: Essentials of cake decoration

6Hrs

Introduction, Kinds of decorating accessories, Types of nozzles, Icing Consistency, Correct Bag Position, 90 degree angle, 45 degree angle and clock position, Pressure Control techniques

Unit II: Icing consistency

6Hrs

Thin consistency, Thick Consistency, medium consistency

Unit III: Nozzle design techniques

6Hrs

Kinds of decorating techniques with types of nozzles

Unit IV: Icing Bag preparation

6Hrs

Methods of making a piping bag, Assembling and Techniques in bag filling, types of piping bags

Unit V: Types of Icing Techniques

6Hrs

Icing types- buttercream, royal, fondant, whipped cream, methods of preparation, application of decorating techniques

Reference Books

[013524014X.pdf \(pearsonhighered.com\)](#)

[01 Bakery Student Manual - Cover Page \(cbseacademic.nic.in\)](#)

[baking3.pdf \(lcmrschooldistrict.com\)](#)

<https://www.decora.it/cataloghiflash/Brochure-Decora-2017-Decorazioni-al-Cornetto-Piping-Deco/Brochure-Decora-2017-Piping-Dec>

[Microsoft Word - ChristianJolene_CakeDecoratingBasics.doc \(uen.org\)](#)

[Beginners Class in Cake Making and Decoration - NAOSAM Delightful Cakes and Events](#)

Pedagogy:

Auditory learning: Videos, E contents, Lecture, PowerPoint Presentation, Group Discussion

Kinesthetic learning: Hands on training in baking skills, Discussion with professional experts

Visual Learning: Demonstration, Displays, online / offline Industrial visit.

Course Designers:

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

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

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	BRIDAL FLOWER MAKING	Hours- 30
COURSE CODE: VAED14P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To enhance the knowledge on basic flower decorations skills
- To make students equip with creative skills

Course outcome

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

CO	CO statement	Knowledge
CO1	Practice the basic terms, process with different methods of flower designing	K2
CO2	Learn the methods of handling the decorating accessories	K3
CO3	Regular practice on usage of raw materials	K4

SYLLABUS

List of experiments to be carried out

1. Identification of color combinations
2. Methods of flower patterns-Natural flowers
3. Methods of flower patterns-Artificial flowers

4. Methods of mixing different types of flower combinations
5. Combination of Natural flowers with artificial flowers
6. Simple decorative methods with paper flowers
7. Simple bridal decorations with Natural and Artificial flowers

Reference Books

[013524014X.pdf \(pearsonhighered.com\)](#)

[01 Bakery Student Manual - Cover Page \(cbseacademic.nic.in\)](#)

[baking3.pdf \(lcmrschooldistrict.com\)](#)

<https://www.decora.it/cataloghi/flash/Brochure-Decora-2017-Decorazioni-al-Cornetto-Piping-Deco/Brochure-Decora-2017-Piping-Dec>

[Microsoft Word - ChristianJolene_CakeDecoratingBasics.doc \(uen.org\)](#)

[Beginners Class in Cake Making and Decoration - NAOSAM Delightful Cakes and Events](#)

Pedagogy:

Auditory learning: Videos, E contents, Lecture, PowerPoint Presentation, Group Discussion

Kinesthetic learning: Hands on training in baking skills, Discussion with professional experts

Visual Learning: Demonstration, Displays, online / offline Industrial visit.

Course Designers:

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

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

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	CAKE DECORATION SKILL - II	Hours- 30
COURSE CODE: VAED15P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To enhance the knowledge on basic cake decorating skills
- To make students equip with icing methods and practices
- To promote quality products through entrepreneurial skills

Course outcome

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

CO	CO statement	Knowledge
CO1	Practice the basic terms, process with different methods of icing	K2
CO2	Learn the methods of handling the decorating accessories	K3
CO3	Apply the techniques and create designs	K4

SYLLABUS

List of experiments to be carried out

(30Hrs)

- Identification of decorating accessories
- Preparation of different types of icing:
 - Butter cream
 - Whipped cream

- Royal icing
- Icing syrup
- Levelling of the cake
- Frosting and combining
- Bag positioning
- Pressure control
- Icing Techniques
 - Star design
 - Rosette
 - Zig- Zag using star tip
 - Leaf design
 - Writing skill
 - Decorating a cup cake

Reference Books

[013524014X.pdf \(pearsonhighered.com\)](#)

[01 Bakery Student Manual - Cover Page \(cbseacademic.nic.in\)](#)

[baking3.pdf \(lcmrschooldistrict.com\)](#)

<https://www.decora.it/cataloghi/flash/Brochure-Decora-2017-Decorazioni-al-Cornetto-Piping-Deco/Brochure-Decora-2017-Piping-Dec>

[Microsoft Word - ChristianJolene_CakeDecoratingBasics.doc \(uen.org\)](#)

[Beginners Class in Cake Making and Decoration - NAOSAM Delightful Cakes and Events](#)

Pedagogy:

Auditory learning: Videos, E contents, Lecture, PowerPoint Presentation, Group Discussion

Kinesthetic learning: Hands on training in cake decorating skills, Discussion with professional experts

Visual Learning: Demonstration, Displays, online / offline Industrial visit.

Course Designers:

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

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

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	PASTRY SKILL SETS	Hours- 30
COURSE CODE: VAED16P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To enhance the knowledge on basic pastry dough making
- To make students equip with pastry making skills
- To promote quality products through entrepreneurial skills

Course outcome

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

CO	CO statement	Knowledge
CO1	Practice the	K2
CO2	Learn the methods of handling the baking oven	K3

CO3	Regular practice on usage of raw materials	K4
CO4	Apply the practice to make different types of pastries-savouries/confectionaries	K5

SYLLABUS

List of experiments to be carried out

30Hrs

1. Basic Pastry Dough making
2. Basic Pie Dough
3. Preparing Pies and Tarts
4. Lining a Pie Plate or Tart Mold
5. Fillings for Pies and Tarts
6. Topping Pies and Tarts
7. Baking Pies and Tarts
8. Roll-in Doughs
9. Puff Pastry - Rolling, Folding and Shaping the Finished Dough, Fillings for Pastries

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	<i>Bretherton, Caroline</i>	2015	Step-By-Step Baking	Buttaba Books
2	Cauvain Stanley	2018	Baking Technology and Nutrition	Paper books

Web Links:

[013524014X.pdf \(pearsonhighered.com\)](https://www.pearsonhighered.com)

[01 Bakery Student Manual - Cover Page \(cbseacademic.nic.in\)](https://www.cbseacademic.nic.in)

[baking3.pdf \(lcmrschooldistrict.com\)](https://www.lcmrschooldistrict.com)

Pedagogy:

Auditory learning: Videos, E contents, Lecture, PowerPoint Presentation, Group Discussion

Kinesthetic learning: Hands on training in pastry baking skills, Discussion with professional experts

Visual Learning: Demonstration, Displays, online / offline Industrial visit.

Course Designers:

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

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

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	SELF GROOMING	Hours- 30
COURSE CODE: VAED17P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

Objectives

- ✓ [Personal grooming](#) is important in today's era as it makes one feel more confident in his corporate, day-to-day, and traditional approach.

- ✓ The certificate course in Self grooming is designed to hone the skills needed to understand and appreciate the appropriate style of self-presentation.
- ✓ This program is aimed to train the students to practice self-grooming skills and develop their personality

Course outcome

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

CO	CO statement	Knowledge
CO1	Identify personality traits	K2
CO2	Explore their individual styles whilst understanding the importance of making a flawless first impression on any occasion.	K3
CO3	Perform self-defensive skill techniques	K3
CO4	Will gain improved self-confidence which is an essential life skill for future success.	K5

SYLLABUS

List of experiments to be carried out

1. Self-evaluation with self-image projection worksheet
2. Confidence check
3. Body language evaluation
4. Introspection
5. Image - Personal projection
6. Routine body fitness practices
7. Basic yoga practices
8. Standing and sitting postures
9. Fitness of mind – Mind fitness physical exercises

10. Corporate Look

11. Self-Hair styling

12. Self-Cleanup.

13. Self-Waxing

14. Self-Manicure and Pedicure.
15. Self-defence - Hammer strike, Groin kick, Heel palm strike, Elbow strike, Alternative elbow strikes, escape from a 'bear hug attack Safety precautionary tips.

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Seema Gupta	2014	A Woman's Guide To Personality Development: An Effective Self-Grooming Guide for Woman	V&S Publishers; Latest Revised Edition (1 January 2014)
2	Hudson Kathleen	1977	Every Woman's Guide To Self Defence	Coins

Pedagogy:

Power point, worksheets/ role play, Confidence check – role play, Body language evaluation -role play

Reference:

[87 Self-Reflection Questions for Introspection \[+Exercises\] \(positivepsychology.com\)](https://www.positivepsychology.com/87-self-reflection-questions-for-introspection-exercises/)
[8 Self-Defense Moves Every Woman Should Practice \(healthline.com\)](https://www.healthline.com/8-self-defense-moves-every-woman-should-practice/)

Course Designers:

Dr.S.Sowmya, Assistant Professor, Department of Commerce
 Dr.R.Subha, Assistant Professor, Department of Chemistry

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	SILK THREAD JEWELLERY	Hours- 30
COURSE CODE: VAED18P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To create awareness on production of silk thread products
- To impart creativity on jewellery items

Course outcome

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

CO	CO statement	Knowledge
CO1	Learning of Silk thread leads to entrepreneurial skills	K2
CO2	Updation of products available in the market	K3
CO3	Implantation of creative designs develops entrepreneurial competencies	K3

SYLLABUS

List of Practices to be carried out

(30 hours)

1. Material Handling
2. Rapping Techniques
3. Designing Techniques
4. Assembly Process
5. Maintenance of Jewellery
6. Marketing Tips
7. Client Handling techniques
8. Customization

Reference web links

https://www.youtube.com/watch?v=SBJ1-F1GY_8
<https://www.youtube.com/watch?v=QfsfbCWkk4>
<https://www.youtube.com/watch?v=8UWPW-f43OA>

Pedagogy: Kinesthetic learning, Videos, training on design practice,
Course Designers :

1. Dr. R. Subha, Assistant Professor, Department of Chemistry
 2. Dr. S. Sowmya, Assistant Professor, Department of Commerce

**VALUE ADDED COURSE
 ENTREPRENEURSHIP DEVELOPMENT CELL**

VALUE ADDED COURSE	PEDICURE	Hours- 30
COURSE CODE: VAED19P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To create awareness on the cleanliness of your nails for healthy life
- To impart the knowledge on the available method for clean up
- To minimize the pains caused for adults from comfortable walk

Course outcome

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

CO	CO statement	Knowledge
CO1	Personal care of the nail for cleaning should be maintained	K2
CO2	Updation of products available in the market	K3
CO3	Knowledge to avoid the usage of expired products for personal care	K3
CO4	To minimize the usage of toxic chemicals for health care	K4

SYLLABUS

List of Practices to be carried out

(30 hours)

1. Arrangement of Materials
2. Prepare Toes and remove any existing nail polish from nails.
3. Soak and find a relaxing place to work
4. Rubbing process to dry your feet with that big plush bath towel.
5. Exfoliate the work
6. Rinsing process with water
7. Painting of Piggies
8. Completion of the work

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Elaine Almond	2018	Manicure, Pedicure And Advanced Nail Techniques	Shiny Owl books

2	Milady	2019	Milady's Art And Science Of Nail Technology	Antique & Collectors book
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Pedagogy: Kinesthetic learning, Videos, training on design practice,

Course Designers :

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

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

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	MANICURE	Hours- 30
COURSE CODE: VAED20P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To create awareness on the cleanliness of your nails for healthy life
- To impart the knowledge on the available method for clean up
- To enhance various styles of nail growth for designing process

Course outcome

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

CO	CO statement	Knowledge
CO1	Personal care of the nail for cleaning should be maintained	K2
CO2	Updation of products available in the market	K3
CO3	Knowledge to avoid the usage of expired products for personal care	K3
CO4	To minimize the usage of toxic chemicals for health care	K4

SYLLABUS

List of Practices to be carried out

(30 hours)

1. Clean your nails with polish remover.
2. Clip, file, and buff.
3. Push back your cuticles.
4. Exfoliate your hands.
5. Moisturize your hands and cuticles.
6. Apply a base coat.
7. Apply your first coat of color.

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name

1	Elaine Almond	2018	Manicure, Pedicure And Advanced Nail Techniques	Shiny Owl books
2	Milady	2019	Milady's Art And Science Of Nail Technology	Antique & Collectors book

Pedagogy: Kinesthetic learning, Videos, training on design practice,

Course Designers:

1. Dr. R. Subha, Assistant Professor, Department of Chemistry
2. Dr. S. Sowmya, Assistant Professor, Department of Commerce

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	NAIL ART	Hours- 30
COURSE CODE: VAED21P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To gain knowledge on the methods of removing the design from nails
- To create awareness on the types of designed nail art available in the market
- To impart the knowledge on refilling of nails

Course outcome

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

CO	CO statement	Knowledge
CO1	Personal care of the nail for designing should be maintained	K2
CO2	Updation of refilling and removal techniques of nail art regularly	K3
CO3	Importance of various designs of nail art as per requirement from customers	K3
CO4	To maintain less toxic chemicals for designing as well as personal care	K4

SYLLABUS

List of Experiments to be carried out

(30 hours)

1. Basic knowledge of nails
2. Shape of Nails
3. Product knowledge
4. Pre and Post care
5. Gel extension
6. Acrylic extension
7. Gel applications
8. Chrome nail art
9. Glitter art

10. Stamping Art Foil effect
11. Sticker art
12. Refilling knowledge
13. Removal techniques

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Catherine Rodgers	2017	DIY Nail Art: Easy, Step-by-Step Instructions for 75 Creative Nail Art Designs	Paper back books
2	Larit Levy	2014	Spectacular Nail Art: A Step-by-Step Guide to 35 Gorgeous Designs	Self help books

Pedagogy: Kinesthetic learning, Powerpoint Presentation, Videos, training on design practice,

Course Designers :

1. Dr. R. Subha, Assistant Professor, Department of Chemistry
2. Dr. S. Sowmya, Assistant Professor, Department of Commerce

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	TAILORING-CUTTING SKILL	Hours- 30
COURSE CODE: VAED22P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To create interest among the students in practicing fabric cutting skills
- To promote self employability competencies through fabric cutting skills

Course outcome

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

CO	CO statement	Knowledge
CO1	Practice the basic paper patterns, designing and cutting	K2
CO2	Learn and apply the cutting skills in different patterns	K3
CO3	Learn and apply blouse cutting skills	K3

SYLLABUS

List of Practices to be carried out

(30 hours)

1. Paper drawing
2. Marking with different measurement
3. Drafting, paper pattern making
4. Practice cutting with paper
5. Cutting the cloth as per marking, leaving margin for inlays and turnings.
6. Cutting of Pillow cover

7. Blouse cutting- Back
8. Blouse cutting- Hand
9. Blouse cutting- Front
10. Blouse cutting- Dart point
11. Blouse cutting- Patti

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Denier Franz	2016	A Complete Handbook of Tailoring and Shop Management on the Sectional	Paper back books
2	Alison smith	2021	The Dressmaking Book: Over 80 Techniques	Cloud Tail India

Pedagogy: Kinesthetic learning, Videos, training on design practice, Demonstration and Hands on training

Course Designers :

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

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

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL

VALUE ADDED COURSE	INDIAN SNACK MAKING	Hours- 30
COURSE CODE: VAED23P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To enhance the knowledge on basic Indian snack making skills
- To make students equip with Indian snack recipes
- To promote quality products through entrepreneurial skills

Course outcome

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

CO	CO statement	Knowledge
CO1	Enrichment with knowledge and techniques in Indian snack making skill	K2
CO2	To gain knowledge in usage of traditional snack recipes of different regions	K3
CO4	Examine and innovate healthy Indian snacks	K3

CO5	Apply the concepts and prepare the snack recipes	K4
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List of experiments to be carried out

1. Innovative practices in snack making
2. Healthy snack recipes – millet savouries and sweets
3. Festival influence on Indian snacks
4. Snack recipes of western India
5. Snack recipes of Eastern India
6. Snack recipes of Northern India
7. Snack recipes of Southern India
8. Packaged food processing system
9. Convenient food

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	<i>Dr. Himadri. Panda</i>	2013	The complete technology book on snack foods	NIIR project consultancy services
2	Kumar Sonali	2010	he Ultimate Guide to Preparing Snacks the Indian Way	Independently Published

Web Links

[Traditional Snack and Savoury Maker PH, PG, TG and FG - Course \(ficsi.in\)](http://ficsi.in)

[Snacks Recipes By Master Chef Sanjeev Kapoo \(sanjeevkapoor.com\)](http://sanjeevkapoor.com)

[Super Indian Snack and Street food recipes \[PDF\] \(pdfroom.com\)](http://pdfroom.com)

Pedagogy:

Auditory learning: Videos, E contents, Lecture, PowerPoint Presentation, Group Discussion

Kinesthetic learning: Hands on training in snack making skills, Discussion with professional experts

Visual Learning: Demonstration, Displays, online / offline Industrial visit.

Course Designers:

7. Dr.S.Sowmya, Assistant Professor, Department of Commerce
8. Dr.R.Subha, Assistant Professor, Department of Chemistry

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	KITCHEN SKILLS	Hours- 30
COURSE CODE: VAED24P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

This program is aimed to train the students to practice their culinary skills and become more comfortable and proficient using the knife and also develop entrepreneurial competencies in culinary skills.

Course outcome

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

CO	CO statement	Knowledge
CO1	Understand how to manage the kitchen environment	K2
CO2	Learn how to select a knife and knife set	K3
CO3	Become comfortable in cutting with a chef's knife with proper safety measures	K3
CO4	Confidently execute a number of different types of cuts	K4

SYLLABUS

List of experiments to be carried out

(30 Hrs)

Dining Table setting

Identification of basics knife types

Sharpening of knife

Knife cuts:

- Chiffonade
- Mince, Slice
- Supreme, Dice
- Rondelle, Diagonal
- Oblique
- Paysanne, Batonnet,
- Julienne, Brunoise

Basics in napkin folding

French pleat, The Bowtie Napkin Fold

The Standing Fan

The Pinwheel Napkin

The Heart Napkin Fold

The Single Pocket Fold

Rose fold, The Napkin Pouch

References:

Catering Science & Food Safety, Sumitra Deshmukh & Dr. Asmita Thakur

Food Hygiene & Sanitation, Rodey S, Tata Mcgraw Hill

Food Hygiene for Food, Trickett, Jill, Macmillan Handlers

Napkin Folding – James Ginders (Harmony Books)

The Practical Guide to Napkins & Napkin Folding – Rick Beech – Hermes House

[Basic Knife Skills PDF \(sunriseproduce.com\)](#)

Pedagogy:

Auditory learning: Videos, E contents, Lecture, PowerPoint Presentation, Group Discussion

Kinesthetic learning: Hands on training in knife skills and napkin folds

Visual Learning: Demonstration, Displays.

Course Designers

1. Dr. R. Subha

2. Dr. S. Sowmya

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL

VALUE ADDED COURSE	HERBAL SANITARY NAPKIN	Hours- 30
COURSE CODE: VAED25P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To minimize the sanitary waste generated in society
- To create awareness on ecofriendly sanitary napkins

Course outcome

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

CO	CO statement	Knowledge
CO1	To resolve the solid waste management problem	K2
CO2	To make reusable sanitary napkins	K3
CO3	Demonstration of making of napkins using sufficient raw material	K3
CO4	After proper validation, market survey of the products for commercial purpose	K4

SYLLABUS

List of experiments to be carried out

1. Preparation of Raw materials for Napkin Making
2. Assembly of sewing machine for cutting and Stitching
3. Making of outer body of the napkin
4. Cutting of wings in the flannel for napkin
5. Mixing of raw materials in appropriate proportion
6. Layer by Layer filling of raw material in cotton
7. Stitching of napkin and Proper Packing process

References

[Training manual_SNE.pdf \(sujal-swachhsangraha.gov.in\)](#)

Pedagogy: Visual learning, Powerpoint Presentation, Videos, OHP Presentation, Seminar, Group Discussion, training on product formation, Assignment and Quiz.

Course Designers :

1. Dr.R.Subha, Assistant Professor, Department of Chemistry
2. Dr.S.Sowmya, Assistant Professor, Department of Commerce

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	DIY CRAFTS	Hours- 30
COURSE CODE: VAED26P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To make crafts by reusing or recycling items that may have affected the environment
- To make effective decisions by facing and solving artistic challenges
- To promote quality products through entrepreneurial skills

Course outcome

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

CO	CO statement	Knowledge
CO1	Understanding the benefits of true technology by making crafts	K2
CO2	It improves their coordination and fine motor skills	K3
CO3	Makes the students more creative and productive	K4
CO4	Inspiration of entrepreneurial critical thinking skills	K4

SYLLABUS

List of experiments to be carried out

(30Hrs)

1. Wealth out of waste
2. Creative inputs
3. Craft cutting
4. Observational Invention and outputs
5. Incorporating Innovation
6. Formation of Art
7. Balancing forms

Web Links:

<https://youtu.be/rvab5GEoSPM>
<https://youtu.be/q1-NkPg-vMg>
<https://youtu.be/LAyUTHTBdxw>
<https://youtu.be/lxZL5fEZOEs>
<https://youtu.be/NjuDsQbu8DM>

Pedagogy:

Auditory learning: Videos, E contents, Lecture, PowerPoint Presentation, Group Discussion

Kinesthetic learning: Hands on training in DIY Crafts, Discussion with professional experts

Visual Learning: Demonstration, Displays.

Course Designers:

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

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

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	ZARDHOSI DESIGNING LEVEL II	Hours- 30
COURSE CODE: VAED27P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To gain knowledge on various types of aari work
- To impart the basic learnt in aari work applications
- To enrich the work done for customer satisfaction

Course outcome

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

CO	CO statement	Knowledge
CO1	To learn about the importance of stitching with silk thread and beads	K2
CO2	To create awareness on various types of designs	K3
CO3	Design making with various types of knots	K3
CO4	Impendent of beads, zardoshi and silk thread on design	K5

SYLLABUS

1. How to cut zardhoshi
2. How to stitch zardhoshi for beginners
3. 3.How to stitch Laisy daisy with zardhoshi
4. How to embossed load stitch with silk thread, Bead zardhosi
5. How to make knot with normal needle in aari work (zardhosi and beads stitching with normal needle)
6. How to stitch French knot, ring knot, long French knot using zardhosi
7. How to make embossing or padding
8. How to stitch filling with beads, zardhosi, French knot
9. How to fill peacock feathers using three types of stitches-
10. Embasement of load stitch for U neck and PA neck
11. Embossment of load stitch with double colour thread, double line zardhosi and double line beads
12. Kundan Stone work –Outline with zari, thread and zardhosi
13. How to do cut work and patch work
14. Design making using mirror and coin
15. How to do mat filling using silk thread and zardhosi

TEXTBOOKS

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Charan Sita gupta	1996	Zardoshi-Glittering Gold Embroidery	Abhinav Publications
2	Carter Houk	2018	White work: techniques and 188 Designs	Trans infopreneur

‘Pedagogy: Virtual learning, Lecture, PowerPoint Presentation, Videos, Demonstration

Course Designers

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

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

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	ARDUINO CODING BASICS	Hours- 30
COURSE CODE: VAED28	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

This program focuses on importance of IOT and AI in day-to-day life style changes and knowledge sharing of Arduino resolves in technology growth.

Course outcome

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

CO	CO statement	Knowledge
CO1	Enrichment with new innovations in IOT applications	K2
CO2	To gain knowledge in usage of LED, Buzzer and RGP-LED	K3
CO3	Generation of Ideas related to IOT and AI	K3
CO4	Examine and validate the ideas for startup ecosystem	K4

SYLLABUS

UNIT I Light Emitting Diode

(6 Hrs)

Definition, need for LED in the market, Types of LED, Methods of preparations and its applications

UNIT II Buzzer

(6 Hrs)

Definition, scope for Buzzer in the market, classification of Buzzers, development process and its applications

UNIT III RGP LED

(6 Hrs)

Importance of RGP LED, definition, types and methods, colour development process and its applications.

UNIT IV IR Sensor

(6 Hrs)

IR radiation, Range of IR, principle and its working, applications in sensor areas

UNIT V Transmitter and modulation

(6 Hrs)

Transmitter and its types, methods, significance in IOT and AI, modulation of all assembled system in coding pattern

TEXTBOOKS

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
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1	James Arthur	2019	Arduino: Complete guide for Beginners	Repro Books
2	Cummings Johny	2019	Arduino for Beginners	Paper book

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Massimo Banzi	2014	Making Getting started with Arduino	Shroff Publishers
2	Amit Kermar Mishra et al	2021	Arduinio Fundmanetals and its applications	BFC publishers

Pedagogy: Visual learning, Powerpoint Presentation, Videos, OHP Presentation, Seminar, Group Discussion, training on product formation, Assignment and Quiz.

Course Designers :

1. Dr.R.Subha, Assistant Professor, Department of Chemistry
2. Dr.S.Sowmya, Assistant Professor, Department of Commerce

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	PICKLE MAKING	Hours- 30
COURSE CODE: VAED29P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To create awareness among the students the methodology involved in pickle making
- To validate the prepared pickles by standard methods
- To gain knowledge on storage and packing of the product.

Course outcome

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

CO	CO statement	Knowledge
CO1	To prepare and maintain work area and process machineries for pickle making,	K2
CO2	To execute the preparation for pickle making	K3
CO3	Complete documentation and record keeping related to pickle making	K3
CO4	To analyze and apply food safety and hygiene standards related to pickle making.	K5

SYLLABUS

List of Experiments to be carried out

(30 hours)

1. Preparation of general raw materials
2. Preparation of Mango pickle
3. Production of Mixed vegetable pickle (sweet)
4. Processing of Lime Pickle and Anola Pickle
5. Estimation of Oil content in pickle
6. Preparation of Jack fruit Pickle
7. Production of Avocado Pickle
8. Preparation of Tint and Lasora pickle
9. Production of Traditional Pickles –Garlic and Tomato
10. Preparation of Adamant creeper Pickle
11. Production of Goose berry pickle
12. Preparation of Citron pickle

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Trace elements	2018	Handmade pickles &preservatives	Pavillion books
2	Usha R Prabhakaran	1998	Usha's Pickle digest-the perfect pickle receipe book	Peeble Green Publications

Pedagogy: Kinesthetic learning, Powerpoint Presentation, Videos, OHP Presentation, Seminar, Group Discussion, training on product formation, Assignment and Quiz.

Course Designers :

- 1.Dr.R.Subha, Assistant Professor, Department of Chemistry
2. Dr.S.Sowmya, Assistant Professor, Department of Commerce

VALUE ADDED COURSE

ENTREPRENEURSHIP DEVELOPMENT CELL		
VALUE ADDED COURSE	JAM MAKING	Hours- 30
COURSE CODE: VAED30P	OFFERED TO STUDENTS OF ALL DEPARTMENTS	DATE OF INTRODUCTION 05.10.2021

OBJECTIVES

- To create awareness among the students the methodology involved in jam making
- To validate the prepared jams by standard methods
- To gain knowledge on storage and packing of the product.

Course outcome

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

CO	CO statement	Knowledge
CO1	To prepare and maintain work area and process machineries for jam making,	K2
CO2	To execute the preparation for jam making	K3

CO3	Complete documentation and record keeping related to jam making	K3
CO4	To analyze and apply food safety and hygiene standards related to jam making.	K5

SYLLABUS

List of Experiments to be carried out

(30 hours)

1. Preparation of general raw materials
2. Preparation of sugar syrup with consistent level
3. Preparation of Mixed fruit jam
4. Production of mango jam
5. Preparation of apple jam
6. Production of lemon jam
7. Preparation of Pineapple jam
8. Production of Orange and Ginger jam
9. Preparation of carrot jam

Reference Books

S.NO	Author Name	Year of Publication	Title of the book	Publishers Name
1	Jennifer Merrill	2016	Homemade Jam cook book: A Great selection of Delicious Homemade jams recipes	Grub Street publishers
2	Hilaine Walden	2017	Sensational Preserves: 250 recipes for making and using preserves	Leura Books

Pedagogy: Kinesthetic learning, PowerPoint Presentation, Videos, OHP Presentation, Seminar, Group Discussion, training on product formation, Assignment and Quiz.

Course Designers:

1. Dr.R.Subha, Assistant Professor, Department of Chemistry
2. Dr.S.Sowmya, Assistant Professor, Department of Commerce

Cauvery College for Women (Autonomous), Tiruchirappalli – 620018		
Value Added Course	Introduction to Job oriented Competitive Examinations	40 Hours
Course Code : VAPS01	Offered to students of all Programmes	Course Introduction date 09.10.2021

Objectives :

- To create awareness and enthusiasm about Job oriented Competitive Examinations
- To give insights of Job oriented Competitive Examinations
- To provide the basic knowledge of necessary Pre- Examination preparations
- To acquire the knowledge of collecting Current Affairs

Course Outcomes :

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

CO No.	CO Statement	Knowledge Level
CO1	Understand the basics of Job oriented Competitive Examinations	K1
CO2	Explain the syllabus structure of Job oriented Competitive Examinations	K2
CO3	Classify various types of Job oriented Competitive Examinations	K3
CO4	Apply the guidelines to collect the current affairs	K3

Unit I : (6 Hours)

Competitive Examinations - Importance - Types - Job oriented Competitive Examinations - levels

Staff Selection Commission - History - Functions - Examinations - CGL - CHSL - GD - CPO - MTS - Stenographer - FCI - Eligibility - Syllabus Orientation - Question Paper Pattern

Unit II : (6 Hours)

Union Public Service Commission - History - Functions - Examinations - Eligibility
Civil Service Examinations - Syllabus orientation - Preliminary Examination - Main Examination - Interview - Guidelines to choose Optional Subject - Question Paper Pattern

Unit III : (6 Hours)

Railway Recruitment Board - Functions - Examinations - NTPC - Group D - Eligibility - Syllabus Orientation - Question Paper Pattern

ISRO Examination - Defence Examinations - Postal Examinations - Court Recruitment - TNEB Recruitment - Eligibility - Syllabus Orientation - Question Paper Pattern

Unit IV : (6 Hours)

Bank Requirement Exams - IBPS Exams - SBI Exams - NABARD Exam - RBI Exams - Private Bank Exams - Eligibility - Syllabus Orientation - Question Paper Pattern

Life Insurance Companies Exams - Eligibility - Syllabus Orientation - Question Paper Pattern

Unit V : (10 Hours)

Structure of Tamilnadu Public Service Commission - History - Functions - Group Examinations - Eligibility - Syllabus orientation - Question Paper Pattern

Unit VI : (6 Hours)

Guidelines to collect Current Affairs - Daily Submission of Current Affairs

Books for Reference :

S.No	Author	Book	Publisher	Year
1	Nishant Jain IAS	All about UPSC Civil Services Exam	Prabhat Prakashan Publications, NewDelhi	Jan 2017
2	M.S.Narayan	How to prepare UPSC Examination	Notion Press, Chennai.	July 2020

Reference Links :

<https://ssc.nic.in/>

<https://upsc.gov.in/>

<http://www.rrbcdg.gov.in/>
<https://www.isro.gov.in/careers>
<http://defenceexam.com/>
<https://www.indiapost.gov.in/VAS/Pages/Content/Recruitments.aspx?Category=Recruitment>
<https://www.tangedco.gov.in/>
<https://ibps.in/>
<https://sbi.co.in/web/careers>
<https://www.nabard.org/careers-notices1.aspx?cid=693&id=26>
<https://www.rbi.org.in/>
<https://licindia.in/Bottom-Links/careers>
<https://www.tnpsc.gov.in/>
<https://www.mhc.tn.gov.in/recruitment/login>
<https://www.thehindu.com/>
<https://indianexpress.com/>
<https://timesofindia.indiatimes.com/>
<https://www.readersdigest.in/>

Pedagogy

Lecture, Power Point Presentation, Group Discussion, Seminar, Quiz, Assignment

Course Designer

Dr.M.Asiathara, Assistant Professor, Department of Tamil.

VALUE ADDED COURSE
NCC FOR YOUTH
2021-2022 Onwards

COURSE CODE : VANC01	NCC FOR YOUTH	HOURS:30
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COURSE OBJECTIVE

To enable the learners to understand the training curriculum of the NCC is primarily focused on character building, inculcating leadership qualities and skill enhancement through structured academic syllabi.

COURSE OUTCOME

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

CO. NO	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Understand the history of NCC, its organisation, the concept of national integration and its importance.	K1
CO2	Acquire the awareness about the basic concepts of health science.	K2
CO3	Recall the concepts of History, Geography and Topography of Border/ Coastal areas.	K3
CO4	Explain the life history and leadership qualities of personalities who have contributed in Nation Building.	K4

NCC SYLLABUS

UNIT I - NCC GENERAL

(6 Hours)

Introduction to NCC - Motto, Cardinal Principles, History, Aims & Objectives of NCC, Organization of NCC, Equivalent ranks, NCC camps & Types, Advantages of NCC.

UNIT II - NATIONAL INTEGRATION (6 Hours)

Introduction - Motto, Definition, Importance & Necessity, Factors affecting National Integration, Role of NCC in Nation Building.

UNIT III - HEALTH AND HYGIENE (6 Hours)

Introduction of Health and Hygiene, First aid - Motto, Definition, Principles, First aid kids, Common Medical Emergencies - Fractures, Bruises, Burn, Scald, Dislocation, Sprain, Strain, Wound, Asphyxia, Artificial respiration, Hemorrhage.

UNIT IV – MAP READING, FIELD CRAFT & BATTLE CRAFT (6 Hours)

MR :Introduction - Definition, Uses of Map, Types, Conventional Signs, Cardinal points & Kinds of North, Grid System.

FC/BC : Introduction - Definition & Principles, Camouflage, Concealment, Judging Distance, Types of Ground & Target.

UNIT V – ARMED FORCES, MILITARY HISTORY AND DRILL (6 Hours)

ARMED FORCES: Introduction -Branches - Elaboration of Army, Navy & Air force.

MILITARY HISTORY: Introduction, Aim, War & Types, Brief on INDO - PAK Conflict in 1965, INDO - PAK War in 1971 & Kargil War.

DRILL: Drill - Aims of Drill, Types of Command, National Salute & General Salute.

STUDY MATERIAL

Textbooks

- a. Cadet Hand Book (Common Subjects), published by DGNCC.
- b. Cadet Hand Book (special Subjects), published by DGNCC.
- c. ANO Precis.

REFERENCE BOOKS

- a. Grooming tomorrow's Leaders, published by DGNCC.
- b. Youth in Action, published by DGNCC.
- c. The Cadet, Annual Journal of the NCC.
- d. Precis Issued by respective Service Headquarters on specialized subject available to PI staff as reference material.

PEDAGOGY

Power point presentations, Quiz, Assignment, Experience Discussion, Brain storming and activity.

COURSE DESIGNER

Captain.Dr.P.Kavitha– Associate NCC Officer.

Annexure C

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS) TRICHY – 18

List of Nominees for **Subject Experts** from **Outside the Parent University** as
Members of Board of Studies
(2022-2025)

PG & RESEARCH DEPARTMENT OF TAMIL

1. Dr. S. Rajaram

Professor & Head of the Department
Department of Tamil
Alagappa University
Karaikudi
Mobile no : 94428 15567
Email id : rajaramsubramanianau@gmail.com

1. Dr. B. Periyaswamy

Associate Professor
Department of Tamil
DLR Arts and Science College
Villapakkam, Ranipet - 21
Mobile no : 93453 15385
Email id : rajperiyaswmaydeva@gmail.com

2. Dr. G. Karunakaran

Assistant Professor
Department of Tamil
Madhura College
Madurai
Mobile no : 94860 63319
Email id : karunakaranmuthuvayal@gmail.com

PG Department of English

1. Dr. B. Sivakami

Assistant Professor
Department of English
VIT, Chennai
Mobile : 9842123515
Email id: sivakami.b@vit.ac.in
sivakamichandran55555@gmail.com

2. Dr. Vinod Balakrishnan

Professor
Department of English
NIT, Trichy
Mobile : 99948 76893
Email : vinod@nitt.edu

3. Dr. H. Kalpana

Professor & Head
Department of English
School of Humanities
Pondicherry University
Mobile : 9487778382
Email id: drhk.engdept@gmail.com
hkalp.eng@pondiuni.edu.in

PG & RESEARCH DEPARTMENT OF SOCIAL WORK

1. Dr F.X.Lovelina Little Flower,

Professor & Head,
Department of Social Work,
Bharathiyar University,
Coimbatore – 641 046
Ph.9443346668
E- Mail Id: lovelinanbu@gmail.com

2. Dr. R. Nalini,

Associate Professor,
Department of Social Work,
Puducherry University,
Puducherry.
E-Mail Id: nalini.ranganathan@gmail.com
Ph.No: 94891 45171

3. Dr. J. S. Gunavathi,

Associate Professor,
Madras School of Social Work,
Chennai – 600 008..
Ph.no: 9444739024
Email ID: jsgunavathi@mssw.in

Department of Business Administration

1. Dr. Thamaraiselvan Natarajan,

Professor,
Department of Management Studies,
National Institute of Technology,
Trichy.
Mobile No: 94437 77217
Email Id : selvanthamarai27@gmail.com

2. Dr. R. Deepa

Associate Professor &
Head, Faculty of Human Resources,
PSG Center for Academic Research and Excellence,
PSG Institute of Management,
Peelamedu, Coimbatore-641004.
Mobile No: 98436 91919
Email Id : deepa@psgim.ac.in

3. Dr. D. Bhanu Sree Reddy,

Professor- Higher Academic Grade,
Vellore Institute of Technology,
Vellore - 632 014
Mobile No: 89033 11849
Email Id : dbhanusreereddy@vit.ac.in

PG & Research Department of Commerce

Dr. R. Seethalakshmi

Assistant Professor
Department of Commerce
GITAM Hyderabad Business School
GITAM (Deemed to be University)
Rudraram, Patancheru Mandal,
Telangana, Hyderabad – 502 329
Mobile No: 9942188042 8220100821
Email Id : sramu@gitam.edu

1. Dr. T. Palaneeswari

Principal
Department of Commerce
The Standard Fire Work Rajaratnam College for Women
Thiruthangal Road, Sivakasi – 626 123, Tamil Nadu
Mobile No.: 9585548825

Email Id: sfrc@sfrcollege.edu.in

2. Dr. N. C. Rajashree

Associate Professor & Vice Principal (Shift – II)

Department of Commerce

Guru Nanak College (Autonomous)

Guru Nanak Salai,

Velachery, Chennai – 600 042

Mobile No: 8754427132

Email Id: drncrajashree@gmail.com

PG AND RESEARCH DEPARTMENT OF MATHEMATICS

1. Dr. N. Anbazhagan

Professor and Head, Chairperson

Department of Mathematics

Alagappa University

Karaikudi – 630 003 Tamil Nadu, INDIA

E-Mailid : anbazhagann@alagappauniversity.ac.in,

anbazhagan_n@yahoo.co.in

Mobile Number: 9790292525

2. Dr. M. Lellis Thivagar

Professor and Head, Chairperson

Department of Mathematics

Madurai Kamaraj University

Madurai 625 021

E-Mailid : mlthivagar@yahoo.co.in

Mobile Number: 9443805959

3. Dr. V. Sankar Raj

Assistant Professor

Department of Mathematics

Manonmaniam Sundaranar University

Tirunelveli 627 012

E-Mailid : sankarrajv@gmail.com,

drvsraj@msuniv.ac.in

Mobile Number: 9444040583

PG & RESEARCH DEPARTMENT OF PHYSICS

1. Dr. T. R. Seshadri

Professor,
Department of Physics & Astrophysics,
University of Delhi,
Delhi -110007.
Contact No: 9971954775
Email ID: trs@physics.du.ac.in

2. Dr. R. Nagalakshmi

Associate Professor of Physics,
National Institute of Technology,
Tiruchirappalli - 620015.
Contact No: 9443940384
Email ID: nagaphys@yahoo.com

3. Dr. I. Vetha Potheher

Assistant Professor of Physics,
BIT Campus,
Anna University,
Tiruchirappalli - 620024.
Contact No: 9942994274
Email ID: potheher11@gmail.com

PG DEPARTMENT OF CHEMISTRY

1. Dr. S. Nagarajan,

Assistant Professor,
Department of Chemistry,
National Institute of Technology,
Warangal-506 004.
E-mail ID :snagarajan@nitw.ac.in
Contact No. 9940430715

2. Dr. K. Sundaravel,

Assistant Professor,
Department of Chemistry,
Bharathiar University,
Coimbatore- 641 046.
E-mail ID: sundaravel.k@gmail.com
Contact No: 8220717342

- 3. Dr. M. K. Sarath Josh,**
Assistant Professor,
Department of Chemistry,
Mahatma Gandhi College,
Iritty, Kannur, Kerala – 670703.
Email ID : drmksjosh@gmail.com
Contact No: 9447184430

PG & RESEARCH DEPARTMENT OF COMPUTER SCIENCE

- 1. Dr. M. S. Vijaya**
Associate Professor & Head
PG Department of Computer Science
PSGR Krishnammal College for Women (Autonomous)
Coimbatore – 641004
Mobile: 9442566462
E-Mail: msvijaya@psgrkcw.ac.in
- 2. Prof. Kumar Rengasamy**
Professor, Computer Science
Kristu Jayanti College
Narayanapura, Bengaluru – 560077
Mobile : 9902933747
E-Mail : rkumar@kristujayanti.com
- 3. Dr. N. Sasikala Devi**
Senior Assistant Professor
Department of Computer Science & Engineering
School of Computing, Sastra Deemed University
Thanjavur -613401
Mobile: 8098846368
E-mail : sasi@cse.sastra.edu

DEPARTMENT OF COMPUTER APPLICATIONS

- 1. Dr. L. Ravi**
Associate Professor
Department of Computer Science
Scared Heart College (Autonomous)
Tiruppattur.
Mobile No. : 9443280319
Email id : ravi@shcpt.edu

2. Dr. S. Sivagurunathan

Assistant Professor

Dept. of Computer Science and Applications

Gandhigram Rural Institute (Deemed to be University)

Dindigul

Mobile No. : 94863 76381

Email id : svgrnth@gmail.com

3. Dr. G. Devika

Assistant Professor

Department of Computer Science

Mannar Thirumalai Naicker College (Autonomous)

Madurai – 625 006

Mobile No. : 9894510321

Email id : gdevika2016@gmail.com

DEPARTMENT OF INFORMATION TECHNOLOGY

1. Dr. P. Kalavathi

Professor

Department of Computer Science & Applications

Gandhigram Rural Institute

Gandhigram, Dindigul

Mobile No : 9445898371

Email Id : kalavathi.gri@gmail.com

2. Dr. S. Sangeetha

Assistant Professor

Department of Computer Applications

National Institute of Technology

Tiruchirapalli-620015

Mobile No : 9442601978

Email Id : sangeetha@nitt.edu

3. Dr. E. Ilavarasan

Professor

Department of Computer Science and Engineering

Puducherry Technological University

Puducherry-605014

Mobile No : 9443084714

Email Id : eilavarasan@pec.edu

PG & RESEARCH DEPARTMENT OF MICROBIOLOGY

1. Dr. A. Veera Ravi

Associate Professor
Department of Biotechnology
Alagappa University
Karaikudi – 630 003
Tamil Nadu, India
Mobile No: +91 9487149249
Email: aveeraravi@rediffmail.com

2. Dr. D. Arvind Prasanth

Assistant Professor
Department of Microbiology
Periyar University
Salem- 636011
Tamil Nadu, India
Mobile No: +91 9444080796
Email: prasanthvi@periyaruniversity.ac.in

3. Dr. P. U. Magalingam

Professor & Head Department
Department of Biology
The Gandhigram Rural Institute
(Deemed to be University)
Gandhigram - 624 302
Dindigul District,
Tamil Nadu, India
Mobile No: +91 9445818371
Email: pumahalingam@yahoo.co.in

DEPARTMENT OF BIOTECHNOLOGY

1. Dr. K. RUCKMANI

Professor & Head,
Department of Pharmaceutical Technology,
Director, Centre for Nanobio Translational Research (Autonomous)
Bharathidasan Institute of Technology,
Anna University,
Tiruchirapalli – 620 024
Ph : 98424 84568
Email : hodpharma@gmail.com

1. Dr. P. RAVICHANDRAN

Professor & Head
Department of Plant Science,
Manonmaniam Sundaranar University
Tirunelveli – 627 012
Ph : 94426 40072
Email : grassravi@gmail.com

2. Dr. A. Arun

Professor & Head,
Department of Microbiology,
Science Campus, 3rd Floor,
Alagappa University,
Karaikudi – 630 003
Ph : 94421 26857
Email : arunalacha@gmail.com

**DEPARTMENT OF FOOD SERVICE MANAGEMENT AND
DIETETICS**

1. Dr. R. Jaganmohan, MSc., Ph.D,
Professor & Head,
Department of Food Product Development,
Indian Institute of Food Processing Technology,
Thanjavur – 613005.
Mob No : 9750968402
Mail id : jagan@iifpt.edu.in
2. Dr. A. Surendra Babu, MSc.,Ph.D, PDF
Assistant Professor,
Department of Food Technology,
Hindustan Institute of Technology and Science (Deemed to be University),
Chennai- 603 103.
Mob No : 9994719932
Mail id : surendrababu934@gmail.com
3. Dr. K .Anusuya Devi, MSc.,MCA.,M.Phil.,Ph.D.,RD
Assistant Professor,
Department of Nutrition and Dietetics,
PSG College of Arts and Science,
Coimbatore-641004.
Mob No : 9940704224
Mail id : anusuyadevi@psgcas.ac.in

ANNEXURE - D



காவேரி மகளிர் கல்லூரி (தன்னாட்சி)
திருச்சிராப்பள்ளி- 18
தமிழாய்வுத்துறை

காவேரி மகளிர் கல்லூரி(தன்னாட்சி), தமிழாய்வுத்துறை, இணைய வழியில் 2021 ஜூன் 12 அன்று நடத்திய இளங்கலைத் தமிழிலக்கியம் ஆறாம் பருவத்திற்கானதும், முதுகலை நான்காம் பருவத் திட்டக்கட்டுரை தாள் மதிப்பெண் மாற்றத்தை உறுதிசெய்தல் தொடர்பானதுமான பாடத்திட்டக்குழுக் கூட்டத்தின் குறிப்பு

பாடத்திட்டக்குழுக்கூட்டத்தின் நிகழ்ச்சி நிரல் :

பகுதி எண் : 1

தமிழாய்வுத்துறையின் இளங்கலைத் தமிழிலக்கியம் ஆறாம் பருவத்திற்கான பாட வரையறை மற்றும் பாடத்திட்டத்தை ஆலோசித்து அங்கீகாரமளித்துத் திருச்சிராப்பள்ளி காவேரி மகளிர் கல்லூரி கல்விக்குழுவுக்குப் பரிந்துரை செய்தல்.

பகுதி எண் : 2

முதுகலைத் தமிழிலக்கியம் (2019 - 2020ஆம் கல்வியாண்டு முதல்) நான்காம் பருவத் திட்டக்கட்டுரை தாள் - பாடக் குறியீட்டு எண் : 19PTA4PW, மதிப்பெண் மாற்றத்தை உறுதிசெய்ய ஆலோசித்து அங்கீகாரமளித்துத் திருச்சிராப்பள்ளி காவேரி மகளிர் கல்லூரி கல்விக்குழுவுக்குப் பரிந்துரை செய்தல்.

முதலில், பாடத்திட்டக்குழுத் தலைவர் முனைவர் ச. இராமலட்சுமி, பேராசிரியர், தமிழாய்வுத்துறை, காவேரி மகளிர் கல்லூரி, திருச்சி - 18, அவர்கள் பாடத்திட்டக்குழுக் கூட்டத்தில் பங்கேற்ற உறுப்பினர்களை இணையவழியில் அறிமுகம் செய்து வைத்தார். நிகழ்ச்சி நிரலில் உள்ளபடி இணையவழி கலந்துரையாடல் தொடங்கியது.

பாடத்திட்டக்குழுக் கூட்டத்தில் பங்கேற்ற உறுப்பினர்கள்

01. முனைவர் ச. இராமலட்சுமி

தலைவர், பேராசிரியர்

02. முனைவர் இரா. காமராசு

பாடத்திட்ட வல்லுநர்
தமிழ்ப்பல்கலைக்கழகம்,

03. முனைவர் இரா. கருணாநிதி

தஞ்சாவூர்

பாடத்திட்ட வல்லுநர்
திருகொளஞ்சியப்பர் கலை
மற்றும் அறிவியல் கல்லூரி,
விருத்தாசலம்,

04. முனைவர் அ. ஜெஸிந்தாராணி

பல்கலைக்கழக நியமன
உறுப்பினர்
புனித சிலுவைக் கல்லூரி
(தன்னாட்சி),
திருச்சி

05. திரு. க. விஜயன்

வேலைவாய்ப்பு மற்றும்
தொழில்துறை
பிரதிநிதி
பத்திரிக்கையாளர்

06. செல்வி ச. சரண்யா

உறுப்பினர் - முன்னாள் மாணவி
வழக்கறிஞர்

07. முனைவர் அ. இரா. கோமதி

உறுப்பினர்

08. முனைவர் அ. யசோதா

உறுப்பினர்

09. முனைவர் ந. சுபா

உறுப்பினர்

10. முனைவர் வி. கவிதா

உறுப்பினர்

11. முனைவர் மு. ஜெயலெட்சுமி

உறுப்பினர்

12. முனைவர் தி. மணிமொழி

உறுப்பினர்

13. முனைவர் பா. கவிதா

உறுப்பினர்

14. முனைவர் மே.க. வசந்தி

உறுப்பினர்

15. முனைவர் இரா. வனிதா

உறுப்பினர்

16. முனைவர் வி. சத்யவதி

உறுப்பினர்

17. முனைவர் க. ராதிகா

உறுப்பினர்

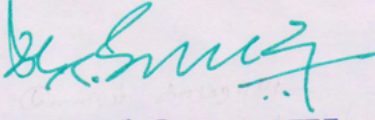
18. முனைவர் மு. அனு

உறுப்பினர்


பாடத்திட்ட வல்லுநர் குழுத் தலைவர் நன்றியுடன் ஆறாம் பருவத்திற்கான இணையவழி பாடத்திட்டக்குழுக்கூட்டம் நிறைவு பெற்றது.

தலைவர்

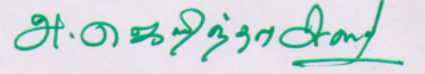
பாடத்திட்டக்குழுக்கூட்டம்



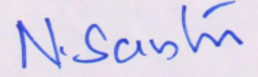
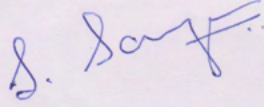
முனைவர் இரா. காமராசு
பேராசிரியர் மற்றும் தலைவர்
நாட்டுப்புறவியல் துறை
தமிழ்ப்பல்கலைக்கழகம்
தஞ்சாவூர் - 613 010.



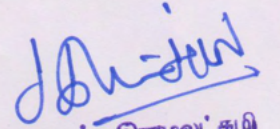
DR. R. KARUNANITHI
Associate Professor & Head
Department of Tamil
Thiru Kolanjiappar Govt. Arts College, Grade - I
Vridhachalam - 606 001.



முனைவர். அ. ஜெஸிந்தாராணி
உதவிப் பேராசிரியர்,
தமிழாய்வுத்துறை,
புனித சிலுவை தன்னாட்சிக் கல்லூரி,
திருச்சி - 2.



N. Sarathi
DEAN OF ARTS
CAUVERY COLLEGE FOR WOMEN
(AUTONOMOUS)
ANNAMALAI NAGAR
TIRUCHIRAPPALLI - 620 018
TAMILNADU



பொ.முனைவர் ச.இராமலட்சுமி
தலைவர், தமிழாய்வுத்துறை
காவேரி மகளிர் கல்லூரி (தன்னாட்சி)
திருச்சி - 620 018.

காவேரி மகளிர் கல்லூரி (தன்னாட்சி), திருச்சி - 18

(2019 - 2020 ஆம் கல்வியாண்டு முதல் சேர்க்கை பெறும் மாணவியருக்கு)

தமிழாய்வுத்துறை - இளங்கலைத் தமிழிலக்கியம்

மூன்றாமாண்டு

Sem	Part	Course	Title	Course Code	Ins. Hrs / Week	Credit	Exam	Marks		Total
							Hours	Internal	External	
VI	III	Core Course - XIII (CC)	தண்டியலங்காரம்	19UTA6CC13	6	5	3	25	75	100
		Core Course - XIV (CC)	சங்க இலக்கியம் - 1	19UTA6CC14	6	5	3	25	75	100
		Core Course - XV (CC)	சங்க இலக்கியம் - 2	19UTA6CC15	6	5	3	25	75	100
		Major Based Elective II	II. அ) நாடகவியல் (or)	19UTA6MBE2A	5	4	3	25	75	100
			II. அ) கோயில் கலைகள்	19UTA6MBE2B						
	Major Based Elective III	III. அ) சுற்றுலாவியல் (or)	19UTA6MBE3A	6	4	3	25	75	100	
		III. ஆ) வாழ்க்கை வரலாற்று இலக்கியம் (உ.வே.சா)	19UTA6MBE3B							
	V	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100
Extension Activity		Extension Activity	19UGEA	-	1	-	-	-	-	
TOTAL					30	25				600

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முனைவர் இரா. காமராசு
பேராசிரியர் மற்றும் தலைவர்
நாட்டுப்புறவியல் துறை
தமிழ்ப்பல்கலைக்கழகம்
தஞ்சாவூர் - 613 010.

[Handwritten Signature]

Dr. R. KARUNANITHI
Associate Professor & Head
Department of Tamil
Thiru Kolanjiappar Govt. Arts College, Grade - I
Vridhachalam - 606 001.

[Handwritten Signature]

முனைவர். அ. ஜெஸிந்தாராணி
உதவிப் பேராசிரியர்,
தமிழாய்வுத்துறை,
புனித சிலுவை தன்னாட்சிக் கல்லூரி,
திருச்சி - 2.

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பேரா.முனைவர் ச.இராமலட்சுமி
தலைவர், தமிழாய்வுத்துறை
காவேரி மகளிர் கல்லூரி (தன்னாட்சி)
திருச்சி - 620 018

N. Santhya
DEAN OF ARTS
CAUVERY COLLEGE FOR WOMEN
(AUTONOMOUS)
ANNAMALAI NAGAR
TIRUCHIRAPPALLI - 620 018
TAMILNADU

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
19UTA 6CC13	தண்டியலங்காரம்	III	86	4	-	5

நோக்கம்

1. தமிழிலக்கிய அணிகளைக் கற்பித்தல்
2. அணிகளின் வகைகளையும், இலக்கணத்தையும் பயிற்றுவித்தல்
3. அணி இலக்கணப் பரிணாம வளர்ச்சியைக் கற்றுத்தருதல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	அணிகளின் அமைப்பினைக் கண்டறிதல்	K1
CO2	தமிழிலக்கியங்களில் உள்ள அணிகளை விளக்குதல்	K2
CO3	அணி வகைகளைப் பகுத்தாய்தல்	K3
CO4	தமிழ் அணி மரபினை ஆராய்ந்தறிதல்	K4

அலகு 1 : (20 மணி)

தன்மை, உவமை, உருவகம்

அலகு 2 : (20 மணி)

தீவகம், வேற்றுப்பொருள் வைப்பணி, ஒட்டணி, தற்குறிப்பு

அலகு 3 : (20 மணி)

ஏது, நுட்பம், இலேசம், நிரல்நிரையணி, சுவையணி

அலகு 4 : (15 மணி)

தன்மேம்பாட்டுரை, பரியாயம், சிலேடை, அவநுதி

அலகு 5 : (15 மணி)

ஒப்புமை, மாறுபடு புகழ்நிலை, புகழாப்புக்கழ்ச்சி, வாழ்த்து, பாவிக்கம்

பாட நூல்

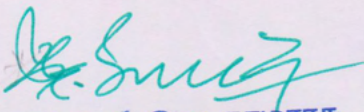
வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	கொ. இராமலிங்கத்தம்பிரான் (உ.ஆ.)	தண்டியலங்காரம்	கழக வெளியீடு, சென்னை	1938

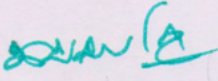
பார்வை நூல்கள்

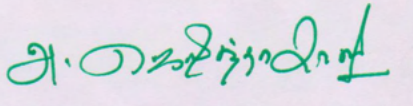
வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	இரா. அறவேந்தன்	தமிழ் அணி இலக்கண மரபும், இலக்கண மறுவாசிப்பும்	சபா நாயகம் பப்ளிகேஷன்ஸ், சிதம்பரம்	2004

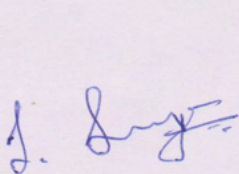
கற்பித்தல் முறைகள்

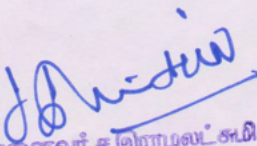
கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

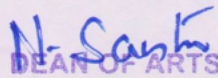

முனைவர் இரா. காமராசு
பேராசிரியர் மற்றும் தலைவர்
நாட்டுப்புறவியல் துறை
தமிழ்ப்பல்கலைக்கழகம்
தஞ்சாவூர் - 613 010.


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Vridhachalam - 606 001.


முனைவர். அ. ஜெனிந்தாராணி
உதவிப் பேராசிரியர்,
தமிழாய்வுத்துறை,
புனித சிலுவை தன்னாட்சிக் கல்லூரி,
திருச்சி - 2.




பேரா.முனைவர் ச.இராமலட்சுமி
தலைவர், தமிழாய்வுத்துறை
செவ்வீ மகளிர் கல்லூரி (தன்னாட்சி)
திருச்சி - 620 018


DEAN OF ARTS
CAUVERY COLLEGE FOR WOMEN
(AUTONOMOUS)
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TIRUCHIRAPPALLI - 620 018
TAMILNADU

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
19UTA6CC14	சங்க இலக்கியம்-1	III	86	4	-	5

நோக்கம்

1. தமிழர்களின் அக புற வாழ்வியலை அறிதல்.
2. வரலாற்றுச் செய்திகள், தமிழரது பண்பாடு, இயற்கை போற்றிய திறம் ஆகியவற்றை உணர வைத்தல்.
3. பழந்தமிழரின் செம்மாந்த அறம், மறம், கொடைப் பண்புகளை எடுத்துரைத்தல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	சங்கத் தமிழரது வாழ்வியல் முறைகளைக் கண்டறிதல்	K1
CO2	சங்க இலக்கியப் பகுப்பு முறையை உணர்தல்	K2
CO3	திணை, துறைக் கோட்பாடுகளை இணைத்தறிதல்	K3
CO4	சங்க கால மக்களுக்கிடையிலான உறவு, நட்பு, பாகுபாட்டினை ஆராய்ந்தறிதல்	K4

பாடத்திட்டம்

அலகு 1 : (20 மணி)

நற்றிணை : 101 முதல் 105 பாடல்கள் வரை

குறுந்தொகை : 26 முதல் 40 பாடல்கள் வரை

அலகு 2 : (15 மணி)

ஐங்குறுநூறு : அன்னாய் வாழிப்பத்து, செலவு அழுங்குவித்த பத்து

கலித்தொகை : குறிஞ்சிக்கலி - முதல் 5 பாடல்கள்

அலகு 3 : (20 மணி)

அகநானூறு : களிற்றியானைநிறை 1 - 10 பாடல்கள்

பரிபாடல் : திருமால் - பாடல் எண் - 2

செவ்வேள் - பாடல் எண் - 14

அலகு 4 : (15 மணி)

புறநானூறு : 101 - 110, 201 - 210 பாடல்கள் வரை மொத்தம் 20

பாடல்கள்

அலகு 5 : (20 மணி)

பதிற்றுப்பத்து : இரண்டாம்பத்து

பார்வை நூல்கள்

வ.எ	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	ஓளவை சு.துரைசாமிபிள்ளை (உரை)	நற்றினை	கழக வெளியீடு	2008
2	ஓளவை சு.துரைசாமிபிள்ளை (உரை)	புறநானூறு	கழக வெளியீடு	2008

3	ஓளவை சு.துரைசாமிபிள்ளை (உரை)	பதிற்றுப்பத்து	கழக வெளியீடு	2008
4	ஓளவை துரைசாமி பிள்ளை (உரை)	குறுந்தொகை	கழக வெளியீடு	2007
5	ந.மு. வேங்கடசாமி நாட்டார் (உரை)	அகநானூறு	கழக வெளியீடு	2008
6	ஓளவை துரைசாமி பிள்ளை (உ.ஆ.)	ஐங்குறுநூறு	கழக வெளியீடு	2008
7	நச்சினார்க்கினியர் (உ.ஆ.)	கலித்தொகை	கழக வெளியீடு, சென்னை	1943
8	பொ.வே.சோமசுந்தரனார் (உரை)	பரிபாடல்	கழக வெளியீடு	2008

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

[Handwritten Signature]

முனைவர் இரா. காமராசு
பேராசிரியர் மற்றும் தலைவர்
நாட்டுப்புறவியல் துறை
தமிழ்ப்பல்கலைக்கழகம்
தஞ்சாவூர் - 613 010.

[Handwritten Signature]

Dr. R. KARUNANITHI
Associate Professor & Head
Department of Tamil
Thiru Kolanjiappar Govt. Arts College, Grade - I
Vridhachalam - 606 001.

[Handwritten Signature]

முனைவர். அ. ஜெனிந்தாராணி
உதவிப் பேராசிரியர்,
தமிழாய்வுத்துறை,
புனித சிலுவை தன்னாட்சிக் கல்லூரி,
திருச்சி - 2.

[Handwritten Signature]

[Handwritten Signature]
பொ.முனைவர் ச.இரா.மல்குமார்
தலைவர், தமிழாய்வுத்துறை
காவேரி மகளிர் கல்லூரி (தன்னாட்சி)
திருச்சி - 620 018.

[Handwritten Signature]

DEAN OF ARTS
CAUVERY COLLEGE FOR WOMEN
(AUTONOMOUS)
ANNAMALAI NAGAR
TIRUCHIRAPPALLI - 620 018
TAMILNADU

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
19UTA6CC15	சங்க இலக்கியம்-2	III	86	4	-	5

நோக்கம்

1. தமிழின் செம்மொழித் தகுதியை உணரச் செய்தல்
2. இயற்கையோடு இயைந்த வாழ்வியலை உணர்த்துதல்
3. தமிழரின் உயரிய சிந்தனை மரபு, கொடைச் சிறப்பினை எடுத்துரைத்தல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statements	Knowledge Level
CO1	சங்க இலக்கியத்தின் அக, புற மரபுகளைக் கண்டறிதல்	K1
CO2	தமிழரின் செம்மையான வாழ்வியல் முறைகளை உணர்தல்	K2
CO3	தமிழர்தம் அக வாழ்வியலைப் (களவு, கற்பு) பகுத்தறிதல்	K3
CO4	ஆற்றுப்படை இலக்கியம் காட்டும் அற வாழ்வியலை ஆராய்ந்தறிதல்	K4

பாடத் திட்டம்

அலகு 1(15மணி) :

முல்லைப்பாட்டு

அலகு 2 (15மணி)

குறிஞ்சிப்பாட்டு

அலகு 3 (20மணி:)

திருமுருகாற்றுப்படை

அலகு 4: (20மணி)

சிறுபாணாற்றுப்படை

அலகு 5 (20மணி)

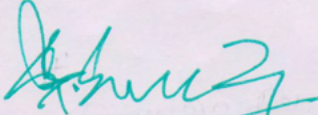
பொருநராற்றுப்படை

பார்வை நூல்கள்

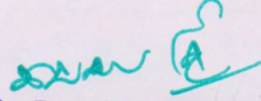
வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	முனைவர் இரா. மோகன் (உ.ஆ)	பத்துப்பாட்டு	நியூ செஞ்சுரி புக்ஹவுஸ், சென்னை	2007
2	வ.சுப. மாணிக்கம்	தமிழ்க்காதல்	ஸ்ரீஇந்து பப்ளிகேஷன்ஸ், சென்னை	2012
3	ந. சுப்ரமணியன்	சங்ககால சமுதாயம்	நியூ செஞ்சுரி புக்ஹவுஸ், சென்னை	1982

கற்பித்தல் முறைகள்

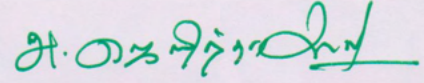
கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை,



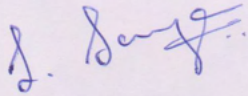
முனைவர் இரா. காமராசு
பேராசிரியர் மற்றும் தலைவர்
நாட்டுப்புறவியல் துறை
தமிழ்ப்பல்கலைக்கழகம்
தஞ்சாவூர் - 613 010.



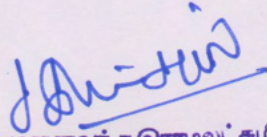
Dr. R. KARUNANITHI
Associate Professor & Head
Department of Tamil
Thiru Kolanjiappar Govt. Arts College, Grade - I
Vriddhachalam - 606 001.



முனைவர். அ. ஜெஸிந்தாராணி
உதவிப் பேராசிரியர்,
தமிழாய்வுத்துறை,
புனித சிலுவை தன்னாட்சிக் கல்லூரி,
திருச்சி - 2.



பேரா.முனைவர் ச.இராமலட்சுமி
தலைவர், தமிழாய்வுத்துறை
காவேரி மகளிர் கல்லூரி (தன்னாட்சி)
திருச்சி - 620 018.



N. Santhi
DEAN OF ARTS
CAUVERY COLLEGE FOR WOMEN
(AUTONOMOUS)
ANNAMALAI NAGAR
TIRUCHIRAPPALLI - 620 018
TAMILNADU

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
19UTA6MBE2A	நாடகவியல்	III	71	4	-	4

நோக்கம்

1. நாடகத்தின் தோற்றம், சிறப்பினை உணர்த்துதல்
2. நாடகவியலில் ஏற்பட்ட மாற்றங்களை அறியச் செய்தல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	நாடகங்களின் தோற்றம் குறித்துக் கண்டறிதல்	K1
CO2	காலந்தோறும் நாடகங்களின் வடிவ மாற்றங்களை விவரித்தல்	K2
CO3	பழங்கால நாடகங்களைத் தற்கால நாடகங்களோடு ஒப்பிட்டறிதல்	K3
CO4	நாடக இலக்கிய வகைகளையும் பொருண்மைகளையும் பகுத்தாய்தல்	K4

பாடத்திட்டம்

அலகு 1 : (15 மணி)

நாடகத்தின் தோற்றம் - தொல்காப்பியத்தால் அறியலாகும் நாடகம் பற்றிய செய்திகள் - சங்க இலக்கியத்தில் நாடகம் - இசைக்கருவிகள்

அலகு 2 : (15 மணி)

சிலப்பதிகாரத்தில் நாடகம் - அடியார்க்கு நல்லாரின் உரையால் அறியப்படும் கூத்து, நாட்டியம், மேடை அமைப்பு - நாடக நூல்கள்

அலகு 3 :

பல்லவர், பாண்டியர், சோழர், ஐரோப்பியர் காலத்தில் நாடகங்கள் - மன்னர்கள் காலத்தில் நாடகம் பெற்ற சிறப்புகள்

அலகு 4 : (15 மணி)

பள்ளு, குறவஞ்சி, நொண்டி, கீர்த்தனை, ஓரங்க நாடகம், மொழிபெயர்ப்பு நாடகங்கள்

அலகு 5 : (15 மணி)

மேடை நாடக இலக்கிய வகைகள் - வானொலி, தொலைக்காட்சி நாடகங்கள் - நாடக ஆசிரியர்கள் - நாடகக் குழுக்கள்

பாட நூல்

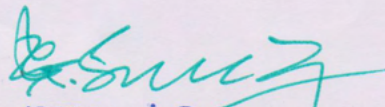
வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	முனைவர் கா. லட்சுமி	நாடகத் தமிழ்	நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை	2016

பார்வை நூல்கள்

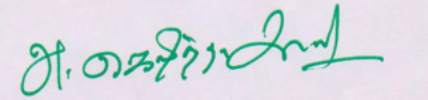
வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	முனைவர் மு. இராமசுவாமி, முனைவர் கு. முருகேசன்	இருபதாம் நூற்றாண்டு தமிழ் நாடகங்கள்	உலகத் தமிழாராய்ச்சி நிறுவனம், சென்னை	1999
2	முனைவர் கு. பகவதி	தமிழ் நாடகம் நேற்றும், இன்றும்	உலகத்தமிழாராய்ச்சி நிறுவனம், சென்னை	2000

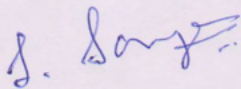
கற்பித்தல் முறைகள்

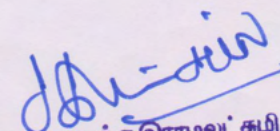
கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

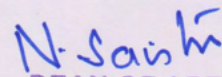

முனைவர் இரா. காமராசு
பேராசிரியர் மற்றும் தலைவர்
நாட்டுப்புறவியல் துறை
தமிழ் ப்பலகை கலைக்கழகம்
தஞ்சாவூர் - 613 010.


Dr. R. KARUNANITHI
Associate Professor & Head
Department of Tamil
Thiru Kolanjiappur Govt. Arts College, Grade - I
Vriddhachalam - 606 001.


முனைவர். அ. அனந்தராணி
உதவிப் பேராசிரியர்,
தமிழாய்வுத்துறை,
புனித சிலுவை தன்னாட்சிக் கல்லூரி,
திருச்சி - 2.




பேரா.முனைவர் ச.இராமலட்சுமி
தலைவர், தமிழாய்வுத்துறை
காவேரி மகளிர் கல்லூரி (தன்னாட்சி)
திருச்சி - 620 018


N-Sankar
DEAN OF ARTS
CAUVERY COLLEGE FOR WOMEN
(AUTONOMOUS)
ANNAMALAI NAGAR
TIRUCHIRAPPALLI - 620 018
TAMILNADU

பாடக் குறியீடு	பாடம்	category	L	T	P	credit
19UTA6MBE2B	கோயில் கலைகள்	III	71	4	-	4

நோக்கம்

- 1 கோயில் கலைகளின் வரலாற்றை அறிமுகம் செய்தல்
2. கோயில் அமைப்பினை அறியச் செய்தல்
3. கட்டிட அமைப்பினை விளக்குதல்

COURSE OUT COMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO.No.	CO statement	Knowledge level
CO1	கோயில்களின் துவக்கக் கால வரலாற்றைக் கண்டறிதல்	K1
CO2	கோயில்களின் அமைப்பினை விளக்குதல்	K2
CO3	கோயில்களின் வகைகளைப் பகுத்தாய்தல்	K3
CO4	அரசர்களின் கோயில் கலைப் பங்களிப்பை ஆராய்தல்	K4

பாடத் திட்டம்

அலகு -1 (15 மணி)

சங்கக்காலக் கலை - கட்டடக் கலை - ஓவியக் கலை - சிற்பக் கலை - இசைக் கலை - நாடகக் கலை

அலகு -2 (15 மணி)தமிழ்நாட்டுக் கோயில்கள் - தோற்றம் - பெயர்கள் - வகைகள் - மனைநூல்கள் - சிற்ப நூல்கள் - ஆகமங்கள் - கோயில்களில் இசைக் கூத்துகள் - கோயில்கள் இலக்கணம்

அலகு -3 (15 மணி)

தமிழ் நாட்டுக் கோயில்கள் வரலாறு - பல்லவர் காலம் - பாண்டியர் காலம் - சோழர் காலம்

அலகு - 4 (15 மணி)

தமிழ் நாட்டுக் கோபுரங்கள் - தமிழ் நாட்டுச் சிற்பங்கள் - வகைகள் - செப்புத் திருமேனிகள் - வரலாறு - வகைகள்

அலகு - 5 (15 மணி)

தமிழ் நாட்டு ஓவியங்கள் - பல்லவர் காலம் - பாண்டியர் காலம் - சேரர் காலம் - சோழர் காலம் - விஜயநகர மன்னர் காலம் - நாயக்கர் காலம் - பிற்காலம்

பாட நூல்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	முனைவர்.இரா.நாகசாமி மா.சந்திரமூர்த்தி	தமிழகக் கோயிற்கலைகள்	தமிழ்நாடு அரசு தொல்லியல் துறை வெளியீடு,,சென்னை	2014

பார்வை நூல்கள்

வ.எண்	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1.	ஆர்.வெங்கட்ராமன்	இந்தியக் கோயில் கட்டடக்	என்.எஸ். புள்ளிகேஷன்,மதுரை	1985

		கலை வரலாறு		
2	இராச மாணிக்கம்	தமிழகக் குடைவரைக் கோயில்கள்	சைவசித்தாந்தம் நூற்பதிப்புக் கழகம், சென்னை	1984

கற்பித்தல் முறைகள்

கலந்தாய்வு , வினாடிவினா , திட்டக் கட்டுரை, கரும்பலகை, குழு விவாதம்

[Handwritten Signature]

முனைவர் இரா. காமராசு
பேராசிரியர் மற்றும் தலைவர்
நாட்டுப்புறவியல் துறை
தமிழ்ப்பல்கலைக்கழகம்
தஞ்சாவூர் - 613 010.

[Handwritten Signature]

Dr. R. KARUNANITHI
Associate Professor & Head
Department of Tamil
Thiru Kolanjiappar Govt. Arts College. Grade - I
Vriddhachalam - 606 001.

[Handwritten Signature]

முனைவர். அ. ஜெனிந்தாராணி
உதவிப் பேராசிரியர்,
தமிழாய்வுத்துறை,
புனித சிலுவை தன்னாட்சிக் கல்லூரி,
திருச்சி - 2.

[Handwritten Signature]

[Handwritten Signature]
மேரா.முனைவர் ச.இராமலட்சுமி
தலைவர், தமிழாய்வுத்துறை
ஆய்விமகனார் கல்லூரி (தன்னாட்சி)
திருச்சி - 620 018.

[Handwritten Signature]

N-Santhi
DEAN OF ARTS
CAUVERY COLLEGE FOR WOMEN
(AUTONOMOUS)
ANNAMALAI NAGAR
TIRUCHIRAPPALLI - 620 018
TAMILNADU

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
19UTA6MBE3A	சுற்றுலாவியல்	III	86	4	-	4

நோக்கம்

1. வரலாற்றுச் சின்னங்களையும் அதன் பின்புலத்தையும் அறிதல்.
2. தமிழகத்தின் கலை, இலக்கிய பண்பாட்டையும் நாகரிகத்தையும் அறிதல் மற்றும் அறிவித்தல்.
3. பல்வேறு இடங்களின் சிறப்பையும் பயணங்களால் ஏற்படும் அனுபவத்தையும் கொண்டு ஆளுமைத் திறனை வளர்த்தல்.

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	தமிழக வரலாற்றுச் சின்னங்களையும் அதன் பின்புலத்தையும் கண்டறிதல்	K1
CO2	தமிழகத்தின் கலை, இலக்கிய பண்பாட்டையும் நாகரிகத்தையும் விவரித்தல்	K2
CO3	பயணங்களினால் ஏற்படும் அனுபவத்தைக் கொண்டு புத்திலக்கியம் படைக்கும் திறனை மேம்படுத்துதல்	K3
CO4	நவீன காலத்தில் சுற்றுலா வளர்ச்சிக்கான சமூக பொருளாதார வழிகளை ஆராய்தல்	K4

பாடத்திட்டம்

அலகு 1 : (20 மணி)

சுற்றுலா விளக்கம் - சுற்றுலா நோக்கம் - சுற்றுலா வகைகள் - சுற்றுலா பயணப் பணி நிறுவனம்.

அலகு 2 : (20 மணி)

காலந்தோறும் சுற்றுலா வளர்ச்சி - நவீன காலத்தில் சுற்றுலாவின் முக்கியத்துவம் - சுற்றுலாவின் சமூகப் பொருளாதார விளைவுகள்.

அலகு 3 : (10 மணி)

சுற்றுலா விடுதிகள் - உணவகங்கள் - போக்குவரத்து வசதிகள் - சுற்றுலா வழிகாட்டிகள் - தகுதிகள்.

அலகு 4 : (20 மணி)

சுற்றுலாவின் பயன்கள் - சுற்றுலாவின் வழி அறியலாகும் கலை, பண்பாடு, சமயம், வரலாற்றுச் சின்னங்கள்.

அலகு 5 : (20 மணி)

தமிழகத்தில் சுற்றுலா வளர்ச்சிக்கான வாய்ப்புகள் - நினைவுச் சின்னங்களை பாதுகாத்தல் - தொழில் நோக்கில் வளர்த்தல்.

பாட நூல்

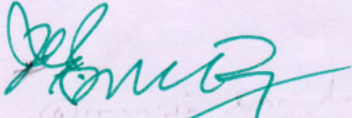
வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	மா. இராசசேகர தங்கமணி	சுற்றுலாவியல் ஓர் அறிமுகம்	பாரி நிலையம், சென்னை	2012

பார்வை நூல்கள்

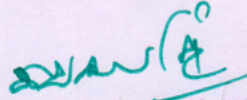
வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	ச. ஈஸ்வரன்	சுற்றுலாவியல்	பாவை பதிப்பகம், சென்னை	2006
2	வெ. கிருஷ்ணசாமி	சுற்றுலா வளர்ச்சி	மணிவாசகர் பதிப்பகம், சென்னை	1997
3	ச. ஈஸ்வரன்	சுற்றுலாவியல் ஓர் அறிமுகம்	சாரதா பதிப்பகம், சென்னை	2010

கற்பித்தல் முறைகள்

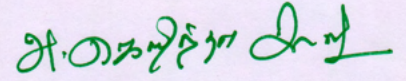
கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்



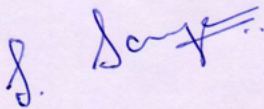
முனைவர் இரா. காமராசு
பேராசிரியர் மற்றும் தலைவர்
நாட்டுப்புறவியல் துறை
தமிழ்ப்பல்கலைக்கழகம்
தஞ்சாவூர் - 613 010.



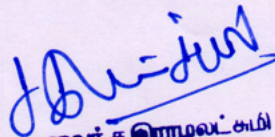
Dr. R. KARUNANITHI
Associate Professor & Head
Department of Tamil
Tiruv. Kolanjiappur Govt. Arts College, Grade - I
Vriddhachalam - 606 001.



முனைவர். அ. ஜெனிந்தாராணி
உதவிப் பேராசிரியர்,
தமிழாய்வுத்துறை,
புனித சிலுவை தன்னாட்சிக் கல்லூரி,
திருச்சி - 2.



N. Sankar
DEAN OF ARTS
CAUVERY COLLEGE FOR WOMEN
(AUTONOMOUS)
ANNAMALAI NAGAR
TIRUCHIRAPPALLI - 620 018
TAMILNADU



பேரா.முனைவர் ச.இராமலட்சுமி
தலைவர், தமிழாய்வுத்துறை
காவேரி மகளிர் கல்லூரி (தன்னாட்சி)
திருச்சி - 620 018

பாடக் குறியீடு	பாடம்	category	L	T	P	credit
19UTA6MBE3B	வாழ்க்கை வரலாற்று இலக்கியம் (உ.வே.சா)	III	86	4	-	4

நோக்கம்

1. வாழ்க்கை வரலாற்று நூல்கள் குறித்து அறிந்து கொள்ளுதல்
2. உ.வே.சாவின் வாழ்க்கை வரலாற்றைத் தெரிந்து கொள்ளுதல்

COURSE OUT COMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO.No.	CO statement	Knowledge level
CO1	வாழ்க்கை வரலாற்று இலக்கியங்கள் பற்றி அறிதல்	K1
CO2	உ.வே.சா.வின் இளமைப் பருவம் மற்றும் கல்வி கற்றமையைப் பற்றி தெரிந்து கொள்ளுதல்	K2
CO3	தமிழ் நூல்களைப் பதிப்பிக்க உ.வே.சா. பட்ட இன்னல்களை விளக்கி அதன் மேன்மையை உணர்தல்	K3

பாடத் திட்டம்

அலகு -1 (20 மணி)

வாழ்க்கை வரலாற்று இலக்கியம் விளக்கம் --- வாழ்க்கை வரலாறு – தன் வரலாறு - இளமைப்பருவம் - ஊர் - முன்னோர்கள் - பிறப்பு- இளமைக் கல்வி – தமிழும்சங்கீதமும் - குன்னம் சிதம்பரம்பிள்ளை திருமணம் - காரிகைப் பாடம் - செங்கணம் வாழ்க்கை

அலகு -2 (20 மணி)

மாயூர வாழ்க்கை – மாயூரப் பிரயாணம் - மகாவித்துவான் உடன் முதல்நாள்தமிழே துணை- புலமையும் வறுமையும் - பட்டினஸ்வரத்தில் பாடம் - திருவாவடுறைக் காட்சிகள் - திருப்பெருந்துறைப் புராணம்.

அலகு 3 (10 மணி)

இயற்றிய பாடல்கள் - திருவிளையாடல் பிரசங்கம் - தேசிகர் - திரிசிரபுரம் - கோவிந்தபிள்ளை – சிறப்புப் பாடல்கள் - பெற்ற சன்மானம்

அலகு -4 (20 மணி)

பதிப்பு வாழ்க்கை - பதிப்பித்த முதல் நூல் - பாடும் பணி - கல்லூரி வாழ்க்கை
- இரண்டாவது வெளியீடு - சிந்தாமணிப் பதிப்பு


அலகு -5 (20 மணி)

திருநெல்வேலி பிரயாணம் - பத்துப்பாட்டுப் பிரதிகள் - பத்துப்பாட்டு பதிப்பு -
சிலப்பதிகாரஆராய்ச்சி - புறநானூறு - மணிமேகலை பதிப்புகள் பாடநூல்

வ.எண்	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1.	உ.வே.சா.	என் சரித்திரம்	படித்துறை புத்தக அறக்கட்டளை ஜோலார்பேட்டை, திருப்பத்தூர்	2020

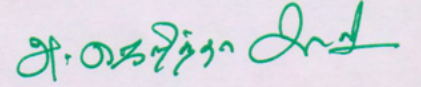
கற்பித்தல் முறைகள்

கலந்தாய்வு , வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

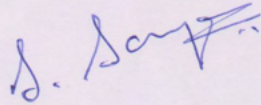


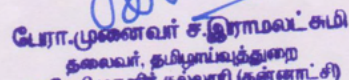
முனைவர் இரா. காமராசு
பேராசிரியர் மற்றும் தலைவர்
நாட்டுப்புறவியல் துறை
தமிழ்ப்பல்கலைக்கழகம்
தஞ்சாவூர் - 613 010.


Dr. R. KARUNANITHI
Associate Professor & Head
Department of Tamil
Thiru Kolanjiappar Govt. Arts College, Grade - I
Vridhachalam - 606 001.



முனைவர். அ. அனந்தராணி
உதவிப் பேராசிரியர்,
தமிழாய்வுத்துறை,
புனித சிலுவை தன்னாட்சிக் கல்லூரி,
திருச்சி - 2.




பேரா.முனைவர் ச.இராமலட்சுமி
தலைவர், தமிழாய்வுத்துறை
காவேரி மகளிர் கல்லூரி (தன்னாட்சி)
திருச்சி - 620 018

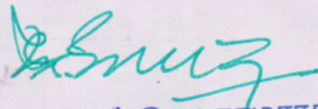
N-Santhi
DEAN OF ARTS
CAUVERY COLLEGE FOR WOMEN
(AUTONOMOUS)
ANNAMALAI NAGAR
TIRUCHIRAPPALLI - 620 018
TAMILNADU

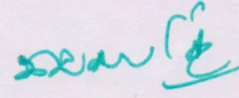
காவேரி மகளிர் கல்லூரி (தன்னாட்சி), திருச்சி - 18
CBCS பாடத்திட்டம்
(2019 - 2020 ஆம் கல்வியாண்டு முதல் சேர்க்கை பெறும் மாணவியருக்கு)
தமிழாய்வுத்துறை - முதுகலைத் தமிழிலக்கியம்

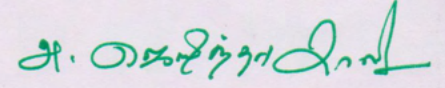
Sem	Course	Title	Course Code	Ins. Hrs / Week	Credit	Exam	Marks		Total
						Hours	Internal	External	
I	Core Course - I (CC)	தொல்காப்பியம் - எழுத்ததிகாரம் (இளம்புரணர் உரை)	19PTA1CC1	6	5	3	25	75	100
	Core Course - II (CC)	இக்கால இலக்கியம் - I	19PTA1CC2	6	5	3	25	75	100
	Core Course - III (CC)	சமய இலக்கியம்	19PTA1CC3	6	5	3	25	75	100
	Core Course - IV (CC)	சித்தர் இலக்கியம்	19PTA1CC4	6	4	3	25	75	100
	Elective Course - I (EC)	I. அ) மொழியியல் (or)	19PTA1EC1A	6	4	3	25	75	100
		I. ஆ) சுவடியியல்	19PTA1EC1B						
TOTAL				30	23				500
II	Core Course - V (CC)	தொல்காப்பியம் - சொல்லதிகாரம் (சேனாவரையர் உரை)	19PTA2CC5	6	5	3	25	75	100
	Core Course - VI (CC)	இக்கால இலக்கியம் - II	19PTA2CC6	6	5	3	25	75	100
	Core Course - VII (CC)	காப்பியங்கள்	19PTA2CC7	6	4	3	25	75	100
	Core Course - VIII (CC)	இலக்கியக் கொள்கைகள்	19PTA2CC8	6	4	3	25	75	100
	Elective Course - II (EC)	II. அ) கணினியும் இணையமும் (or)	19PTA2EC2A	6	4	3	25	75	100
		II. ஆ) மொழிபெயர்ப்பியல்	19PTA2EC2B						
TOTAL				30	22				500
III	Core Course - IX (CC)	தொல்காப்பியம் - பொருளதிகாரம் - I - முன் ஐந்து இயல்கள் (இளம்புரணர் உரை)	19PTA3CC9	6	5	3	25	75	100
	Core Course - X (CC)	சங்க இலக்கியம்	19PTA3CC10	6	5	3	25	75	100
	Core Course - XI (CC)	அற இலக்கியம்	19PTA3CC11	6	5	3	25	75	100
	Core Course - XII (CC)	தமிழ் இலக்கண வரலாறு	19PTA3CC12	6	4	3	25	75	100
	Elective Course - III (EC)	III. அ) ஆராய்ச்சி நெறிமுறைகள் (or)	19PTA3EC3A	6	4	3	25	75	100
III. ஆ) தமிழர் வளர்த்த கலைகள்		19PTA3EC3B							

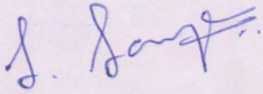
J. S.

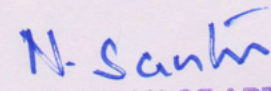
TOTAL				30	23				500
IV	Core Course – XIII (CC)	தொல்காப்பியம் - பொருளதிகாரம் - II - பின் நான்கு இயல்கள் (பேராசிரியர் உரை)	19PTA4CC13	5	5	3	25	75	100
	Core Course – XIV (CC)	திராவிட மொழிகளின் ஒப்பிலக்கணம்	19PTA4CC14	5	5	3	25	75	100
	Elective Course – IV (EC)	IV. அ) மக்கள் தகவல் தொடர்பியல் (or)	19PTA4EC4A	5	4	3	25	75	100
		IV. ஆ) பண்பாட்டு மானுடவியல்	19PTA4EC4B						
	Elective Course – V (EC)	V. அ) பெண்ணியம் (or)	19PTA4EC5A	5	4	3	25	75	100
		V. ஆ) அகராரியியல்	19PTA4EC5B						
		திட்டக்கட்டுரை	19PTA4PW	10	4				100
TOTAL				30	22				500
OVER ALL TOTAL				120	90	-	-	-	2000

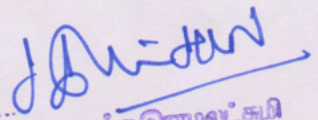

முனைவர் இரா. காமராசு
பேராசிரியர் மற்றும் தலைவர்
நாட்டுப்புறவியல் துறை
தமிழ்ப்பல்கலைக்கழகம்
தஞ்சாவூர் - 613 010.


Dr. R. KARUNANITHI
Associate Professor & Head
Department of Tamil
Thiru Kolanjiappar Govt. Arts College, Grade - I
Vridhachalam - 606 001.


முனைவர். அ. ஜெனிந்தாராணி
உதவிப் பேராசிரியர்,
தமிழாய்வுத்துறை,
புனித சிலுவை தன்னாட்சிக் கல்லூரி,
திருச்சி - 2.




N. Santhi
DEAN OF ARTS
CAUVERY COLLEGE FOR WOMEN
(AUTONOMOUS)
ANNAMALAI NAGAR
TIRUCHIRAPPALLI - 620 018
TAMILNADU


முனைவர் ச. இராமலட்சுமி
தலைவர், தமிழாய்வுத்துறை
வாவேரி மகளிர் கல்லூரி (தன்னாட்சி)
திருச்சி - 620 018.

ANNEXURE - E



CAUVERY COLLEGE FOR WOMEN, AUTONOMOUS

Nationally Accredited (III Cycle) with 'A' Grade by NAAC

ISO 9001:2015 Certified

Annamalai Nagar, Trichy – 18

PG DEPARTMENT OF ENGLISH

FIFTH MEETING OF THE BOARD OF STUDIES - 03rd JUNE 2021

AGENDA

1. ITEM NO. BoS/05/01

To consider and approve the Semester VI Syllabus of Part III Core Courses and Major Based Elective Courses of III BA English for 2019-2020 batch and onwards.

2. ITEM NO. BoS/05/02

To discuss the assessment criteria for the UGC Jeevan Kaushal Paper-Professional Skills which is approved to be conducted for all UG students in Semester V and ratify it.

3. ITEM NO. BoS/05/03

To validate the changes in the Skill Based Electives of Semester V and convert them as practical papers and adopt necessary changes in the code, assessment criteria with the approval of the board.

4. ITEM NO. BoS/05/04

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



CAUVERY COLLEGE FOR WOMEN, AUTONOMOUS

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PG DEPARTMENT OF ENGLISH

MINUTES OF THE FIFTH MEETING OF BOARD OF STUDIES

DATE : 03.06.2021

MEDIUM : Google Meet

TIME : 10:30 AM

MEMBERS PRESENT FOR THE BOARD OF STUDIES MEETING

1.	Dr. P. Urmila	Chairperson, Associate Professor and PG Head
2.	Dr. S. Jayashree Agarwal	Chairperson, Assistant Professor and UG Head
3.	Dr. G. Baskaran	Subject Expert, Gandhigram University
4.	Dr. B. Kathiresan	University Nominee, Thiruvalluvar University, Vellore
5.	Dr. P. Nagaraj	College Nominee Subject Expert, Bharathiar University Coimbatore
6.	Mr. R. Pandi Ganesh	Industrial Representative, EIT, Madurai
7.	Ms. R. Sruthi	Alumna, Guest Lecturer, N.K.R. Govt Arts College
8.	Dr. Rita Shanthakumar	Member
9.	Dr. Prema Joshua	Member
10.	Dr. P. Helan Jona	Member

11.	Dr. G. Gayathri	Member
12.	Ms. Cecilia Merlin Wilton	Member
13.	Ms. A. Violet Pangaja Bai	Member
14.	Ms. K. Kanimozhi	Member
15.	Ms. Jenifer Nancy	Member
16.	Ms. M. Irudhya Pushpam	Member
17.	Ms. M. Ramalakshmi	Member
18.	Ms. R. Shanthi	Member
19.	Ms. P.K. Durgadevi	Member
20.	Ms. J. Vani Priya	Member
21.	Ms. T. Haseena Banu	Member
22.	Ms. V. Sudhandra Devi	Member
23.	Ms. A. Esther Rani	Member
24.	Ms. U. Sree Aruna	Member
25.	Ms. N. Yoga	Member
26.	Ms. L.Samyukta	Member
27.	Ms. G. Vijayarenganayaki	Member
28.	Ms. K. Anitha	Member
29.	Dr. S. Senthil Kumari	Member
30.	Ms. S. Srinidhi	Member
31.	Dr. R. Vanitha	Member
32.	Ms. Vanmathi Siva	Member
33.	Ms. T. Mothika	Member

The leave of absence was granted to:

1.	Ms.R.Uma Maheswari	Member
2.	Ms. C. Chitra	Member
3.	Ms. Nandita Ravinder	Member
4.	Ms. Diana Betty Garrett	Member
5.	Ms. A. Edel Flora Mary	Member
6	Dr. G. Bhavani Sushma	Member



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PG DEPARTMENT OF ENGLISH

**ACTION TAKEN REPORT OF THE FOURTH MEETING OF THE BOARD OF
STUDIES HELD ON 04.01.2021**

The fourth meeting of the Board of Studies was held online through Google Meet on 04.01.2021. All the 5 external members and 35 faculty members were present. The Resolutions 04/01 to Resolution 04/04 of the IV Meeting of the Board of Studies in connection with the changes in the Course Outcomes of Major Based Elective I- Translation Theory and Practice, Skill Based Electives II- Functional English, Academic Writing, Inclusion of Swayam Online Course in Semester II of BA English, introduction of Jeevan Kaushal Life Skills Course- Professional Skills to all UG students, changes in the Assessment Criteria for Core Course XI – English Literature for UGC Examination for MA English were carried out as per the suggestions of the Board.



CAUVERY COLLEGE FOR WOMEN, AUTONOMOUS

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Annamalai Nagar, Trichy – 18

FIFTH MEETING OF THE BOARD OF STUDIES HELD ON 03/06/2021

MINUTES OF MEETING- UG

The following Resolutions were passed by the Board of Studies Members

1. Resolution No: BoS/05/01

To consider and approve the Semester VI Syllabus of Part III Core Courses and Major Based Elective Courses of III BA English for 2019-2020 batch and onwards.

- Considered and approved the syllabus of the Core Courses of Semester VI for III BA English for 2019-2020 batch and onwards to provide a broader scope for higher learning.

The suggestions and corrections made by the Board of Studies Jury with regard to the syllabus and curriculum of Core Course XIII English Language Teaching, Core Course XIV Indian Writing in English and in Core Course XV Commonwealth Literature, new changes were implemented and carried out.

- Considered and approved the syllabus and curriculum of the subjects given in the Major Based Elective - II and in Major Based Elective - III. The members of the Board of Studies rendered suggestions and remarks to focus on career prospects and scholarly learning.

Suggestions and changes were made by the Members of the Board of Studies in Major Based Elective - II in the subject titled Journalism and corrections were carried out. In Major Based Elective - III suggestions, changes and corrections were made in the subjects titled Developing Language Skills and in Phonetics.

2. Resolution No: BoS/05/02

To consider and approve the assessment criteria for the UGC Jeevan Kaushal Paper - Professional Skills in Semester V.

- Considered and approved the assessment criteria for the UGC Jeevan Kaushal Paper with both internal and external components – Professional Skills in Semester V.

3. Resolution No: BoS/05/03

To consider and ratify the changes in the Skill Based Elective papers of Semester V.

- Considered and approved the Skill Based Electives papers II & III of Semester V.

4. Resolution No: BoS/05/04

To express appreciation to the members of the Board of Studies for their contribution in the ground plan of the syllabus and curriculum.

- The Chairpersons Dr.P.Urmila, PG Head, and Dr.S.Jayashree Agarwal, UG Head of the Department of English expressed appreciation to the Members of the Board of Studies for their contribution in the ground plans of the syllabus and curriculum and suggested the members to resolve and implement the suggestions to suffice the requirements of career development and for the future educational prospects of the students.

There being the Board of Studies meeting was resolved and concluded by recommending the UG Syllabus to The Academic Council, Cauvery College for Women, Autonomous, Trichy-18

Dr. G. Baskaran
Professor & Dean,
Gandhigram University,
Dindigul.




There being the Board of Studies meeting was resolved and concluded by recommending the UG Syllabus to The Academic Council, Cauvery College for Women, Autonomous, Trichy-18

Dr. B. Kathiresan
Professor


Thiruvalluvar
University, Vellore



There being the Board of Studies meeting was resolved and concluded by recommending the UG Syllabus to The Academic Council, Cauvery College for Women, Autonomous, Trichy-18

<p>Dr. P.Nagaraj Associate Professor Bharathiar University, Coimbatore</p>	
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There being the Board of Studies meeting was resolved and concluded by recommending the UG Syllabus to The Academic Council, Cauvery College for Women, Autonomous, Trichy-18

<p>Mr. R. Pandi Ganesh Industrial Representative, EIT, Madurai</p>	
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There being the Board of Studies meeting was resolved and concluded by recommending the UG Syllabus to The Academic Council, Cauvery College for Women, Autonomous, Trichy-18

<p>Ms. R. Sruthi Guest Lecturer N.K.R.Government Arts College for Women, Namakkal.</p>	<p>R. Sruthi 19/06/2021</p>
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CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
NATIONALLY ACCREDITED (III CYCLE) WITH "A" GRADE
(CGPA 3.41 OUT OF 4) BY NAAC
ISO 9001:2015 CERTIFIED
ANNAMALAI NAGAR, TRICHY -18



FROM 2019 – 2020 BATCH AND ONWARDS
SEMESTER - VI

THE BOARD OF STUDIES

Dr. G. Baskaran
Professor & Dean, Gandhigram University,
Dindigul.

Dr. B. Kathiresan
Professor
Thiruvalluvar University,
Vellore.

Professor Nagaraj,
Associate Professor,
Department of English and Foreign Languages,
Bharathiar University, Coimbatore

Mr. R.Pandi Ganesh BAMS, M.D. Pursuing Ph.D
Effulgenz Infotech,
Assistant Operating Manager,
Madurai.

Ms. R. Shruthi
Guest Lecturer,
N.K.R. Government Arts College for Women,
Namakkal.

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	Undertake Competitive Exams; Enhance Communicative Skills; to become a potent workforce by securing Job Opportunities.

AUTONOMOUS PROGRAMME STRUCTURE

SEMESTER - I

SEM	PART	COURSE	TITLE	SUB. CODE	HRS/	CREDITS	EXAM	MARKS		TOTAL			
					WEEK			HRS	INT		EXT		
I	I	Language Course – I (LC) – Tamil */ Other Languages* *#	Ikkala Illakyam - I	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)	Prose		19UEN1CC1	6	5	3	25	75	100		
				Core Course – II (CC)	Short Stories		19UEN1CC2	6	5	3	25	75	100
						Allied Course – I (AC)	Social History of England	19UEN1AC1	4	3	3	25	75
	IV	Value Education	Value Education	19UGVE	2	2	3	25	75	100			
			Total			30	21				600		

SEMESTER - II

SEM	PART	COURSE	TITLE	SUB.CODE	HRS/	CREDITS	EXAM HRS	MARKS		TOTAL
					WEEK			INT	EXT	
II	I	Language Course – II	IdaikalaIlakiyamum Pudhinamum	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	19UEN2CC 3	6	5	3	25	75	100
		Core Course IV (CC)	Fiction	19UEN2CC 4	6	5	3	25	75	100
		Allied Course II (AC)	Literary Forms	19UEN2AC 2	4	3	3	25	75	100
	IV	Environmen tal Studies	Environmental Studies	19UGES	2	2	3	25	75	100
	TOTAL					30	21			600


SEMESTER – III

SEM	PART	COURSE TITLE	TITLE	SUB.CODE	HRS/ WEE	CRED ITS	EXA M 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 –I	19UE3	6	3	3	25	75	100	
	III	Core Course V (CC)	Core Course VI (CC)	One Act Plays	19UEN3CC5	6	5	3	25	75	100
				Poetry- II	19UEN3CC6	6	5	3	25	75	100
				History of English Literature-I	19UEN3AC3	4	3	3	25	75	100
	IV	Non Major Elective I – for those whostudied Tamil under Part I	a) Basic Tamil for other language students	Presentation Skills in English	19UEN3NM1	2	2	3	25	75	100
				Basic Tamil	19ULC3BT1						
b) Special Tamil for those who studied Tamil up to 10 th +2 but opt for other languages in degree programme				Special Tamil	19ULC3ST1						
Extra credit course	Swayam Online Course	The Psychology of Language			As per UGC Norms						
TOTAL					30	21				600	

SEMESTER – IV

SEM	PART	COURSE TITLE	TITLE	SUB.CODE	HRS/ WEEK	CRE DITS	EXA M HRS	MARKS		TOT AL	
					K			INT	EXT		
IV	I	Language Course – IV	Pandaiya Illakiyam	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-II	19UE4	6	3	3	25	75	100	
	III	Core Course VII (CC)	Drama	19UEN4CC7	5	5	3	25	75	100	
			Introduction of Language and Linguistics	19UEN4CC8	5	5	3	25	75	100	
			History of English Literature-II	19UEN4AC4	4	3	3	25	75	100	
	IV	Non Major Elective II – for those who studied Tamil under Part I	Communication Skills in English	19UEN4NME2	2	2	3	25	75	100	
			a) Basic Tamil for other language students	Basic Tamil							19ULC4BT2
			b) Special Tamil for those who studied Tamil up to 10 th +2 but opt for other languages in degree programme Communication Skills	Special Tamil							19ULC4ST2
	V	Skill Based Elective – I	Writing for Media	19UEN4SBE1A	2	2	3	25	75	100	
			Business English	19UEN4SBE1B							
		Extra creditcourse	SWAYAMONLINE COURSE	To be fixed later	As per UGC Norms						
	TOTAL				30	23				700	

SEMESTER – V

SEM	PART	COURSE	TITLE	SUB.CODE	HRS/ WEEK	CREDIT S	EXAM HRS	MARKS		TOTAL
								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	5	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	Mastering English Literature	19UEN5MBE1A	4	3	3	25	75	100
			OR							
		Translation :Theory and Practice	19UEN5MBE1B							
	IV	Skill Based Elective – II	Academic Writing*	19UEN5SBE2A	2	2	3	25	75	100
			Or							
			Functional English	19UEN5SBE2B						
		Skill Based Elective – III	Public Speaking*	19UEN5SBE3A	2	2	3	25	75	100
			Or							
		Art of Speaking	19UEN5SBE3B							
		UGC - Jeevan Kaushal	Professional Skills	19UGPS	2	2	3	25	75	100
	Extra credit course	SWAYAM ONLINE COURSE	To be fixed later	As per UGC Norms						
TOTAL					30	29				800
Signature of the Board of Studies Members										
Dr. G. Baskaran Professor & Dean, Gandhigram University, Dindigul.										

SEMESTER – V

SEM	PART	COURSE	TITLE	SUB.CODE	HRS/ WEEK	CREDIT S	EXAM HRS	MARKS		TOTAL
								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	5	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	Mastering English Literature	19UEN5MBE1A	4	3	3	25	75	100
			OR							
		Translation :Theory and Practice	19UEN5MBE1B							
	IV	Skill Based Elective – II	Academic Writing*	19UEN5SBE2A	2	2	3	25	75	100
			Or							
			Functional English	19UEN5SBE2B						
		Skill Based Elective – III	Public Speaking*	19UEN5SBE3A	2	2	3	25	75	100
			Or							
		Art of Speaking	19UEN5SBE3B							
	UGC - Jeevan Kaushal	Professional Skills	19UGPS	2	2	3	25	75	100	
	Extra credit course	SWAYAM ONLINE COURSE	To be fixed later	As per UGC Norms						
TOTAL					30	29				800

Signature of the Board of Studies Members

Dr. B. Kathiresan

Professor

Thiruvalluvar University, Vellore



SEMESTER – V

SEM	PART	COURSE	TITLE	SUB.CODE	HRS/ WEEK	CREDIT S	EXAM HRS	MARKS		TOTAL
								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	5	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	Mastering English Literature	19UEN5MBE1A	4	3	3	25	75	100
			OR							
		Translation :Theory and Practice	19UEN5MBE1B							
	IV	Skill Based Elective – II	Academic Writing*	19UEN5SBE2A	2	2	3	25	75	100
			Or							
			Functional English	19UEN5SBE2B						
		Skill Based Elective – III	Public Speaking*	19UEN5SBE3A	2	2	3	25	75	100
			Or							
			Art of Speaking	19UEN5SBE3B						
		UGC - Jeevan Kaushal	Professional Skills	19UGPS	2	2	3	25	75	100
	Extra credit course	SWAYAM ONLINE COURSE	To be fixed later	As per UGC Norms						
TOTAL					30	29				800

Signature of the Board of Studies Members

Dr. P.Nagaraj
Associate Professor
Bharathiar University,
Coimbatore



SEMESTER – V

SEM	PART	COURSE	TITLE	SUB.CODE	HRS/ WEEK	CREDIT S	EXAM HRS	MARKS		TOTAL
								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	5	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	Mastering English Literature	19UEN5MBE1A	4	3	3	25	75	100
			OR							
			Translation :Theory and Practice	19UEN5MBE1B						
	IV	Skill Based Elective – II	Academic Writing*	19UEN5SBE2A	2	2	3	25	75	100
			Or							
		Functional English	19UEN5SBE2B							
		Skill Based Elective – III	Public Speaking*	19UEN5SBE3A	2	2	3	25	75	100
			Or							
		Art of Speaking	19UEN5SBE3B							
	UGC - Jeevan Kaushal	Professional Skills	19UGPS	2	2	3	25	75	100	
Extra credit course	SWAYAM ONLINE COURSE	To be fixed later	As per UGC Norms							
TOTAL					30	29				800

Signature of the Board of Studies Members


Mr. R. Pandi Ganesh
Industrial Representative,
EIT, Madurai



SEMESTER – V

SEM	PART	COURSE	TITLE	SUB.CODE	HRS/ WEEK	CREDIT S	EXAM HRS	MARKS		TOTAL
								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	5	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	Mastering English Literature	19UEN5MBE1A	4	3	3	25	75	100
			OR							
		Translation :Theory and Practice	19UEN5MBE1B							
	IV	Skill Based Elective – II	Academic Writing*	19UEN5SBE2A	2	2	3	25	75	100
			Or							
			Functional English	19UEN5SBE2B						
		Skill Based Elective – III	Public Speaking*	19UEN5SBE3A	2	2	3	25	75	100
			Or							
			Art of Speaking	19UEN5SBE3B						
		UGC - Jeevan Kaushal	Professional Skills	19UGPS	2	2	3	25	75	100
		Extra credit course	SWAYAM ONLINE COURSE	To be fixed later	As per UGC Norms					
TOTAL					30	29				800
<p>Signature of the Board of Studies Members</p>										
<p>Ms. R. Sruthi Guest Lecturer N.K.R.Government Arts College for Women, Namakkal.</p>						<p style="text-align: right;"><i>R. Sruthi</i> 19/06/2021</p>				

SEMESTER - VI

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
		Major Based Elective – II	Journalism	19UEN6MBE2A	6	4	3	25	75	100
			Or	Or						
			Mass Communication	19UEN6MBE2B						
		Major Based Elective – III	Developing Language Skills	19UEN6MBE3A	5	4	3	25	75	100
			Or	Or						
			Phonetics	19UEN6MBE3B						
	V	Extension Activities		19UGEA	-	1	-	-	-	-
V	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100	
TOTAL					30	25				600
GRAND TOTAL					180	140		975	2925	3900
Signature of the Board of Studies Members										
Dr. G. Baskaran Professor & Dean, Gandhigram University, Dindigul.										

SEMESTER - VI


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	
		Major Based Elective – II	Journalism	19UEN6MBE2A	6	4	3	25	75	100	
			Or	Or							
		Major Based Elective – III	Mass Communication	19UEN6MBE2B	5	4	3	25	75	100	
			Developing Language Skills	19UEN6MBE3A							
			Or	Or							
				Phonetics	19UEN6MBE3B						
		V	Extension Activities		19UGEA	-	1	-	-	-	-
V	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100		
TOTAL					30	25				600	
GRAND TOTAL					180	140		975	2925	3900	

Signature of the Board of Studies Members


Dr. B. Kathiresan
Professor
 Thiruvalluvar University,
 Vellore



SEMESTER - VI

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
		Major Based Elective – II	Journalism	19UEN6MBE2A	6	4	3	25	75	100
			Or	Or						
			Mass Communication	19UEN6MBE2B						
		Major Based Elective – III	Developing Language Skills	19UEN6MBE3A	5	4	3	25	75	100
			Or	Or						
			Phonetics	19UEN6MBE3B						
		V	Extension Activities		19UGEA	-	1	-	-	-
V	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100	
TOTAL					30	25				600
GRAND TOTAL					180	140		975	2925	3900
Signature of the Board of Studies Members										
Dr. P.Nagaraj Associate Professor Bharathiar University, Coimbatore										

SEMESTER - VI

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
		Major Based Elective – II	Journalism	19UEN6MBE2A	6	4	3	25	75	100
			Or	Or						
			Mass Communication	19UEN6MBE2B						
		Major Based Elective – III	Developing Language Skills	19UEN6MBE3A	5	4	3	25	75	100
			Or	Or						
			Phonetics	19UEN6MBE3B						
		V	Extension Activities		19UGEA	-	1	-	-	-
V	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100	
TOTAL					30	25				600
GRAND TOTAL					180	140		975	2925	3900
Signature of the Board of Studies Members										
Mr. R. Pandi Ganesh Industrial Representative, EIT, Madurai										

SEMESTER - VI

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
		Major Based Elective – II	Journalism	19UEN6MBE2A	6	4	3	25	75	100
			Or	Or						
			Mass Communication	19UEN6MBE2B						
		Major Based Elective – III	Developing Language Skills	19UEN6MBE3A	5	4	3	25	75	100
			Or	Or						
			Phonetics	19UEN6MBE3B						
		V	Extension Activities		19UGEA	-	1	-	-	-
V	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100	
TOTAL					30	25				600
GRAND TOTAL					180	140		975	2925	3900

Signature of the Board of Studies Members

Ms. R. Sruthi
Guest Lecturer
 N.K.R.Government Arts College for Women,
 Namakkal.

R. Sruthi
 19/06/2021

SIXTH SEMESTER SYLLABI

CORE COURSE XIII: ENGLISH LANGUAGE TEACHING

S.NO	SUB CODE	TITLE	CATEGORY	L	T	P	CREDITS
1	19UEN6CC13	English Language Teaching	Core Course XIII	70	10		5

Objective:

- To expose learners to various approaches & methods, aspects and strategies of teaching English.
- To help the learners understand the essential components & concepts of Language teaching.

Prerequisite:

The course is designed to expose learners to various approaches and methods, aspects and strategies of teaching English and help the learners to understand the essential components and concepts of Language teaching.

SYLLABUS

UNIT I: (20 hours)

Issues involved in the teaching of English- Explanation of Curriculum, Syllabus, Course, Methods, Approaches, Techniques, Teaching English as a Second Language.

UNIT II: (18 hours)

Teaching of Pronunciation, Reading and Writing Skills, Teaching of Composition.

UNIT III: (15 hours)

Teaching of Grammar, Vocabulary, Teaching of Poetry, Prose, Drama and Fiction.

UNIT IV: (12 hours)

Testing- Characteristics- Types of Questions – Essay, Short Answer and Objective Type of Questions – Difference between Assessment, Evaluation and Testing.

UNIT V: (15 hours)

Use of Audio- Visual Aids in the Teaching of Language.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Relate the methodologies in the teaching of various forms of literature (Poetry, Grammar, Vocabulary, Composition, Pronunciation, LSRW Skills)	K1
CO2	Explain the various approaches, methods and techniques of teaching English.	K2
CO3	Demonstrate the use of Audio-visual aids in the teaching of language.	K3
CO4	Apply the knowledge in preparing and designing curriculum, syllabus and course.	K4
CO5	Analyze the essential components and concepts of ELT	K4

MAPPING WITH PROGRAMME OUTCOMES

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

S-Strong M-Medium L-Low.

BOOKS FOR REFERENCE:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1	Baruah, TC	The English Teacher's Handbook	Sterling Publishers	1991
2	Bright, John A., & G.P. McGregor	Teaching English as a Second Language	Longman	1970
3	Richards, Jack C, & Theodore S. Rodgers	Approaches & Methods in Language Teaching: A Description & Analysis	Cambridge University Press	1986
4	Varghese, Paul	Teaching English as a Second Language	Sterling Publishers	1990
5	Nagarajan K, Natarajan S & Manivasagan C R	Educational Innovations And Management	Ram Publishers	2009

Pedagogy: Seminar, Quiz, Assignment
Course Designer: Ms. A. Violet Pangaja Bai

CORE COURSE XIV: INDIAN WRITING IN ENGLISH

S.NO	SUB CODE	TITLE	CATEGORY	L	T	P	CREDITS
2	19UEN6CC14	Indian Writing in English	Core Course XIV	70	10		5

Objective:

- Introduce the major movements and personalities of Indian Literature in English.
- Provides the learners a perception into the diverse aspects of Indian Writing in English down the ages.

Prerequisite:

The course is designed to educate the learners to different writers and the works in Indian Writing in English.

SYLLABUS

UNIT-I (POETRY) (15 hours)

- Nissim Ezekiel - Night of the Scorpion
A.K.Ramanujam - Self-portrait
Kamala Das - A Hot Noon in Malabar
Shiv K Kumar - Indian Women

UNIT-II (PROSE) (15 hours)

- Salman Rushdie - Commonwealth Literature Does Not Exist
Meenakshi Mukherjee - Divided by a Common Language

UNIT-III (SHORT STORIES) (15 hours)

- R.K.Narayan - The Missing Mail
Jhumpa Lahiri - A Temporary Matter (Interpreter of Maladies)
Rohinton Mistry - Swimming Lessons

UNIT-IV (DRAMA) (15 hours)

- Mahesh Dattani - Final Solutions
Girish Karnad - Hayavadana

UNIT-V (FICTION) (20 hours)

- Chitra Banerjee Devakaruni - Before We Visit the Goddess
Arundhati Roy - The God of Small Things
Vikram Seth - A Suitable Boy

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Identify and discuss the changing trends in Indian Literature from pre to post independence era.	K1
CO2	Explain the growth of Indian Writing in English in the light of rich literary tradition as projected by the various Indian authors.	K2
CO3	Relate and compare various aspects and cultures of Indian English in prescribed texts.	K3
CO4	Apply the knowledge in understanding the Indian Writing in English texts and predict the culture and historic contexts of the different genres.	K4
CO5	Analyze the Indian English literary texts to achieve particular literary, rhetorical and aesthetic effects.	K4

MAPPING WITH PROGRAMME OUTCOMES

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(s)	Title of the Book	Publisher	Year of Publication
1	Singh R.P & Prasad S.K	Anthology of Indian English Poetry	Orient Blackswan	1989
2	A.N. Devi	Kamala Das & Her Poetry	Atlantic Publishers & Distributors (P)	2009
3	Anjana Neira Dev & Amrita Bhalla	Indian Writing in English - An Anthology of Prose and Poetry Selection	Pimus Books	2013
4	R.K.Narayan	Malgudi Days	Penguin Publishers	1972
5	Jhumpa Lahiri	Interpreter of Maladies	Houghton Mifflin	1999
6	Girish Karnad	Hayavadana	Oxford University Press	2008
7	Mahesh Dattani	Final Solutions	Penguin Books	1994
8	Chitra Banerjee Devakaruni	Before We Visit the Goddess	Simon & Schuster	2016
9	Arundhati Roy	The God of Small Things	Penguin India	2002
10	Vikram Seth	The Suitable Boy	Penguin India	1994

BOOKS FOR REFERENCE:

S. No	Author(s)	Title of the Book	Publisher	Year of Publication
1	Rajaram, Mehrotra	Indian English Texts and Interpretation	Amsterdam Philadelphia	1998

Pedagogy: Quiz, Assignment, Seminar

Course Designer: Dr.P.Helan Jona

CORE COURSE XV: COMMONWEALTH LITERATURE

S.NO	SUB CODE	TITLE	CATEGORY	L	T	P	CREDITS
3	19UEN6CC15	Commonwealth Literature	Core Course XV	70	10		5

Objective:

- The course will acquaint the students to a new literature written in English by writers belonging to the Commonwealth countries.
- The course will provide an overview of the features of Literature pertaining to different geographical regions providing insight to literary, linguistic, cultural and socio –political aspects within Commonwealth writing.

Prerequisite:

- Must have knowledge about the history of Commonwealth countries.

SYLLABUS

UNIT-I (POETRY) (20 hours)

Faiz Ahmed Faiz (Pakistan) - A Few Days More

Allen Curnow (New Zealand) - House & Land

Cyril Wong (Singapore) - Arrival

Suman Pokhrel (Nepal) - The Taj Mahal and My Love

UNIT-II (PROSE) (10 hours)

Margaret Atwood (Canada) - Nature as a Monster (Ch.2, Survival- A Thematic Study)

UNIT-III (SHORT STORY) (20 hours)

Nadine Gordimer (South Africa) – Once Upon a Time

Niaz Zaman (Bangladesh) – The Daily Woman

UNIT – IV [DRAMA] (15 hours)

Wole Soyinka (Nigeria) – The Lion and the Jewel

UNIT-V (FICTION) (15 hours)

Michael Ondaatje (Sri Lanka) – The English Patient

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Identify and recall the working knowledge of the historical and cultural contexts of Commonwealth Literature from mid-20 th century till present day.	K1
CO2	Explain the distinct literary characteristics of Commonwealth Literature of the time period.	K2
CO3	Describe literary works from various genres for their structure and meaning.	K3
CO4	Classify the various aspects of the post-colonial short stories, poetry and drama.	K4
CO5	Analyze critically the ideas related to the literary works written by the post-colonial authors.	K4

MAPPING WITH PROGRAMME OUTCOMES

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(s)	Title of the Book	Publisher	Year of Publication
1	Faiz Ahmed, Faiz	<i>Poems by Faiz Ahmed Faiz</i>	OUP India	2002
2	Curnow, Allen	<i>Island & Time</i>	Caxton Press (Christchurch, N.Z.)	1941
3	Wong, Cyril	<i>Unmarked Treasure: Poems</i>	Firstfruits Publications	2004
4	Pokhrel, Suman	<i>The songs we share: An Anthology of South Asian poetry</i>	Foswal	2011
5	Atwood, Margaret	<i>Survival: A thematic guide to Canadian Literature</i>	House of Anansi	1972
6	Gordimer, Nadine	<i>Once upon a Time</i>	L.A. Theatre Works	2016
7	Zaman, Niaz	<i>The Dance and other stories</i>	University Press	1996
8	Soyinka, Wole	<i>The Lion & The Jewel</i>	Oxford University press	1962
9	Ondaatje, Michael	<i>The English Patient</i>	McClelland and Stewart	1992

BOOKS FOR REFERENCE:

S.No	Author(s)	Title of the Book	Publisher	Year of Publication
1	Irele, Abida.F	<i>The African Imagination: Literature in Africa and the Black Diaspora</i>	London: Oxford University Press	2001.
2	Jones, Joseph	<i>Reference sources for Canadian Literary studies</i>	University of Toronto Press	2005
3	Stafford, Jane Mark Williams	Anthology of New Zealand Literature	The Auckland University Press	2012
4	Walch, William. Ed.	<i>Readings of Commonwealth Literature</i>	Oxford: Clarendon Press	1973.

Pedagogy: Quiz, Assignment, Seminar

Course Designer: Dr.Prema Joshua

MAJOR BASED ELECTIVE –II: JOURNALISM

S.NO	SUB CODE	TITLE	CATEGOR Y	L	T	P	CREDIT S
4	19UEN6MBE2A	Journalism	Major Based Elective – II	60	8		4

Objective:

- To educate the learners about the history of journalism in India.
- To inculcate the spirit of a journalist.
- To master the nuances of editing, reporting etc

Prerequisite:

The course is designed to educate the learners about the history of journalism in India and to inculcate the spirit of a journalist, and, to master the nuances of editing, reporting etc.

SYLLABUS

UNIT I: (12 hours)

Journalism: Definition - Functions - The Press in Democracy -The role of Press as a Communicator - History of Journalism in India

UNIT II: (12 hours)

Press Council - Set Up, Prior to Emergency, Revived Press Council - Language of Journalism - - Style of Writing - Editing

UNIT III: (15 hours)

News - News and its Dissemination - Communication with Press and New Agencies - The Publicist and News Agencies - News Story- types - elements of news- News reporting and the Reporter - News Releases - Timings of Press Releases.

UNIT IV: (10 hours)

Opinion Pieces- Editorial- Review- Articles - Letters to the Editor - Column Writing.

UNIT V: (16 hours)

The Mass Media- History, practices, values. Functions of Mass Media role in the democracy, Media Laws.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Recall the history of Journalism in India.	K1
CO2	Explain the role of press and various news agencies.	K2
CO3	Identify and remember the nuances of editing, reporting, review, article and column writing.	K3
CO4	Develop interest and prepare the learners to take up journalism as a profession.	K4
CO5	Analyze the various types of news story and elements of news.	K4

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	P O 2	P O 3	P O 4	P O 5
CO1	M	S	S	S	S
CO2	S	S	M	S	S
CO3	S	S	M	S	S
CO4	M	S	M	S	S
CO5	S	S	S	S	S

S-Strong M-Medium L-Low.

BOOKS FOR REFERENCE:

S.No	Author(s)	Title of the Book	Publisher	Year of Publication
1	Keval J. Kumar.	Mass Communication in India- First Edition	Jaico Impression	1994
2	D.S. Mehta.	Mass Communication and Journalism in India	Allied Publishers Private Limited	1979
3.	Rangaswami Parthasarathy	Journalism in India	Sterling Publications Pvt. Limited	1997

Pedagogy: Quiz, Assignment & Seminar
Course Designer: Ms. R. Shanthi

MAJOR BASED ELECTIVE – II: MASS COMMUNICATION

S.NO	SUB CODE	TITLE	CATEGORY	L	T	P	CREDITS
5	9UEN6MBE2B	Mass Communication	MajorBased Elective –II	60	8		4

Objectives:

- Develop the intellectual personal and professionalabilities.
- Provide a good grounding in the best practice of Mass Communication.
- To introduce students to the history of print media and its role in Indian freedom movement.

Prerequisite:

The course is designed to educate the learners on the importance and development of mass communication in India and to inculcate modern trends, laws and ethics of mass communication.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	To understand and apply knowledge of human communication and language processes from multiple perspectives.	K3
CO2	To infer the growth and origin of press, magazines, radio and television in India.	K4
CO3	Develop and use original content for different media formats, including written, radio (audio), visual (video) and internet.	K4
CO4	Justify the decision for resolving moral or ethical mass communication dilemmas.	K5
CO5	Improve self-confidence and awareness of general issues prevailing in the society.	K5

MAPPING WITH PROGRAMME OUTCOMES

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

S-Strong M-Medium L-Low.

SYLLABUS

Unit I - (10 hours)

Communication & Media: Definition, meaning & concept- Different types of communication: Verbal and written- Scope and Process of Communication Mass Communication – Functions of Mass Communication

Unit II - (15 hours)

Mass Media: Meaning & Concept- Introduction to Indian Press- Brief account of the origin and development of newspaper and magazine in India- Birth of the Indian Language Press -The Indian Press and Freedom Movement - The press in India after Independence

Unit III – (15 hours)

Development of Radio as a medium of Mass Communication- Emergence of AIR - Development of Television as a medium of Mass Communication - Historical Perspective of Television in India - Film as a Mass medium

Unit IV – (15 hours)

Objectives, functions & achievements of Mass Media- Relation between Mass Media and its development- Media as fourth pillar of democracy - Mass Media laws & Ethics

Unit V - (13 hours)

Changing trends of Mass Communication under the process of globalization - Private and Public Media - Social responsibility, accountability, demassification and demystification

REFERENCE BOOKS:

S.No	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Sharma, Ashish.	Introduction to Mass Communication	Evincepub Publishing, India.	2018.
2.	Keval J. Kumar.	Mass Communication in India- First Edition	Jaico Impression	1994
3.	Neelamalar, M.	Media Law and Ethics.	Delhi: PHI	2009

Pedagogy: Quiz, Assignment & Seminar
Course Designer: Dr. S. Senthilkumari

MAJOR BASED ELECTIVE – III: DEVELOPING LANGUAGE SKILLS

S.NO	SUB CODE	TITLE	CATEGORY	L	T	P	CREDITS
6	19UEN6MBE3A	Developing Language Skills	Major Based Elective – III	60	8		4

OBJECTIVE:

- Develop the intellectual personal and professionalabilities.
- Acquire basic language skills (listening, speaking, reading and writing) in orderto communicate with speakers of Englishlanguage.
- Acquire the linguistic competence necessarily required in various lifesituations.

PREREQUISITE:

Develop confidence in the use of effective language skills and use in meaningful and appropriate communication

SYLLABUS

UNIT I: LISTENING (14 Hours)

News items, Reports, Drama, Poetry & Short Stories, Classic Movies, Speeches by International Personalities, Current Affairs.

UNIT II: SPEAKING (14 Hours)

Extempore- Dynamics of Speaking – Presentation, Poise- Body Language – On Stage & In Interview, Subject matter.

UNIT III: READING (13 Hours)

Reading Current Prose pieces- Articles from Newspapers, Reading Ad's & Interpreting from Media, Reports, Skimming, Scanning, Speed Reading.

UNIT IV: WRITING (14Hours)

Register based vocabulary, Paragraph Writing, Précis Writing and VocationalWriting.

UNITV:TESTING (13Hours)

LISTENING- Passage reading, Comprehension

READING- Reading a passage, Comprehension.

SPEAKING- Topics given and speaking skills evaluated based on the syllabus.

Critical Thinking, Gestures, Postures

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Recall, identify and pronounce in skill based activities of LSRW skills.	K1
CO2	Explain, restate, convert and interpret the text. LSRW- Task.	K2
CO3	Apply, prepare and communicate ideas with specific details based on the information and instruction in LSRW.	K3
CO4	Analyze, structuralize and differentiate the given topics to enhance speaking and writing skills	K4
CO5	Analyze and evaluate the tasks in listening and reading skills.	K4

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	S
CO2	S	M	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 L-Low.

TEXT BOOK:

S.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1	Upendra	Listening and Speaking with CD	Orient Longman	2014
2	S.C.Sood	Developing Language Skills 1	Manohar Publishers and Distributers	2003

BOOKS FOR REFERENCE:

S.No	Author(s)	Title of the Book	Publisher	Year of Publication
1	UJ.K. Gangal	A Practical Course for Developing Writing Skills in English	Prentice Hall India Learning Private Limited	2011
2	Edward de Bono	Six Thinking Hats	Penguin UK	1985
3	Geetha Nagaraj	Write to Communicate	Cambridge University Press	2004

Pedagogy: Seminar, Discussion, Interaction, Drill &Practice
Course Designer: Ms. Cecilia Merlin Wilton

MAJOR BASED ELECTIVE – III: PHONETICS

S. NO	SUBJECT CODE	TITLE	CATEGORY	L	T	P	Credits
7	19UEN6MBE3B	PHONETICS	Major Based Elective – III	60	8		4

Objectives:

- The Course is designed to give theoretical and practical knowledge of English phonetics and phonology.
- To classify sounds and other units of a word.
- It includes development of skill in sound identification and discrimination, the control of speech production abilities.

PREREQUISITE

Learners will have a basic knowledge of speaking skills with proper sounds.

SYLLABUS

Unit – I (13 Hrs)

Language, Linguistics and Communication
Components of Linguistics
Phonetics: The Articulation of Speech Sounds

Unit – II (13 Hrs)

Classification of Speech Sounds
Classification and Description of Consonants
Classification and Description of Vowels

Unit – III (14 Hrs)

The Syllable
The Pure Vowels and Diphthongs of English
Consonant Clusters in English

Unit – IV (13 Hrs)

Word – accent in English
Accent and Rhythm in Connected Speech
Intonation

Unit – V (15 Hrs)

Phonetic Transcription

COURSE OUTCOMES

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

CO NUMBER	COSTATEMENT	KNOWLEDGE LEVEL
CO 1	Recall and identify the study of Phonetics and its purpose.	K1
CO2	Explain the mechanism of organs involved in speech production.	K2
CO3	To apply and classify the theories of speech and writing.	K3
CO4	Diagnose, dissect and determine speech sounds into stress patterns.	K4
CO5	Analyze the syntax of a sentence and transcribe the spoken language text.	K4

MAPPING WITH PROGRAM OUTCOMES

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

TEXT BOOK

S. No	Authors	Title	Publishers	Year of Publication
1.	Balasubramaniam. T	A Textbook of English Phonetics for Indian Students Macmillan	Trinity Press	2012
2.	Balasubramaniam. T	English Phonetics for Indian Students: A workbook	Trinity Press	2012

BOOKS FOR REFERENCE

S.No	Authors	Title	Publishers	Year of Publication
1.	Jones,Daniel	English Pronouncing Dictionary,15 th Edition	Cambridge University Press	1997


PEDAGOGY

Phonetic Transcription, Assignment, Listening & Speaking Practices.

COURSE DESIGNER

Ms. S. Srinidhi

Signature of the Board of Studies Members

<p>Dr. G. Baskaran Professor & Dean, Gandhigram University, Dindigul.</p>	
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TEXT BOOK

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1.	Balasubramaniam. T	A Textbook of English Phonetics for Indian Students Macmillan	Trinity Press	2012
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PEDAGOGY

Phonetic Transcription, Assignment, Listening & Speaking Practices.

COURSE DESIGNER

Ms. S. Srinidhi

Dr. B. Kathiresan
Professor

Thiruvalluvar
University, Vellore



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PEDAGOGY

Phonetic Transcription, Assignment, Listening & Speaking Practices.

COURSE DESIGNER

Ms. S. Srinidhi

Dr. P.Nagaraj
Associate Professor
Bharathiar
University,
Coimbatore



TEXT BOOK

S. No	Authors	Title	Publishers	Year of Publication
1.	Balasubramaniam. T	A Textbook of English Phonetics for Indian Students Macmillan	Trinity Press	2012
2.	Balasubramaniam. T	English Phonetics for Indian Students: A workbook	Trinity Press	2012

BOOKS FOR REFERENCE

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1.	Jones,Daniel	English Pronouncing Dictionary,15 th Edition	Cambridge University Press	1997

PEDAGOGY

Phonetic Transcription, Assignment, Listening & Speaking Practices.

COURSE DESIGNER

Ms. S. Srinidhi

Mr. R. Pandi Ganesh
Industrial Representative,
EIT, Madurai

A handwritten signature in black ink, appearing to read "R. Pandi Ganesh", is written in a cursive style within the right-hand cell of the table.

TEXT BOOK

S. No	Authors	Title	Publishers	Year of Publication
1.	Balasubramaniam. T	A Textbook of English Phonetics for Indian Students Macmillan	Trinity Press	2012
2.	Balasubramaniam. T	English Phonetics for Indian Students: A workbook	Trinity Press	2012

BOOKS FOR REFERENCE

S.No	Authors	Title	Publishers	Year of Publication
1.	Jones,Daniel	English Pronouncing Dictionary,15 th Edition	Cambridge University Press	1997

PEDAGOGY

Phonetic Transcription, Assignment, Listening & Speaking Practices.

COURSE DESIGNER

Ms. S. Srinidhi

Ms. R. Sruthi

Guest Lecturer

N.K.R.Government Arts College for
Women,
Namakkal.

R. Sruthi
19/06/2021

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

NATIONALLY ACCREDITED (III CYCLE) WITH "A" GRADE (CGPA 3.41 OUT OF 4) BY NAAC

ISO 9001:2015 CERTIFIED

ANNAMALAI NAGAR, TRICHY -18



FROM 2019 – 2020 BATCH AND ONWARDS

THE BOARD OF STUDIES

Dr. G. Baskaran
Professor & Dean, Gandhigram University,
Dindigul.

Dr. Nagaraj
Associate Professor of English
Department of English and Foreign Languages,
Bharathiar University
Coimbatore.

Dr. B. Kathiresan
Associate Professor of English
Thiruvalluvar University,
Vellore

Mr. R. Pandi Ganesh
Effulgenz Infotech
Assistant Operating Manager
Madurai.

Ms. R. Sruthi
Guest Lecturer
N.K.R. Government Arts College for Women
Namakkal

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	Undertake Competitive Exams; Enhance Communicative Skills; to become a potent workforce by securing Job Opportunities.

AUTONOMOUS PROGRAMME STRUCTURE SEMESTER – I

SEM	PART	COURSE	TITLE	SUB. CODE	HRS/	CREDITS	EXAM	MARKS		TOTAL		
					WEEK			HRS	INT		EXT	
I	I	Language Course – I (LC) – Tamil */ Other Languages* *#	IkkalaIllakyam - I	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)	Prose	19UEN1CC1	6	5	3	25	75	100		
				Core Course – II (CC)	Short Stories	19UEN1CC2	6	5	3	25	75	100
				Allied Course – I (AC)	Social History of England	19UEN1AC1	4	3	3	25	75	100
	IV	Value Education	Value Education	19UGVE	2	2	3	25	75	100		
	Total					30	21				600	

SEMESTER -II

SEM	PART	COURSE	TITLE	SUB.CODE	HRS/	CREDITS	EXAM HRS	MARKS		TOTAL		
					WEEK			INT	EXT			
II	I	Language Course – II	IdaikalaIlakiyamum Pudhinamum	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 Gramma 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	Environment al Studies	Environmental Studies	19UGES	2	2	3	25	75	100		
	TOTAL					30	21				600	

SEMESTER – III

SEM	PART	COURSE TITLE	TITLE	SUB.CODE	HRS/	CRED	EXA	MARKS		TOT		
					WEE			ITS	M		INT	EXT
					K		HRS					
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 –I	19UE3	6	3	3	25	75	100		
	III	Core Course V (CC)	One Act Plays	19UEN3CC5	6	5	3	25	75	100		
				Core Course VI (CC)	Poetry- II	19UEN3CC6	6	5	3	25	75	100
						Allied Course III (AC)	History of English Literature-I	19UEN3AC3	4	3	3	25
	IV	Non Major Elective I – for those whostudied Tamil under Part I	Presentation Skills in English	19UEN3NM1	2	2	3	25	75	100		
				a) Basic Tamil for other language students							Basic Tamil	19ULC3BT1
b) Special Tamil for those who studied Tamil up to 10 th +2 but opt for other languages in degree programme				Special Tamil							19ULC3ST1	
	Extra credit course	Swayam Online Course	The Psychology of Language		As per UGC Norms							
	TOTAL				30	21				600		

SEMESTER – IV

SEM	PART	COURSE TITLE	TITLE	SUB.CODE	HRS/ WEEK	CRE DITS	EXA M HRS	MARKS		TOT AL
					K			INT	EXT	
IV	I	Language Course – IV	PandaiyaIllakiyam	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-II	19UE4	6	3	3	25	75	100
	III	Core Course VII (CC)	Drama	19UEN4CC7	5	5	3	25	75	100
		Core Course VIII (CC)	Introduction of Language and Linguistics	19UEN4CC8	5	5	3	25	75	100
		Allied Course IV (AC)	History of English Literature-II	19UEN4AC4	4	3	3	25	75	100
	IV	Non Major Elective II – for those who studied Tamil under Part I	Communication Skills in English	19UEN4NME2	2	2	3	25	75	100
		a) Basic Tamil for other language students	Basic Tamil	19ULC4BT2						
		b) Special Tamil for those who studied Tamil up to 10 th +2 but opt for other languages in degree programme	Special Tamil	19ULC4ST2						
	V	Skill Based Elective – I	Writing for Media	19UEN4SBE1A	2	2	3	25	75	100
			Business English	19UEN4SBE1B						
		Extra creditcourse	SWAYAMONLINE COURSE	To be fixed later	As per UGC Norms					
	TOTAL				30	23				700

SEMESTER – V

SEM	PART	COURSE	TITLE	SUB.CODE	HRS/ WEEK	CREDIT S	EXAM HRS	MARKS		TOTAL
								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	5	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	Mastering English Literature	19UEN5MBE1A	4	3	3	25	75	100
	OR									
	Translation :Theory and Practice		19UEN5MBE1B							
	IV	Skill Based Elective – II	Academic Writing*	19UEN5SBE2A	2	2	3	25	75	100
			Or							
			Functional English	19UEN5SBE2B						
		Skill Based Elective – III	Public Speaking*	19UEN5SBE3A	2	2	3	25	75	100
			Or							
			Art of Speaking	19UEN5SBE3B						
	UGC - Jeevan Kaushal	Professional Skills	19UGPS	2	2	3	25	75	100	
	Extra credit course	SWAYAM ONLINE COURSE	To be fixed later	As per UGC Norms						
TOTAL				30	29				800	

SEMESTER - VI

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
		Major Based Elective – II	Journalism	19UEN6MBE2A	6	4	3	25	75	100
			Or	Or						
			Mass Communication	19UEN6MBE2B						
		Major Based Elective – III	Developing Language Skills	19UEN6MBE3A	5	4	3	25	75	100
			Or	Or						
			Phonetics	19UEN6MBE3B						
	V	Extension Activities		19UGEA	-	1	-	-	-	-
V	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100	
TOTAL					30	25				600
GRAND TOTAL					180	140		975	2925	3900

ANNEXURE - F

Cauvery College for Women (Autonomous), Tiruchirappalli – 620 018

P G & Research Department of Social Work

V Board of Studies (Virtual Meeting)

Minutes of the Meeting

Date : 31/05/2021

Time : 10.00 AM

The Members attended the meeting

1. Dr.G.Kanaga
Chairman & Professor
Professor & Dean of Alumnae Relations
PG & Research Department of Social Work
Cauvery College For Women (Autonomous)
Trichy.
2. Dr.F.X.Lovelina Little Flower
Subject Expert
Professor&Head
Bharathiar University
Department of Social Work
Bharathiyar University
Coimbatore
3. Dr.Arul Kamaraj
Subject Expert
Assistant Professor
Other University
Loyola College
Chennai-34
4. Dr.K.Suriyan
Special Invitee
Professor and Director,
Bharathidasan University
Centre for study of Social Exclusion and Inclusive Policy
Bharathidasan University, Trichy.

5. Dr.T.R.Kanmani
Subject Expert
Assistant Professor
(other University)
Department of Psychiatric Social Work
NIMHANS
Bengaluru.
6. Dr.G.Mettilda Buvaneswari
Member
Associate Professor & Head
PG & Research Department of Social Work
Cauvery College for Women (Autonomous)
Trichy.
7. Dr.S.Vidhya
Member
Assistant Professor
PG & Research Department of Social Work
Cauvery College For Women (Autonomous)
Trichy
8. Ms.PL.Rani
Member
Assistant Professor
PG & Research Department of Social Work
Cauvery College For Women (Autonomous)
Trichy
9. Dr.O.Aisha Manju
Member
Assistant Professor
PG & Research Department of Social Work
Cauvery College For Women (Autonomous)
Trichy
10. Ms.S.Hema
Member
Assistant Professor
PG & Research Department of Social Work
Cauvery College For Women (Autonomous)
Trichy
11. Dr.T.Amirtha Mary
Member
Assistant Professor
PG & Research Department of Social Work
Cauvery College For Women (Autonomous)
Trichy

Leave of absence was granted to Dr.P.Ilango, Professor, Department of Social Work, Bharathidasan University, Trichy

Leave of absence was granted to Ms.V.Chitrakala (Alumna Member), Medical Social Worker, Medico Social Work Wing, JIPMER, Puducherry

Leave of absence was granted to Mr.J.Ravikumar.,Recruitment – HR, IDFC FIRST Bharat Ltd.,Trichy-1(Placement representative Department from Industry/Corporate)

Agenda of the Meeting

ITEM NO.BOS/05/ 01

To consider and approve the syllabus and Programme Structure of BSW (2019-2020 batch and onwards) for Sixth Semester and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

ITEM NO.BOS/05/ 02

To consider and approve the syllabus for Gender Studies for all final years (2019-2020 batch and onwards) for Sixth Semester and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

ITEM NO.BOS/05/ 03

Any other item with the Permission of the Chair

At the outset, the members discussed the above Agenda and is Resolved as Follows

Dr.G.Kanaga, Professor & Dean of Alumnae Relations, PG & Research Department of Social

Work Welcomed the Members of BOS

ITEM NO/05/ 01

To consider and approve the syllabus and Programme Structure of BSW (2019-2020 batch and onwards) for Sixth Semester and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

Dr.G.Mettilda Buvanewari, Associate Professor and Head of the Department presented the syllabus and Programme Structure of BSW (2019-2020 batch and onwards) for Sixth Semester.

The discussion was held among the members and few changes were suggested and was resolved as follows:

Resolved to consider and approve the syllabus and Programme Structure of BSW (2020-2021 batch and onwards) for Sixth Semester and recommend to Academic Council, Cauvery College for Women(Autonomous), Trichy-18 for further Process

ITEM NO.BOS/05/ 02

To consider and approve the syllabus of Gender Studies for all final year Under Graduate students (2019-2020 batch and onwards) in the Sixth Semester and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

The discussion was held among the members and was resolved as follows:

Resolved to consider and approve the syllabus of Gender Studies for all III year Under Graduate students (2019-2020 batch and onwards) in the Sixth Semester and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

Signature

Dr.G.Kanaga
Dean of Alumnae Relations
Chairman & Professor
PG & Research Department of Social Work
Cauvery College For Women (Autonomous)

S.No	Name and Designation	Signature
1	Dr.G.Kanaga Chairman & Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	
2	Dr.F.X.LovelinaLittleFlower Subject Expert Professor&Head Department of Social Work Bharathiyar University Coimbatore	
3	Dr.Arul Kamaraj Subject Expert Other University Assistant Professor Loyola College Chennai-34	

4	Dr.K.Suriyan Special Invitee Professor and Director, Centre for study of Social Exclusion and Inclusive Po Bharathidasan University Trichy.	
5	Dr.T.R.Kanmani Subject Expert Other University Assistant Professor Department of Psychiatric Social Work NIMHANS Bengaluru.	
6	Dr.G.Mettilda Buvaneswari Member Associate Professor & Head PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-1	
7	Dr.S.Vidhya Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-1	
8	Ms.PL.Rani Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	
9	Dr.O.Aisha Manju Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	
10	Ms.S.Hema Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	
11	Dr.T.Amirtha Mary Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	

SEMESTER-V

	III	Core course VII	Family and Child Welfare	19USW5CC7	5	5	3	25	75	100
		Core course VIII	Community Development (Urban/Rural/ Tribal)	19USW5CC8	5	5	3	25	75	100
		Core course IX	Introduction to Counselling and Guidance	19USW5CC9	5	5	3	25	75	100
		Core Course X	Theories of Social Work	19USW5CC10	5	5	3	25	75	100
	IV	Skill Based Elective II	Disaster Management/ Welfare of Vulnerable	19USW5SBE2A/ 19USW5SBE2B	4	3	3	25	75	100
		Skill Based Elective III	Family Life Management / Social Entrepreneurship	19USW5SBE3A/ 19USW5SBE3B	2	2	3	25	75	100
		UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100
	V	Extra Credit Course	Swayam Online Course	To be fixed later	As per UGC recommendation					
			Total		30	29				800

SEMESTER-VI

VI	III	Core course XI	Welfare of the Persons with disability	19USW6CC11	6	5	3	25	75	100
		Core course XII	Correctional Social Work	19USW6CC12	6	5	3	25	75	100
		Core Practicum III	Field Work Practicum	19USW6CC3P	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
	V	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100
		Extension Activity	Extension Activity	19UGEA		1				
			Total		30	25				600
			Grand Total		180	140				3900

Semester VI	Welfare of Persons With Disability	Category	Course Code	Instructional Hours	credits
		Core Course XI	19USW6CC11	90	5

Preamble

The aim of this course is to teach students about the welfare of persons with disability.

Course Outcomes

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

CO NO.	CO Statement	KNOWLEDGE LEVEL
1	Define the concept related to disability	K1
2	Explain the types of disabilities	K2
3	outline the causes of disabilities	K2
4	Identify the problems of disabled person	K3
5	Examine the salient features of PWD ACT& Rights of Person with disability Act	K4
6	List the different approaches in rehabilitation of the handicapped	K4
7	Explain the government schemes offered for the disabled	K2
8	Enlist the roles of Social Worker in Rehabilitation	K2

Mapping with Program Outcome:

CO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	M
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	M	S	M	S	M
CO5	M	S	S	S	S
CO6	M	M	M	S	S
CO7	M	M	S	S	M
CO8	S	S	S	S	S

S- Strong; M-Medium; L-Low

Syllabus

Unit 1: (18 Hrs)

Disability: concept of disability, impairment, handicapped, and rehabilitation; types of disabilities- visually handicapped, hearing handicapped, mentally handicapped, orthopedically handicapped including spastic children and leprosy cured; psycho-social problems of the disabled: social work intervention with the disabled

Unit 2: (18 Hrs)

Causes of disabilities-malnutrition, vitamin deficiencies, genetic disorder, congenital deformities, accidents, etc.

Unit 3: (18 Hrs)

Persons with Disability Act 1995& 2016 Emphasis must be only on the salient features of the Act.

Unit 4: (18 Hrs)

Government scheme for disabled offered by the state commissioner for the disabled-(a) special education (b) training programme (c) employment of persons with disability (d) self employment for disabled and (e) supplying of aids and appliances: grant- in aid to NGO's vocational training and welfare of persons with disabilities in Tamil Nadu.

Unit 5: (18 Hrs)

Approaches in rehabilitation- community based approach and outreach programmes by NGO's for the disabled, role of family in the treatment, training and rehabilitation of the handicapped. Role of Social Workers in the Process of Rehabilitation and Inclusion of Person with Disabilities.

REFERENCES

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- 2.Albrecht, Gary L. (2006).Encyclopedia of Disability.Sage. Oaks. (4 Volumes)
- 3.Banerjee, Gauri Rani. (1972). Social Caseworker and the Physically Handicapped Child. In Papers on Social Work – An Indian Perspective, Bombay: TISS.
- 4.BushanPunani Nandhini Rawal. (1987).Community Based Rehabilitation Manual, National Association for the Blind.Mumbai.
- 5.Biglan A.W., VamJasselt V.B., Simon J. (1988). Visual Impairment. In VanHasselt V.B.(Ed.), Handbook of Developmental and Physical Disability (pp.471-562). New York: Perganon Press.
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- 7.David Werner.(1998)Nothing About Us Without Us, Health Wrights, USA..
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19. Shakespeare, T (2006) *Disability Rights and Wrongs*, London: Routledge
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23. Rauch, J.B. (1988). Social Work and the Genetics Revolution: Genetic Services. *Social Work Journal of the National Association of Social Workers*, No.5, 389.
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25. Stein L.K. (1988). Hearing Impairment. In VanHasselt V.B. (Ed.) *Handbook of Developmental and Physical Disability* (pp.271-294). New York : Pergamon Press.
26. Sterwart W.F.R. (1979). *The Sexual Side of Handicap*, Great Britain: Woodhead Faulkner Ltd.
27. Segal, S.P. Silverman, C. & Temkin, T. (1993). Empowerment and Self Help Agency practice for People with Mental Disabilities. *Social Work, Journal of the National Association of social Workers*, 38(6), 705.
28. Shennan, Victoria .(1980). *Improving the Personal Health and Daily Life of the Mentally Handicapped: A Caregivers Handbook*. New Jersey : Prentice Hall Inc.
29. Swain, J, Finkelstein, V, French, S and Oliver ,M (ed) (2003) *Disabling Barriers Enabling Environments*, London: Sage Publication
30. Thuppal, M. & Jayanthi, N. (1992). Impact of Intervention on the Parental Perceptions and Expectations of their Mentally Retarded Children. *The Indian Journal of Social Work*.
31. Tilak, D. (1994). *Destination Unknown: Descriptions of a Mentally Handicapped Daughter*, Bombay: TISS.
32. Tyson, M.E. & Favell, J.E. (1988). Mental Retardation in Children. In V.B. VanHasselt (Ed.). *Handbook of Developmental and Physical Disabilities* (316-335). New York: Pergamon Press.
33. Wielkiewicz, R.M. & Calvert, C.R.X. (1989). *Training and Habitating Developmentally Disabled People: An Introduction*. London: Sage Publication..

Manuals

- 1.Promotion of Non-Handicapping Environments for Disabled Person: Guidelines, United Nation. New York, 1995.
- 2.Community Based Rehabilitation, Directorate of Rehabilitation of the Disabled. Government of Tamilnadu. Chennai & Spastics Society of Tamilnadu.Chennai,1993
- 3.Manual on Bridge Course in the Field of Visual Impairment- for Special Teachers/Rehabilitation Workers, Rehabilitation Council of India, New Delhi . Manual on Mental Retardation and Associated Disabilities, Rehabilitation Council of India, New Delhi.
- 4.Manual on Hearing Impairment and Associated Disabilities, Rehabilitation Council of India, New Delhi.
- 5.Manual on Locomotor Impairment and Associated Disabilities, Rehabilitation Council of India, New Delhi.
- 6.Children With Disabilities in Regular Schools.A Case Study Approach, District Primary Education Program Bureau[DPEP].New Delhi & UNICEF .

Pedagogy: Lectures, Group discussion, Case Study presentations, PPT, and Student seminars,e content

Course Designer: Ms.PL.Rani

Semester VI	Correctional Social Work	Category	Course Code	Instructional Hours	credits
		Core Course XII	19USW6CC12	90	5

Preamble

The aim of this paper is to introduce students the concepts of crime, prison and correctional social work.

Course Outcome

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

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1.	Define Crime its types and correctional social work	K1
CO2.	Outline the Theories of Causation of Crimes	K2
CO3.	Explain the Institutional and Non Institutional Programmes for Juvenile Delinquents	K2
CO4.	Develop the knowledge on Prison and Prisoners	K3
CO5	Role of Social Worker in Correctional Administration	K4

Mapping with Program Outcome

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

S- Strong; M-Medium; L-Low

Syllabus

Unit-I (18 hrs)

Crime- Concepts, meaning and Definition, Typology of Crime-Professional Crime, Organised Crime, White Collar Crime, Female Crime and Cyber Crime, Profile of crime statistics in India.

Correctional Social Work: Concept, Scope, origin and development of correctional social work in India. Social case work in correctional settings.

Unit-II (18 hrs)

Theories of Causation of crimes-Biological Theories, Psychological Theories, Sociological Theories-Strain Theory, Social Learning Theory, Control Theory.

Unit III (18 hrs)

Juvenile Delinquency(Children in conflict with Law)- Definition, Causes, Juvenile Justice System, Borstal homes, Observation homes, Juvenile homes, Rehabilitation, Child Welfare Committee.

Unit IV (18 hrs)

Prison and Prisoners- Prison-Purpose of Imprisonment, Psycho social Impact of Imprisonment,UN Standard Minimum rules for treatment of Prisoners, Prison system, Probation System, Parole System. Role of Government in Prison Administration.

Unit V (18 hrs)

Role of Social Worker-Welfare Activities, Education, Vocational Training, Recreation, Counselling, Rehabilitation, Probation, Parole, After care services

References

1. Ansari, M.A .1996., Social Justice and Crime in India Sunlime Publications
2. Atri, P.K. 1998 Dimensions of Crime in India., Anmol Publications Pvt.Ltd
3. Bhattacharya.S.K 2003, Social Defense-An Indian Perspective,New Delhi, Regency Publication.
4. Brieland D., Costin, L. B., & Atherton, C. R. 1975 Contemporary social work: An introduction to social work and social welfare Tata McGraw-Hill Education
5. Panakal J.J., &Gokhale, S.D 1989 Crime and Corrections in India Bombay: Tata Institute of Social Sciences
6. Sharma, R.K. 1998 Criminology and Penology Atlantic Publishers and Distributors
7. Tappan, P. W 1960 Crime, justice and correction New York: McGraw-Hill

Pedagogy: Lectures, e contents followed by discussion, Case Study presentations, PPT, and seminars

Course Designer-Dr.S.Vidhya

SEM- VI	FIELD WORK PRACTICUM	CATEGORY	Course Code	Instructional Hours	Credits
		Core Practicum III	19USW6CC3P	90	5

Preamble

To apply and to integrate classroom learning into practical field to perceive Professional practices of Social workers

COURSE OUTCOME

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

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1	Examine the practical application of classroom learning	K1
CO2	Express the need of Professional practices into various Fields of Social Work	K2
CO3	Apply Skill based intervention into existing Social Issues and Social Problems	K3
CO4	Analyse current situations with adequate knowledge for pragmatic solutions	K4

Mapping with Program Outcome

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

S- Strong; M-Medium; L-Low

Syllabus

GROUP PROJECT

- Students will be given an opportunity to deepen the knowledge to integrate theory and practice
- Students will be sensitized to utilize classroom learning to apply Skillset into various necessary fields of Social Work.
- Students are expected to develop skill based intervention in their Group Projects
- Students will be trained to involve into Assessment during their Group Project Sessions
- Students will be divided into groups and each group must have a minimum of 3 and maximum of 5 members.
- Each group must take up a relevant topic pertinent in addressing Current Issues in the Group Project in consultation with the Field Work Supervisor.

GUIDELINES FOR FIELD WORK EVALUATION

EVALUATION

Internal	Marks
1. Attendance infield work	5
2. Regularity in submitting reports	5
3. Participation in Group Project Work	30
Total	40

External evaluation and VIVA VOCE

I. Reporting	- 20
II. VIVA VOCE	
1. Theoretical Knowledge	- 10
2. Equipping with Professional Practices	- 10
3. Intervention based skills. Special initiative undertaken in Group Project	- 20
Total	60 marks

Pedagogy: Observation, Interaction, Discussion, Book Review, Collection of Information pertaining to current affairs, Social issues and problems, Documentation(Audio, Video evidences, Case Study, Collection of paper clippings, Preparation of Albums)

Course Designer: Dr.G.Kanaga

Semester VI	Gerontological Social Work	Category	Course Code	Instructional Hours	credits
		Major Based Elective II	19USW6MBE2A	75	4

Preamble

The aim of this course is to teach students about the concept of ageing and also about the Gerontological social work practice in India.

Course Outcomes

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

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1.	Define the concept of ageing	K1
CO2	Analyse the trends in Elderly population of India	K2
CO3	Explain the problems of Aged	K2
CO4	Describe the health problems and senior care issues	K3
CO5	Outline the services of older persons	K3
CO6	Describe the importance of Gerontological social work.	K3
CO7	Demonstrate about social security and laws for elderly	K3

Mapping with Program Outcome:

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	M
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	M	S	M	S	M
CO5	M	S	S	S	S
CO6	S	S	M	S	M
CO7	S	S	M	S	M

S- Strong; M-Medium; L-Low

Syllabus

Unit-I (15 hrs)

Concept and Growth : Definition of the aged , category of aged , Concept of Geriatrics, History and Growth of Gerontology, Scope and Fields of Gerontology, Aging & Consequences of Population Ageing, Active Aging: Challenges Ahead.

Unit-II (15 hrs)

Problems of the Elderly in India : Aging and Risk Factors for Diseases and Disabilities, Elder Abuse and Neglect. Elder Abuse - Causes, Factors and Forms of Elder Abuse , Elder Abuse in India.

Unit-III(15 hrs)

Older persons and the Family: Role and importance of family and care givers in elderly care , Role and importance of younger generations in the care of old persons, Old Age Homes , Types of old age homes, Advantages and Disadvantages, Need and importance of old age homes, Services of Old Age Homes.

Unit-IV (15 hrs)

Gerontological Social Work practice: Role and Functions of Gerontologists, Programmes for the Elderly in India, Human Rights and Empowerment of Older people in India, Safety and Security of Elderly, Welfare Programmes of Elderly in TamilNadu and in India , Legal provision for Adults , Maintenance and Welfare of Parents and Senior Citizens Act, 2007.

Unit-V(15 hrs)

a) Role of NGOs in Elderly Care: Non-Governmental Organizations and the Elderly, Role of Voluntary Organization and Association in Elderly Care, Help Age India : Objectives, Functions and Programmes.

b) (Not for Examination) Collect data regarding the impact of Pandemics on Elderly . Prepare an e-content on the mental health issues of Institutionalized Elderly.

TEXT BOOK:

Tapan.B.(2002). **Senior Citizen of India, Issues and Challenges**., New Delhi: Rajat Publications.

REFERENCES

- Anand, A. (2004). *Anthropology of Aging : Contexts, Culture And Implications*. New Delhi: Serials Publications.
- Tapan, B.(2002). *Senior Citizen of India, Issues and Challenges*. New Delhi : Rawat Publications,
- Chandha, N.K.(1997). *Ageing and the Aged, Challenges before Indian Gerontology*. Delhi: Friends Publications.
- Dandekar, K . (1996). *The Elderly in India*. New Delhi: Sage Publications.
- Diamond, T. (1995). *Making Gray Gold: Narratives of Nursing Home Care*. Chicago, IL: University of Chicago Press.
- Fillit, H., Rockwood, K and Woodhouse, K (Ed.). (2010). *Brocklehurst's textbook of geriatric medicine and gerontology*. Philadelphia: Saunders Elsevier.
- Gowri, G.R., Reddy, Usharani P.J. (2003). *Elderly Women*. New Delhi : Discovery publishing house .
- Khan, M.Z. (1997). *Elderly in Metropolis*. New Delhi: Inter India Publishers.
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- Murli, D & Siva, R. (2000). *Gerontological Social Work In India*. Delhi: B R Publishing Company.
- Muttagi, P. K.(1997). *Aging Issues and Old Age Care*. New Delhi: Classical Publishing Company.
- Rahym, S.D (2000). *Gerontological Social Work in India, Some Issues and Perspectives*. Delhi: B.R. Publishers.

- Rajan, I .S., Mishra, U.S. and Sharma P.S(1997).*Indian Elderly: Asset or Liability*. New Delhi: Sage Publications.
- Rao, K. V.(2007). *Ageing in Rural India*. AmbalaCantt: The Associated Publishers.
- Ramamurti, P .V &Jamuna, D.(2004). *Handbook Of Indian Gerontology*.NewDelhi:Serials Publications.
- Sinha, J.N.P. (1989). *Problems of Ageing*. New Delhi: Classical Publishing Company Publishers.

Pedagogy: Lectures, Group discussion, Case Study presentations, PPT, and Studentseminars,e-content,e-quiz

Course Designer: Dr.O.AishaManju

SEM VI	YOUTH WELFARE	Category	Course Code	Instructional Hours	Credits
		Major Based Elective II	19USW6MBE2B	75	5

Preamble

The course enlightens the learners on the basic concepts of youth, needs, problems, Welfare services for youth and role of youth in social change.

Course Outcomes

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

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1.	Define the concepts youth and Youth Welfare	K1
CO2.	List down the needs of Youth	K1
CO3.	Illustrate the problems of youth	K2
CO4.	Explain the role of youth in Social Change	K2
CO5	Classify the different welfare programmes for youth	K3

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 (15 hours)

Youth welfare: Concept, definition, aims and objectives; concept of Youth - demographic profile of the youth in rural and urban India. Features of Youth.

Unit II (15 hours)

Needs of youth - physical, intellectual, emotional, social and religious needs. Socialization of youth -influence of the family peer, neighborhood, reference groups, religion. Impact of liberalization, westernization, modernization and urbanization

Unit III (15 hours)

Specific problems of the youth: Behavioural problems: Drug abuse, alcoholism, Suicide, Sexually transmitted diseases, sexual problems ;**Functional disorders** - eating disorders, obesity. **Emotional problems** - identity crises, alienation, low self esteem, careers, conflict, conflicts in selecting a partner. **Economic Problems** : Poverty, Unemployment and under employment

Unit IV (15 hours)

Role of youth in social change: Youth Movement in India: YMCA, YWCA, SFI, DYFI and other youth movements of various political parties in India,

Unit V (15 hours)

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 policy in India

References:

- Arimpoor. J.P.(1983). Indian Youth in Perspective. Tirupattur: Sacred Heart College.
- Chowdhry D.P.(1988). Youth Participation and Development. New Delhi: Atma Ram and Sons Publications.
- D'Souza, P.R. (2009). Indian Youth in a transforming world. New Delhi: SAGE Publication.
- Durgadutt, M.V.(1993). Youth Culture: A Comparative Study in the Indian Context. South Asia Books.
- Gill, J. (2009). Youth. UK: Polity Press.
- Gore, M.S.(1978). Indian Youth – Process of Socialisation. New Delhi: Vishva Yuvak Kendra. M.S.W. : Syllabus (CBCS) 49
- Harper and Malcolm. (1996). Empowerment Through Enterprise. London: Intermediate Technology Publications.
- Hamilton, S. (2004). The Youth Development Handbook. New Delhi: SAGE Publication.

- Jason,W.,Jean,H.(2009). Theory and Policy for Practice. New Delhi: Sage Publications.
- Kenyon, et.al.(1996). Youth Policy 2000: Formulating and Implementing National Youth policies, Chandigarh.: Module 9. CYP. Asia Regional Centre
- Kumar, R.(1986). Problems, Planning and Development of Youth Health .New
- Macwan'gi M - Zambia.(1998). Promoting Enterprise and Economic Development. Module 11. Chandigarh: CYP.Asia Regional Centre.
- Mary,K.J. (Etd.) (2007).Understanding Youth: Perspectives, Identities and Practices. London: Sage Publication.
- Nair, P. S et al.(1989). Indian Youth: A Profile. New Delhi :Mittal Publications.
- Philip and Mc Michael (1996). Development and Social Change: A global Perspective. Sage publications. London.
- Wyn J and R. White. (1997). Rethinking Youth. London: Sage Publications limited.

Pedagogy: Chalk & Talk, lecture, Seminar, E Content, E Quiz, Group Discussion, Case Study, Flipped Classroom, Google classroom & Google meet.

Course Designer :Dr.G.Mettilda Buvaneswari

SEM-VI	SOCIAL WORK IN INDUSTRY	Category	Course Code	Instructional Hrs	Credits
		Major Based Elective-III	19USW6MBE3A	90	4

Preamble

The aim of this paper is to introduce students to social work in industry and the various aspects related to it.

Course Outcome

On the Successful Completion of this course, the students will be able to,

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1	Define the nature and functions of Human Resource management in the Industry.	K1
CO2	Illustrate the concept and principles of wage and salary Administration	K2
CO3	Interpret the concepts of Industrial Relation and settlement machineries of disputes in Industries	K2
CO4	Apply the social work practices in the Industry	K3
CO5	Examine Labour legislations related to social security and employment in the Industry.	K4

Mapping with program Outcome

COS	PO1	PO 2	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	S	S
CO5	M	S	M	M	M

S- Strong; M-Medium; L-Low

Syllabus

Unit -I (18 Hrs)

Industrial Social Work: Industry: Meaning and Definition and types, Industrial Social work- Meaning, objectives, history, principles, Role of social workers in industry and application of social work methods in the Industry.

Unit -II (18 Hrs)

Human Resource Management: Meaning and Definition of HRM – Objectives and Nature of HRM – Functions and Principles of HRM – Human resource planning

Unit- III (18 Hrs)

Wage and Salary Administration: Meaning, principles and theories of Wages, Job Evaluation-Meaning, Objectives and methods

Unit –IV (18 Hrs)

Industrial Relations: Meaning, objectives history; Industrial Disputes: Meaning and types- settlement machinery, discipline & grievances ILO – history, objectives, and function.

Unit –V (18Hrs)

Labour legislations: Factories act 1948, Employee’s state insurance act 1948; Employee’s provident fund act 1952 including the pension scheme 1995.

Text book

- Rudrabasavaraj, M.N.(1991), Dynamic Personnel Administration-Management of Human Resources, Himalaya Publishing House Pvt Ltd

References

- Ashdir ,Vijay.(2003), Management of Industrial Relations. Kalyani Publishers Pvt Ltd.
- Ashwatappa,K.(2008). Human Resource Management Text & Cases, Tata Mcgraw-Hill Publishing company
- Sundar .K.(2015). Principles of Management, Vijay Nivole Imprints Private limited.
- Gary Dessler .(2017).Human Resources Management ,Pearson Education Pvt Ltd
- Debotosh Sinha.(2009).Aspects of Industry and Occupational Social Work,,Abhijeet PublicationsPvt Ltd

Web Sources

- <http://www.ignou.ac.in/upload/bswe-02-block4-unit-19-small%20size.pdf>

Pedagogy: Lectures, Videos followed by discussion, Case Study presentations, PPT, Peer Learning and seminars

Course Designer:Ms.S.Hema

SEM-VI	Basics of Organizational Behavior	Category	Course Code	Instructional Hrs	Credits
		MBE-III	19USW6MBE3B	90	4

PREAMBLE

To provide the students with knowledge on concepts, theories, decision-making techniques and human relation skills to analyze the impact of personality, values, perception, and motivation and attitudes on behaviour within organizations.

COURSE OUTCOME

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

CO S	CO Statement	Knowledge Level
CO1	Undersatnding concept and Models of Organisational Behaviour.	K1
CO2	Recognize the Organisational perceptions and motivation	K2
CO3	Describe the concepts and theories of Personality	K2
CO4	Extend the Group decision making and its techniques	K2
CO5	Determine the Concept of Leadership and its theories	K3

Mapping with Programme Outcomes

COS	PO1	PO 2	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	S	S
CO5	M	S	M	M	M

S-Strong; M-Medium; L-Low

UNIT – 1 (18 Hours)

Organizational Behaviour (OB) — Meaning, Need and Importance - Models of OB- Challenges and Opportunities faced by Managers applying OB.

UNIT – II (18 Hours)

Motivation-Concept, Theories (Maslow, Herzberg and McGregor), Perception -Meaning and Process, Transactional Analysis, Johari Window

UNIT – III (18 Hours)

Attitudes: characteristics, components, measurement of attitude, attitude surveys.

Personality-Meaning, Major determinants of personality – Theories of personality

UNIT – IV (18 Hours)

Group decision Making-Meaning, Process and Techniques.

UNIT – V (18 Hours)

Leadership- Meaning, theories and Leadership styles, Leader Vs Manager.

Text Book

- Prasad.L.M.(2014).Organizational Behavior, Sultan Chand & Sons Pvt Ltd.
- Fred Luthans .(2005).Organizational Behavior,TataMcGraw Hill Pvt Ltd.

Reference Books

- Aswathappa.K.,(2014).Organizational Behavior ,Himalaya Publishing House Pvt. Ltd.
- Shashi K. Gupta & Rosy Joshi.(2014). Organizational Behavior,Kalyani publishers.
- Kumar .N &Mittal .R.(2011).OrganisationalBehaviour,Anmol Publication Pvt Ltd.
- Timothy Judge .A and Stephen Robins.P.(2009).OrganisationalBehaviour,Pearson Publications Pvt Ltd.
- PareekUdhai.(2012).Understanding organizational Behaviour,Oxfors University Press.

Pedagogy: Chalk& Talk, lecture, Seminar, PPT,E.Content and E-Quiz .

Course Designer: Ms.S.Hema

SEM VI	GENDER STUDIES	Category	Course Code	Instructional Hours	Credit
		Gender Studies	19UGGS	15	1

Preamble

The course enlightens the learners on the basic concepts of Sex, Gender, Problems and welfare measures for Women.

Course Outcomes

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

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1.	Define the basic concepts of Gender	K1
CO2.	Recall the role of gender in social institutions	K1
CO3.	Explain the forms of Gender Based Violence	K2
CO4.	Demonstrate the health status of Indian Women	K2
CO5	Identify the practices of gender equality and equity in society.	K3

Syllabus

Unit I (3 hours)

Understanding Basic Concepts: Sex, Gender, Sexuality; Femininities, Masculinities and other sexualities; Gender Identity Theories

Unit II (3 hours)

Gender and Society: Family, Marriage, Kinship, Religious Institutions; Social Stratification: Caste and Class; Power, Race and Ethnicity; Community and Religion

Unit III (3 hours)

Gender Based Violence: Structures, Forms and Types: Caste, Tribe, Ethnicity and Minority; differently -abled and elderly persons; Perspectives and Consequences of Violence against Women

Unit IV (3 hours)

Gender and Health: Sexual and reproductive health, Mental health and wellbeing, Occupational health, Impact of violence on women's health

Unit V (3 hours)

Gender and Equality: Gender Discrimination; Gender Division of labour; Gender Stereotyping; Gender Sensitivity – Gender Equity and Equality; Committees and Commissions, Reports, State Policies

References:

1. Agarwal Bina, Humphries Jane and Robeyns Ingrid(ed.). (2006). Capabilities, Freedom, and Equality: Amartya Sen's Work from a Gender Perspective, New Delhi: Oxford University Press.
2. Anuja Mahapatra and Sukhadeb Naik.(2013). Crime against Girls and Women: Global Perspective and Challenges, New Delhi: Enkay Publishing House,
3. Arya Sadhna. (2000). Women, Gender Equality and the State, New Delhi: Deep & Deep Publication.
4. Bhasin Kamala. (1993). what is Patriarchy? : Gender Basics, New Delhi: Women Unlimited.
5. Bhasin Kamala. (2004). Understanding Gender: Gender Basics, New Delhi: Women Unlimited
6. Bhasin Kamala. (2004). Exploring Masculinity: Gender Basics, New Delhi: Women Unlimited.
7. Bhattacharya Malini.(2002). Sexual Violence and Law, Kolkata; West Bengala Commission for Women
8. Chloe E. Bird, Patricia P. Rieker. (2008). Gender and Health, Cambridge University Press.
9. Chari Leelavathi. (1987). Know Your Rights, Madras; Tamilnadu Social Welfare Board.
10. Debra L. Nelson, Ronald J. Burke. (2016). Gender, Work Stress and Health, American Psychological Association.
11. Dasgupta, Sanjukta, Sudeshma Chkravarty and Marry Mathew.(2013). Radical Rabindranath: Nation, Family and Gender in Tagore's Fiction and Films
12. Krishna Sumi, (ed.). (2004). Livelihood and Gender: Equity in Community Resource Management, New Delhi: Sage Publication.
13. Lips, Hilary M. (2015). Gender the basics, Routledge, London
14. Marcia Bayne-Smith.(1995). Race, Gender and Health, Sage Publications,
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Pedagogy: Chalk & Talk, lecture, Seminar, E Content, E Quiz, Group Discussion, Case Study, Flipped Classroom, Google classroom & Google meet.

Course Designer :Dr.G.Mettilda Buvaneswari

ANNEXURE - G



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY - 18

(Nationally Re-accredited (III cycle) with 'A' Grade by NAAC

DEPARTMENT OF BUSINESS ADMINISTRATION

Minutes for the Fifth meeting of the Board of Studies on 24.05.2021

Members Present

1) Dr.J.Tamilselvi	Chairperson, Associate Professor & HOD
2) Dr. N. Senthilkumar Nakkeeran	Subject Expert, Anna University, Chennai
3) Dr. N. KavithaShanmugam	Subject Expert, SRM University, Chennai
4) Dr. N. Thamaraiselvan	University Nominee
5) Mrs. P. Premakumari	Member Alumna
6) Dr.R.Bhargavi	Industrial Representative
7) Dr.S.ThamaraiSelvi	Member
8) Dr.M.Neela	Member
9) Dr. A.Sivaranjani	Member
10) Dr.M.Gayathri	Member
11) Mrs. P.Thangamani	Member
12) Mrs. S. Yalini	Member
13) Mrs.A.Suganya	Member

MINUTES OF FIFTH BOS MEET - 24.05.2021:

1. ITEM NO. BOS/05/01

Confirmation of Minutes of Fourth BOS Meeting

The Chairperson apprised the Board regarding the Minutes of Fourth Board of Studies. Since no comment has been received, this Board of Studies has approved the Minutes of the Fourth Board of Studies Meeting.

2. ITEM NO. BOS/05/02

To consider and approve the Curriculum and Syllabus for Business Administration (B.B.A.,) for Sixth semester.

Suggestions made during the discussions:

- As per the suggestion given by the Members, Production Management (19UBA6MBE3A) has been modified as Operations Management and the concepts like Inventory Management and Material handling techniques are included in the syllabus.

- OECD, CSR policy and United Nation (UN) global compact 2011 has been included in the Global Business Management (19UBA6MBE2B) syllabus according to the recommendation made by the members.
- As per suggestion given, in the Financial Management (19UBA6CC12) syllabus, Working Capital concept, types, determinants and estimation are included to cater the need of the students.
- The members appreciated the contents of the Syllabus and it was resolved as under.

“Resolved that to consider and approve the curriculum and Syllabus for Business Administration (B.B.A.)”

3. ITEM NO. BOS/05/03

Ratification made to alter credit score for Allied course III Business Law (19UBA3AC3) as 3 credits instead of 4 credits in IIIrd Semester programme structure of Business Administration (2019 – 2020 Batch and onwards) and forward to the Academic Council, Cauvery college for Women (Autonomous), Trichy.

“Resolved that to consider and approve the ratification made in the IIIrd Semester Curriculum and Syllabus for Business Administration (B.B.A.)”

4. ITEM NO. BOS/05/04

To consider and approve the ratification made to alter credit score for Major Based Elective I Consumer Behaviour (19UBA5MBE1A) / Managerial Communication (19UBA5MBE1B) as 4 credits instead of 3 credits in Vth Semester programme structure of Business Administration (2019 – 2020 Batch and onwards) and forward to the Academic Council, Cauvery college for Women (Autonomous), Trichy.

“Resolved that to consider and approve the ratification made in the Vth Semester Curriculum and Syllabus for Business Administration (B.B.A.)”

4. ITEM NO. BOS/05/05

To consider and approve the ratification made to replace Skill Based Elective II - New Product Development theory (19UBA5SBE2A) as Banking – Practicum study (19UBA5SBE2AP)/ Business Ethics (19UBA5SBE2B) as New product Development (19UBA5SBE2BP) and Skill Based Elective III - Event Management theory (19UBA5SBE3A) as Statistical Package for Managers (SPSS) (19UBA5SBE3AP)/ Personality Development (19UBA5SBE3B) as Event Management Practical (19UBA5SBE3BP) in Semester V in the programme structure of Business Administration (2019 – 2020 Batch and onwards) and forward to the Academic Council, Cauvery college for Women (Autonomous), Trichy.

“Resolved that to consider and approve the ratification made in the Vth Semester Curriculum and Syllabus for Business Administration (B.B.A.)”






With the above discussions the Chairperson expressed her deep sense of gratitude to all members for an Academic vibrant discussion on various matters.

(Chairman)



Board of Studies

Signature of the Board of Studies Members:

1. Dr. N. Thamaraiselvan : 
2. Dr. N. Senthilkumar : 
3. Dr. Kavitha Shanmugam : 
4. Mrs. P. Premakumari : 
5. Dr.R.Bhargavi : 




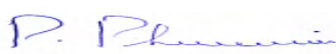



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18
DEPARTMENT OF BUSINESS ADMINISTRATION
BBA – PROGRAMME STRUCTURE

(For the candidates admitted from the academic year 2019 – 2020 onwards)
III Semester

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		
			Medieval, Modern Poetry & History of Hindi Literature - 3	19ULH3								
			Prose, Textual Grammar and Vakayarachana	19ULS3								
			Communication in French – III	19ULF3								
	II	English Language Course III (ELC)	Reading and Writing for Effective Communication - I	19UE3	6	3	3	25	75	100		
	III	Core Course - V (CC)	Organisational Psychology	19UBA3CC5	6	5	3	25	75	100		
				Core Practical - I (CP)	Computer Applications Package for Managers (MS-Office Practical)	19UBA3CC1P	5	4	3	40	60	100
				Allied Course - III (AC)	Business Law	19UBA3AC3	5	3	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	Extra Credit Course	Swayam Online Course	As per UGC norms									
		Total			30	20				600		

Signature of the Board of Studies Members:

1. Dr. N. Thamaraiselvan : 
2. Dr. N. Senthilkumar : 
3. Dr. Kavitha Shanmugam : 
4. Mrs. P. Premakumari : 
5. Dr. R. Bhargavi : 



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18
DEPARTMENT OF BUSINESS ADMINISTRATION
BBA – PROGRAMME STRUCTURE

(For the candidates admitted from the academic year 2019 – 2020 onwards)
V Semester

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam	Marks		Total	
								Internal	External		
V	III	Core Course - VII (CC)	Entrepreneurial Development	19UBA5CC7	5	5	3	25	75	100	
		Core Course – VIII (CC)	Research methods in Management	19UBA5CC8	5	5	3	25	75	100	
		Core Course - IX (CC)	Management Accounting	19UBA5CC9	5	5	3	25	75	100	
		Core Course - X (CC)	Digital Marketing	19UBA5CC10	5	5	3	25	75	100	
		Major Based Elective - I	Consumer Behaviour	19UBA5MBE1A	4	4	3	25	75	100	
		Managerial Communication	19UBA5MBE1B								
	IV	Skill Based Elective - II	Banking – Practicum study	19UBA5SBE2AP	2	2	3	40	60	100	
			New Product Development	19UBA5SBE2BP							
		Skill Based Elective - III	Statistical Package for Managers (SPSS Practical)	19UBA5SBE3AP	2	2	3	40	60	100	
			Event Management Practical	19UBA5SBE3BP							
		UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100	
		Extra Credit Course	Swayam Online Course		As per UGC norms						
		Total			30	30					800

Signature of the Board of Studies Members:

1. Dr. N. Thamaraiselvan :

2. Dr. N. Senthilkumar :

3. Dr. Kavitha Shanmugam :

4. Mrs. P. Premakumari :

5. Dr.R.Bhargavi :




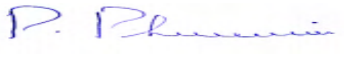



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18
DEPARTMENT OF BUSINESS ADMINISTRATION
BBA – PROGRAMME STRUCTURE
(For the candidates admitted from the academic year 2019 – 2020 onwards)

VI Semester

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
								Internal	External	
VI	III	Core Course - XI (CC)	Human Resource Management	19UBA6CC11	6	6	3	25	75	100
		Core Course - XII (CC)	Financial Management	19UBA6CC12	6	6	3	25	75	100
		Major Based Elective II	Business Analytics	19UBA6MBE2A	6	4	3	25	75	100
			Global Business Management	19UBA6MBE2B						
		Major Based Elective - III	Operations Management	19UBA6MBE3A	5	3	3	25	75	100
			Business Ethics	19UBA6MBE3B						
	Core Project	Project work	19UBA6PW	6	5	-	-	-	100	
	V		Extension Activities	19UGEA	--	1	--	--	--	--
			Gender Studies	19UGGS	1	1	3	25	75	100
			Total			30	26			
		Grand Total			180	140				3900

Signature of the Board of Studies Members:

1. Dr. N. Thamaraiselvan : 
2. Dr. N. Senthilkumar : 
3. Dr. Kavitha Shanmugam : 
4. Mrs. P. Premakumari : 
5. Dr. R. Bhargavi : 

VTH SEMESTER
SKILL BASED ELECTIVE PRACTICALS

SKILL BASED ELECTIVE II – BANKING PRACTICUM STUDY

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Skill Based Elective – II Banking Practicum study	19UBA5SBE2AP	2	2	3	40	60	100

Objectives:

- To acquire specialized practical knowledge of Banking Law and Practice
- To obtain knowledge of working of Indian Banking system
- To make the students to understand the various services offered and various risks faced by banks
- To understand the recent trends in Banking
- To know the merchant banking services

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 of Banking and its functions.	K1
CO2	Discuss the relationship with customer and the different types of account.	K2
CO3	Applications and Procedure for taking Demand Drafts and crossing the cheques	K3
CO4	Identify the duties of Paying Banker and the Collecting Banker	K2
CO5	Utilize the modern banking services such Online Banking, Mobile Banking, NEFT,IMPS and RTGS.	K3

Mapping with programme 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.

SYLLABUS

Unit- I (8 Hours)

Introduction: Definition of a bank – kinds of Banks – Functions of a Commercial Banks – Banking Functions – Agency Functions – General Utility Services – Unit Banking and Branch Banking

Unit –II (8 Hours)

Relationship with Customer and Types of Account : Relationship between banker and customer-Special Relationship – Banker’s Right and General Lien – opening of Bank Account-procedures – Documents required- Types of Accounts – Special Types of Customers- Loan Application- Types of Loan - Education Loan-Procedure for obtaining Education Loan.

Unit –III (8 Hours)

Cheques : Essentials of Cheque – procedure for obtaining cheque book-Specimen for Cheque book – Procedure for filling the Cheque – Crossing of Cheque – Types of Crossing – Objectives of Crossing- Endorsement – Types of Endorsement - Demand Draft- Applications and Procedure for taking Demand Drafts.

Unit –IV (9Hours)

Paying banker and Collecting Banker: Paying Banker- Duties – Collecting Banker –Duties – Precautions to be exercised by the paying Banker – Dishonouring of a Customer’s Cheque – Passbook- Importance of Pass book.

Unit –V (9Hours)

Modern Banking Services: Modern Banking Services – ATM – Functions - Net Banking, NEFT,RTGS,IMPS –Online Banking Frauds- Types of Frauds-Mobile Banking- Debit Card and Credit Card – Coin Vending Machines – Passbook Entry Machines – ChequeDeposit Machines-Cash Deposit Machines.

Text Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Gordon .E and Natarajan .K	Banking Theory, Law and Practice	Himalaya Publishing House,Mumbai.	2020
2.	K.P.M. Sundaram and P.N.Varshney	Banking Law and Practice	Sultan Chand & Sons Publishing House, New Delhi	2015

Books for Reference:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Varshney P.N	Banking Law and Practice	Sultan Chand & Sons, New Delhi.	2018.
2.	Gurusamy S	Banking Theory Law and Practice	Vijay Nicole Imprints Pvt Ltd,Chennai.	2017

Pedagogy: Bank Visits, Assignments, Seminar, Assignment, Discussion.

Course Designer: Dr. M. Neela, Associate Professor.

SKILL BASED ELECTIVE II – NEW PRODUCT DEVELOPMENT

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
SKILL BASED ELECTIVE – II NEW PRODUCT DEVELOPMENT	19UBA5SBE2BP	2	2	3	40	60	100

Objective:

- To provide a framework to the students about developing a new product and its services

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Outline the Key concepts and principles concerning the role of product and service innovation and their contribution to generate competitive advantage in firms.	K1
CO2	Identify and discuss key concepts and principles concerning the activities and competencies involved in New Product Development	K2
CO3	Predict and apply key concepts and principles concerning the range of tools and methods that are used to manage New Product Development	K3
CO4	Analyse the set of potential innovation triggers and strategically select those opportunities that fit with the organizational resources and strategies	K3
CO5	Evaluate the role of design in product development, and the ability to address costs issues through better design decisions	K3

Mapping with programme outcome:

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

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

SYLLABUS

UNIT- 1:

Introduction to product and service innovation – Opportunity Identification and Identifying customer needs - Customer need analysis and factor analysis.

UNIT- 2:

Identifying New Product Opportunities - Market Research for New Product Development. Intellectual Property Issues in Product Development - New Product Business Plans – Strategy Consulting for New Products.

UNIT-3:

Product Architecture and Prototyping – Rapid prototyping – Agile Development - Product and service design Organizing for Product Development - Developing Services and Product Service Systems.

UNIT-4:

Contemporary topics in NPD: Open innovation - User innovation - Crowd sourcing - Free innovation - Continuous innovation and creating a culture of innovation. Building Markets and Creating Demand for New Products.

UNIT: 5

Integrating innovations – Integrating New products into existing portfolios – Considering the bigger brand picture - Designing Products for Emerging Markets - Design Thinking for New Products - Product development economics – “Best practices” in managing new products and services.

Text Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Karl T. Ulrich & Steven D Eppinger	Product Design and Development	McGraw Hill	5 th Edition 2016

Books for Reference:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	C. Merle Crawford & C. Anthony Di Benedetto	New Products Management	McGraw-Hill Education	11 th Edition 2014
2.	Bettina von Stamm	Managing Innovation, Design and Creativity	Wiley	2 nd Edition 2008

Pedagogy: Lecture, Assignments, Seminar and Quiz.

Course Designer: Mrs. P. Thangamani, Assistant Professor.

SKILL BASED ELECTIVE III
STATISTICAL PACKAGE FOR MANAGERS (SPSS)

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CRE DITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Skill Based Elective III Statistical Package For Managers (SPSS)	19UBA5SBE3AP	2	2	3	40	60	100

Objectives:

- To determine how SPSS can be a useful tool
- To evaluate and analyse students' performance with the help of histogram and Chi-Square Test

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Define the statistical terms and its measures	K1
CO2	Describe the procedure to compute descriptive statistical measure	K2
CO3	Recognise the applications of Statistical measure	K3
CO4	Compare data using descriptive measures	K3
CO5	Predict the variation using Regression	K3

Mapping with programme outcome:

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

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

SYLLABUS

UNIT- I

Introduction – SPSS – Role of SPSS – Getting started with SPSS – Scaling and Measurement - Data Entry in SPSS

UNIT- II

Data Manipulation – Construction of Frequency Distribution Tables – Cross Tabulation

UNIT-III

Tabulation of data – Graphical Representation of Data – Charts and Graphs – Computation of Mean – Median – Mode and Standard Deviation

UNIT-IV

Tabulation of data – Statistical Analysis II – T test (Comparison of Means) – Statistical Analysis III – Chi-Square test, Correlation and Regression

UNIT: V

Report Writing – Presenting Results – Written and Oral reports

Text Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Andy Field	Discovering Statistics through IBM SPSS Statistics	SAGE Publications India PvtLimited	Fourth Edition, 2019

Books for Reference:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Saravanavel	Research Methodology	Sultan Chand	New Edition, 2018
2.	C.R. Kothari	Research Methodology	New Age International Publishers	Fourth edition, 2019

Pedagogy: Lecture, Power Point Presentation and Computer Practical

Course Designer: Mrs. P. Thangamani, Assistant Professor.

SKILL BASED ELECTIVE III - EVENT MANAGEMENT PRACTICAL

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
SKILL BASED ELECTIVE III EVENT MANAGEMENT PRACTICAL	19UBA5SBE3BP	2	2	3	40	60	100

OBJECTIVES

- To impart the basic knowledge of Event Management
- To upgrade the students regarding the concept of event, they will develop and nature their skills and Techniques involved in Event Management

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Discuss the Features and different Types of Events	K1
CO2	Acquire knowledge on an overview of Event Management.	K1
CO3	To Examine Preparing a Planning Schedule	K3
CO4	Explaining the Role and Qualities of Event Manager	K2
CO5	To Examine the Evaluation of an event and prepare an Evaluation Report	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

Event – Meaning – Features of Events – Importance of Events – Scope of Events– Types of Events – Key Elements of Events – Identifying the type of event for execution.

UNIT: II

Event Management– Features of Event Management– Process and Importance of Event Management–Event Management Procedures –Identify the steps involved in Event Management Procedures.

UNIT: III

Event Planning– Aim of Event- Develop a Mission– Establish Objectives– Preparing Event proposal– Five C’s of successful Event– How to Plan an Event.

UNIT: IV

Event organizing–Purpose of Organizing Events –Processof organizing Events–Job Responsibility of Events Organizer– Organize an event in your college.

UNIT: V

Event Evaluation– Evaluation process– Measuring performance – Financial analysis - Corrective deviations – Report Writing.

TEXT BOOKS

Sl.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Ms.Annie Stephen And Mr. Hariharan	Principles of Event Management	Himalaya Publishing House	2014
2.	Anukrati Sharma & Shruti Arora	Event Marketing and Management	Bharati Publications, New Delhi	2018

REFERENCE BOOKS

Sl.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Sanjaya singh Gaur & Sanjay V Saggere	Event Marketing and Management	Vikas Publishing House Pvt.Ltd	2014
2.	R.K.Singh	Event Management	Aman Publication. New Delhi	2011
3.	Dr. Joe Goldblatt	Special Events	CSEP Publisher: Wiley & Sons	2013

PEDOGOGY: Lecture, Assignments, Seminar and Quiz

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

VI TH SEMESTER SYLLABUS

CORE COURSE XI (CC) HUMAN RESOURCE MANAGEMENT

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
CORE COURSE XI (CC) HUMAN RESOURCE MANAGEMENT	19UBA6CC11	6	6	3	25	75	100

Objectives:

1. To gain knowledge on the basic concepts of HRM.
2. To acquire the skills for the recent working environment.

Course Outcome:

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

CO Number	CO Statement	Knowledge Level
CO1	Explain the concepts of Human Resource Management and their functions.	K1
CO2	Formulate manpower planning and identify the sources of Recruitment, Selection and Induction.	K3
CO3	Assess Training methods and Executive Development and evaluate the performance appraisal methods.	K4
CO4	Utilize the grievance redressal mechanism and analyze Disciplinary Procedure.	K3
CO5	Identify the industrial outcomes, and apply in realistic Scenario.	K3

Mapping with programms outcome:

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

S-Strong, M-Medium, L-Low

Syllabus:**Unit – I (17 hrs)**

Nature and scope of Human Resource Management - Characteristics and objectives – Principles of Human Resource Management - Functions of Human Resource Management - Human Resource Planning – Concepts, Methods.

Unit – II (16 hrs)

Job Analysis – Job Description, Job Specification – Job evaluation - Job enrichment, enlargement and job satisfaction. Recruitment - Selection - Methods of Selection - Employment tests and interviews.

Unit – III (15 hrs)

Identification of the training needs, Training - Methods - Techniques - Identification of the training needs - Executive development – Evaluation, design and techniques - Kirkpatrick model of evaluation – CIRO model-Cost Benefit Analysis - Return on Investment of training- Induction.

Unit – IV (16 hrs)

Performance appraisal – Techniques - Transfer – Promotion and termination of services - Compensation– Different patterns of compensation - time rate – Piece rate – Incentives – bonus – Human resource information system - Human Resource Audit - Nature - Benefits - Scope - Approaches.

Unit – V (18 hrs)

Concept of industrial relations –separation and its types- retirement and retirement benefits – Gratuity, Provident Fund and pension scheme. Discipline and Disciplinary procedure – Grievances – Steps in Grievance Handling.

TEXT BOOK:

Sl.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	S. P. Gupta	Human Resource Management	Sultan Chand and Sons, New Delhi.	19th Thoroughly Revised Edition 2018
2.	C.B. Memoria	Personnel Management	Himalaya Publishing House	13 th edition, 2018.

REFERENCE BOOKS:

Sl.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	P. C. Tripathi	Personnel Management and Industrial relations	Sultan Chand and Sons, New Delhi.	21st Revised Edition 2013 Reprint, publishing in 2017
2.	Gary Dessler & Biju Varrkey	Human Resource Management	Pearson Publishing	16 th Edition, 2020.

Pedagogy:

Power point presentations, Seminar, Quiz, Assignment, Case Study, Group Discussion.

Course Designer: Dr.J.Tamilselvi, Associate Professor and Head.

CORE COURSE XII (CC) FINANCIAL MANAGEMENT

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
CORE COURSE XII (CC) FINANCIAL MANAGEMENT	19UBA6CC12	6	6	3	25	75	100

Objectives:

- To cultivate a knowledge on the finance functions.
- To equip students to develop the skill of decision making.

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 the role of financial management in business organizations.	K1
CO2	Assess the importance of each capital structure employed in the business.	K2
CO3	Analyse the prominence of cost of capital in financial decision making.	K3
CO4	Evaluate the long term projects using various capital budgeting process.	K3
CO5	Predict the various factors influencing dividend policy of a company.	K3

Mapping with programmes outcome:

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

S-Strong, M-Medium, L-Low

SYLLABUS

UNIT: I (8 Hrs.)

Financial Management - Meaning – Nature and Scope of Financial Management – Goals of Financial Management – Concept of time value of money – Financial decisions.

UNIT: II (11 Hrs.)

Capital Structure – Meaning – Factors determining Capital Structure – Capital Structure Theories – Net Income Approach – Net Operating Approach – MM Approach – Traditional Approach – Leverages – Operating Leverage, Financial Leverage and Combined Leverage.

UNIT: III (13 Hrs.)

Cost of Capital – Sources of Capital for a company – Classification of Cost of Capital – Cost of Equity – Cost of Preference – Cost of Debt - Cost of Retained Earnings – Weighted Average Cost of Capital.

UNIT: IV (14 Hrs.)

Capital Budgeting – Importance – Process – Project Appraisal by using Traditional Methods and Modern Methods – Pay Back Method – Net Present Value Method – Average Rate of Return Method – Internal Rate of Return Method - Profitability Index

UNIT: V (14 Hrs.)

Dividend Decisions – Meaning – Types of Dividend Policies – Factors influencing Dividend Policy – Forms of Dividend – Concepts on Relevance and Irrelevance Theories of Dividend. Working Capital Management – Concepts, types, determinants and Estimating Working Capital requirements (Theory only)

Distribution of Marks: Theory 40% Problems 60%

TEXT BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Prasanna Chandra	Financial Management	Tata McGraw Hill	9 th Edition 2017
2.	Dr. Ramachandran R & Dr. Srinivasan R	Financial Management	Sriram Publications	2019, Reprint

REFERENCE BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Pandey I.M	Financial Management	Vikas Publishing House Ltd	11 th Edition 2016
2.	Maheswari S.N	Elements of Financial Management	Sultan Chand and Sons, New Delhi.	12 th Edition 2019
3.	Khan M Y & Jain P K	Financial Management	McGraw Hill Education	8 th Edition 2017

PEDOGOGY: Lecture, Assignments and Quiz

Course Designer: Dr. M. Gayathri, Assistant Professor.

MAJOR BASED ELECTIVE II - BUSINESS ANALYTICS

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
MAJOR BASED ELECTIVE II BUSINESS ANALYTICS	19UBA6MBE2A	6	4	3	25	75	100

OBJECTIVES

- To understand the Role of Business Analyst and Data Science in Business.
- To understand the basic concept of Data Management.
- To understand the basic concept of Machine Learning and the application of Business Intelligence.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Explain the basics of Business Analytics and Data Science	K1
CO2	Describe the Big Data Management	K1
CO3	Explore the Data Mining concept and its Techniques	K2
CO4	Analyzing Machine Learning Concept	K3
CO5	Application of Business Analytics in Different Domain	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

Introduction: Business Analytics -Historical Overview of data analysis, Data Scientist vs. Data Engineer vs. Business Analyst, Career in Business Analytics-Data Science-Applications for data science, Data Scientists Roles and Responsibility

Unit-II

Data: Data Collection- Data Management- Big Data Management-Organization/Sources of Data- Importance of Data Quality- Dealing with Missing or Incomplete Data-Data Visualization-DataClassification

Unit-III

Introduction to Data Mining-The origins of Data Mining- Data Mining Tasks-OLAP and Multidimensional data analysis-Basic concept of Association Analysis and Cluster Analysis.

Unit-IV

Introduction to Machine Learning: History and Evolution-AI Evolution, Statistics Vs Data Mining Vs, Data Analytics Vs, Data Science

Unit-V

Application of Business Analytics: Retail Analytics- Marketing Analytics- Financial Analytics- Healthcare Analytics- Supply Chain Analytics

TEXT BOOKS

Sl.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Bhimasankaram Pochiraju, SridharSeshadri	Essentials of Business Analytics: An Introduction to the methodology and its application	Springer	2019
2.	Andreas C. Müller, Sarah Guido	Introduction to Machine Learning with Python: A Guide for Data Scientists	1st Edition O'Reilly media	2016

REFERENCE BOOKS

Sl.No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Laura Igual, Santi Seguí	Introduction to Data Science	Springer	2017
2.	Pang-Ning Tan, Michael Steinbach, Vipin Kumar	Introduction to Data Mining	Pearson Education India	2014
3.	Ger Koole	An Introduction to Business Analytics	Lulu.com	2019

PEDOGOGY: Lecture, Assignments, Seminar and Quiz.

COURSE DESIGNER: Dr.S.Thamarai Selvi, Associate Professor.

MAJOR BASED ELECTIVE II - GLOBAL BUSINESS MANAGEMENT

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
MAJOR BASED ELECTIVE II GLOBAL BUSINESS MANAGEMENT	19UBA6MBE2B	6	4	3	25	75	100

Objectives:

- 1: To provide student with an understanding of International Business
- 2: An insight into the International Business Environment and International Marketing

Course Outcome

CO Number	CO Statement	Knowledge Level
CO1	Explain the Basic concept of International Business Environment.	K1
CO2	Assess comprehensive knowledge about the Global Trade Institution.	K2
CO3	Acquire the concepts of Global Marketing Strategies.	K2
CO4	Examine the Ethics in International Business, OECD CSR policy tool	K3
CO5	Gain knowledge on Documentation in International Trade and United Nations Global Compact	K3

Mapping with programmes outcome:

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

S-Strong, M-Medium, L-Low

SYLLABUS

UNIT-I (16 hrs)

Introduction to International Business – Elements of International Business – Globalization – Domestic and International Business - Economic and political Environment - Cultural Environment – Foreign investment.

UNIT-II (17 hrs)

Global Trade Institution – World Trade Organization (WTO) – International Labor Organization (ILO) – GATS – TRIMS – TRIPS – Agreement - Dispute settlement under WTO – Tariff barriers.

UNIT-III (16 hrs)

International Marketing -Introduction - Scanning International Markets – Mode of entering into potential markets – Global marketing strategies – Branding for international markets.

UNIT-IV (16 hrs)

Ethics in International business - Introduction Business Ethics factor, – Differences in ethics, corporate governance – Code of conduct for MNC's – MNC's and international trade models – OECD CSR Policy tool.

UNIT-V (14 hrs)

Finance and International Trade – Introduction – Understanding planning mechanism – Documentation in international trade, financing techniques – Export promotion schemes - United Nations Global Compact 2011.

TEXT BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Francis Cherunilam	International Business	PHI – New Delhi	2004
2.	Rakesh Mohan Joshi	International Business	Oxford University Press, Chennai	2014

BOOKS FOR REFERENCE

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Donald A Ball	International business	TATA Mcgraw Hill	2002
2.	T.T. Sethi	Money Banking & International Trade	S.Chand& Co., - Delhi.	2007

PEDAGOGY: Lecture, Seminar, PPT, Group discussion.

Course Designer: Dr.S.Thamaraiselvi, Assistant Professor.

MAJOR BASED ELECTIVE III - OPERATIONS MANAGEMENT

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
MAJOR BASED ELECTIVE III OPERATIONS MANAGEMENT	19UBA6MBE3A	5	3	3	25	75	100

OBJECTIVES

- To lay a special emphasis on production management.
- To familiarize students with basic concepts on operations management.

Course Outcome

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

CO Number	CO Statement	Knowledge Level
CO1	Explain the basic concepts and acquire knowledge on an overview of production Management.	K1
CO2	Expertise in selecting a suitable plant location and plant layout.	K2
CO3	Interpret the elements related to various aspects of time study, work study and motion study.	K2
CO4	Define and identify the concepts of production planning and control, improve the productivity by using effective quality control standards and techniques.	K3
CO5	Discuss basic concepts on Materials Management , Materials Handling and Inventory Management.	K3

Mapping with programme outcome:

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

S-Strong, M-Medium, L-Low

SYLLABUS

Unit-I (15 hrs)

Production Management – Overview of Production Management – Scope and Significance
– Relationship of Production Management with Marketing, Finance, HRM – Production System
– Functions and Types.

Unit-II (18 hrs)

Plant Location – Introduction need for selecting a suitable Location-Plant location decision types – Factors influencing Location decisions – steps in plant location selection – Plant layout – objectives – Importance – Types of layout.

Unit –III (18 hrs)

Work study – Time study and Motion study – Work measurement – Maintenance of plant – Types.

Unit- IV (15 hrs)

Production planning and control – Meaning – Definition – Objectives and Importance – Elements of production planning – Routing and Scheduling – Quality control and inspection – Meaning – Objectives and Significance – TQM - Certification Marks

Unit -V (15 hrs)

Materials Management - Materials Handling – Inventory Management – Objectives – Classification - Techniques – Store Keeping.

TEXT BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Justin Paul and Rajiv Aserkar	Production and Operations Management	Himalaya Publishing	2015
2.	E.S.Buffa	Modern Production and Operations Management	Wiley Series in Management	2007

BOOKS FOR REFERENCE

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	B.S. Goyel	Production and Operations Management	Pragati Prakashan	2002
2.	Paneer selvam	Production and Operation Management	Prentices Hall of India	2012

Pedagogy : Lecture, PPT, Quiz, Assignment ,Group discussion, Seminar.

Course Designer: Dr. S. Thamarai Selvi, Assistant Professor.

MAJOR BASED ELECTIVE III - BUSINESS ETHICS

URSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
MAJOR BASED ELECTIVE III – BUSINESS ETHICS	19UBA6MBE3B	5	3	3	25	75	100

Objectives:

- To increase awareness of the ethical dimension of business conduct.
- To develop skills in recognizing and analyzing ethical issues.
- To understand organizational practices in corporate social responsibility and business ethics.
- To practice decision-making about ethical issues.

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 business ethics and application of the ethical concepts.	K1
CO2	Creates a platform to understand the workplace ethics.	K2
CO3	Discuss the theories of consequence Ethics.	K3
CO4	Demonstrate the ability to apply business ethics and social responsibility to business practices	K2
CO5	Discussion regarding the implementation of business ethics in global economy	K3

Mapping with programme 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.

SYLLABUS

UNIT- 1: (8 Hours)

Introduction to Business Ethics – Definition - Nature of Business ethics – Characteristics
-Causes of unethical behavior - Public good – values and Ethics.

UNIT- 2: (8 Hours)

Ethics in the Workplace - Small Business Ethics - Codes of Conduct - Code of Ethics -
Role and function of ethical managers - Management and Ethics.

UNIT-3: (8 Hours)

Social Responsibility - Business accountability - Ethical value, Theories of Ethics -
Consequentialism – Utilitarianism – Egoism

UNIT-4: (9Hours)

Consumer Rights: expectations vs. Reality - A bridge between business and society,
Decision making process: Ethical decision making and ethical leadership, Individual factors:
moral philosophies.

UNIT: 5 (9Hours)

Implementing business ethics in a global economy: Developing an effective ethics
programs - Implementation and auditing an ethics program - business ethics in a global economy

Text Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	S.K.Mandal	Ethics in Business and Corporate Governance	TMH, New Delhi	2012
2.	A.C.Fernando	Business Ethics and Corporate Governance	Pearson Publishers, New Delhi	2013

Books for Reference:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Ann k. Buchholtz, Archie B. Carroll	Business and Society	Cengage Learning &Inc	2012
2.	O. C. Ferrell, John Fraedrich, Ferrell	Business Ethics : Ethical Decision Making and Case	Cengage Learning &Inc	2009
3.	P. Griseri, N. Seppala	Business Ethics and Corporate Social Responsibility	South-Western Cengage Learning	2010

Pedagogy: Power point presentations, Seminar, Assignment, Discussion.

Course Designer: Dr.S.ThamaraiSelvi, Associate Professor.

ANNEXURE - H



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18

PG & RESEARCH DEPARTMENT OF COMMERCE

THE BOARD OF STUDIES VIRTUAL MEET OF PG & RESEARCH DEPARTMENT OF COMMERCE HELD ON 12.06.2021 SATURDAY AT 11.00 A.M. THE MEMBERS CONSIDERED AND APPROVED THE CURRICULAM AND SIXTH SEMESTER SYLLABUS OF B.COM. & B.COM. CA.

THE CHAIRMAN WELCOMED THE MEMBERS FOR ATTENDING THE FIFTH BOARD OF STUDIES MEET.

The Following Members attended the Virtual Meeting:

- | | |
|---------------------------|------------------------------------------------------------------------------|
| 1. Prof. Dr. N. SAVITHRI | Chairperson & Head |
| 2. Dr. T. PALANEESWARI | University Nominee, The Standard Fireworks
Rajarathnam College, Sivakasi. |
| 3. Dr. N. C RAJASHREE | Subject Expert, Guru Nanak College, Chennai |
| 4. Dr. B. MITRA PRIYA | Member Alumna |
| 5. Mr. K. KANAGASABAPATHY | Industrial Expert |
| 6. Ms. N. ARUNA | Member |
| 7. Dr. S. SHAMEEM | Member |
| 8. Dr. M. A. PARVEEN BANU | Member |
| 9. Dr. S. SUDHA | Member |
| 10. Dr. P. KAVITHA | Member |
| 11. Dr. D. RAMYA | Member |
| 12. Dr. C. SUBHA | Member |
| 13. Dr. S. JAYALAKSHMI | Member |
| 14. Dr. D. SARALA | Member |
| 15. Ms. SHILPA A. TALREJA | Member |
| 16. Dr. S. SOWMYA | Member |
| 17. Dr. P. BANU | Member |
| 18. Dr. J. PRABA | Member |
| 19. Ms. J. LALITHAMBIGAI | Member |
| 20. Ms. D. INDUMATHI | Member |

21. Ms. B. LAVANYA	Member
22. Ms. A. VINODHINI	Member
23. Ms. S. J. SUREYA	Member
24. Ms. G. KANAGAVALLI	Member
25. Ms. N. AKILANDESWARI	Member
26. Ms. S. PRAVEENA	Member
27. Dr. R. AYSWARYA	Member

The leave of absence was granted to Dr. M. Victor Louis Anthuvan, Subject Expert, LIBA, Chennai.

THE AGENDA FOR THE MEETING WAS FOLLOWS:

1. ITEM NO. : 1

To consider the Ratification made in the V Semester Syllabus of B.Com. and B.Com. CA.

2. ITEM NO. : 2

To consider and replace the V Semester Programme Structure of B.Com. and B.Com. CA, Skill Based Elective – II Course Title “Business Correspondence and Reporting” with “SPSS – Practicals”.

3. ITEM NO. : 3

To consider and ratify Programme Structure of B.Com, Major Based Elective Paper – I, Title “E-Commerce” to be changed as “Business Correspondence and Reporting”.

4. ITEM NO. : 4

Ratification needed to change the V Semester Programme Structure of B.Com. CA in which Core Course - X title “Entrepreneurial Development” has been introduced instead of the course titled “Management Information System” and course titled “Business Correspondence and Reporting” has been introduced as Major Based Elective – I.

5. ITEM NO. : 5

To consider the Ratification effected on Project Work of M.Com. IV Semester Programme Structure with regard to apportionment of Marks Internal 25 and External 75 has been fully converted into 100 Marks.

6. ITEM NO. : 6

To consider and to approve the Curriculum and Syllabus of Sixth Semester of B.Com. and B.Com. CA.

7. ITEM NO. : 7

To consider and to approve the Revised Programme Structure of B.Com. for the Academic Year 2021 – 2022.

At the outset, the above Agenda were discussed by the Members of Board of Studies.

1. ITEM NO. : 1

To consider the Ratification made in the V Semester Syllabus of B.Com & B.Com CA.

Ratified the changes made in the V Semester Syllabus of B.Com & B.Com CA.

2. ITEM NO. : 2

In the V Semester Programme Structure of B.Com & B.Com CA Skill Based Elective – II Course Title “ Business Correspondence and Reporting” has been changed and ratification to be needed to change the Title as “SPSS – Practicals”.

Ratified to replace in the V Semester Programme Structure of B.Com & B.Com CA. “SPSS – Practicals” as Skill Based Elective – II. Instead of Paper Course titled “Business Correspondence and Reporting”.

3. ITEM NO. : 3

In the V Semester Programme Structure of B.Com, Major Based Elective course title “E-Commerce” has been changed and ratification made as “Business Correspondence and Reporting”.

Ratified to include the Course Titled “Business Correspondence and Reporting” which is to be replaced for the Course Titled “E-Commerce”.

4. ITEM NO. : 4

Ratification needed to change the V Semester Programme Structure of B.Com. CA in which Core Course - X Title “Entrepreneurial Development” has been introduced instead of the Course Titled “Management Information System” and Course Titled “Business Correspondence and Reporting” has been introduced as Major Based Elective –I .

Ratified to change the V Semester Programme Structure of B.Com. CA in which Core Course - X Title “Entrepreneurial Development” has been introduced instead of the Course Titled “Management Information System” and Course Titled “Business Correspondence and Reporting” has been introduced as Major Based Elective – I.

5. ITEM NO. : 5

To Consider the Ratification effected on Project Work of M.Com., IV Semester Programme Structure with regard to apportionment of Marks Internal 25 and External 75 has been fully converted into 100 Marks.

Ratified to consider the changes made in the Project work of II M.Com. IV Semester Programme Structure, relating to apportionment of marks.

6. ITEM NO. : 6

To Consider and to approve the Curriculum and Syllabus of Sixth Semester of B.Com. and B.Com. CA.

Resolved to consider and approve the Curriculum and Syllabus of VI Semester of B.Com. and B.Com. CA.

7. ITEM NO. : 7

To consider and to approve the Revised Programme Structure of B.Com. for the Academic Year 2021 – 2022.

Resolved to approve the Revised Programme Structure of B.Com. for the Academic Year 2021 – 2022.

Chairman

Members of Board of Studies

T. Palaneeswari
Dr. T. Palaneeswari
PRINCIPAL
The Standard Firework
Rajaratnam College
for Women,
SIVAKASI.

Dr. N.C. Rajashree
Dr. N.C. RAJASHREE
VICE-PRINCIPAL (SHIFT-II)
GURU NANAK COLLEGE (AUTONOMOUS)
GURU NANAK SALAI,
VELACHERY, CHENNAI - 600 042.

B. Rajwong
HEAD DEPARTMENT OF COMMERCE
ALPHA ARTS & SCIENCE COLLEGE
CHENNAI

N. Ganesh
N. K. METAL INDUSTRIES
32/4, IIIrd STREET, NEHRU NAGAR
KAJAMALAI MAIN ROAD
TRICHY - 620 023



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)

V Semester

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
								Internal	External	
V	III	Core Course - VIII (CC)	Corporate Accounting	19UCO5CC8	5	5	3	25	75	100
		Core Course - IX (CC)	Auditing	19UCO5CC9	5	5	3	25	75	100
		Core Course - X (CC)	Entrepreneurship & Small Business Management	19UCO5CC10	5	5	3	25	75	100
		Core Course - XI (CC)	Financial Management	19UCO5CC11	5	5	3	25	75	100
		Major Based Elective - I	A. Business Correspondence & Reporting	19UCO5MBE1A	4	3	3	25	75	100
	B. E- Retailing		19UCO5MBE1B							
	IV	Skill Based Elective - II	A. SPSS - Practicals	19UCO5SBE2AP	2	2	3	40	60	100
			B. Advertising & Sales Promotion	19UCO5SBE2B				25	75	
		Skill Based Elective - III	A. Personality Development	19UCO5SBE3A	2	2	3	25	75	100
			B. Skills for Competitive Examination	19UCO5SBE3B				-	100	
		UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100
	Extra Credit Course	Swayam Online Course		As per UGC norms						
		Total			30	29				800



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)

VI Semester

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
								Internal	External	
VI	III	Core Course - XII (CC)	Management Accounting	19UCO6CC12	6	5	3	25	75	100
		Core Course - XIII (CC)	Direct Taxation	19UCO6CC13	6	5	3	25	75	100
		Core Practical - II (CP)	Accounting Package - Practicals	19UCO6CC2P	6	5	3	40	60	100
		Major Based Elective - II	A. Human Resource Management	19UCO6MBE2A	5	4	3	25	75	100
			B. E-Commerce	19UCO6MBE2B						
		Major Based Elective - III	A. Financial Services	19UCO6MBE3A	6	4	3	25	75	100
	B. Organisational Behaviour		19UCO6MBE3B							
	V		Extension Activities	19UGEA	-	1	-	-	-	-
			Gender Studies	19UGGS	1	1	3	25	75	100
			Total			30	25			
		Grand Total			180	140				3900



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)

V Semester

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total	
								Internal	External		
V	III	Core Course - VIII (CC)	Accounting for Managerial Decisions	19UCC5CC8	5	5	3	25	75	100	
		Core Course - IX (CC)	R for Data Analysis	19UCC5CC9	5	5	3	25	75	100	
		Core Course - X (CC)	Entrepreneurial Development	19UCC5CC10	5	5	3	25	75	100	
		Core Practical - II (CP)	R Programming - Practicals	19UCC5CC2P	5	5	3	40	60	100	
		Major Based Elective - I	A. Business Correspondence & Reporting	19UCC5MBE1A	4	3	3	25	75	100	
	B. E-Retailing		19UCC5MBE1B								
	IV	Skill Based Elective - II	A. SPSS - Practicals	19UCC5SBE2AP	2	2	3	40	60	100	
			B. Advertising & Sales Promotion	19UCC5SBE2B				25	75		
		Skill Based Elective - III	A. Personality Development	19UCC5SBE3A	2	2	3	25	75	100	
			B. Skills for Competitive Examination	19UCC5SBE3B				-	100		
		UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100	
	V	Extra Credit Course	Swayam Online Course		As per UGC norms						
		Total			30	29					800



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)

VI Semester

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total
								Internal	External	
VI	III	Core Course - XI (CC)	Corporate Accounting	19UCC6CC11	6	5	3	25	75	100
		Core Course - XII (CC)	Income Tax Theory Law & Practice	19UCC6CC12	6	5	3	25	75	100
		Core Practical - III (CP)	Computerized Accounting - Practicals	19UCC6CC3P	6	5	3	40	60	100
		Major Based Elective - II	A. Human Resource Management	19UCC6MBE2A	5	4	3	25	75	100
			B. Modern Banking	19UCC6MBE2B						
		Major Based Elective - III	A. Auditing	19UCC6MBE3A	6	4	3	25	75	100
	B. Management Information System		19UCC6MBE3B							
	V		Extension Activities	19UGEA	-	1	-			
			Gender Studies	19UGGS	1	1	3	25	75	100
			Total			30	25			600
		Grand Total			180	140				3900

SKILL BASED ELECTIVE – II

A. SPSS – Practicals

2019 – 2020 Onwards

Semester - V	SPSS - Practicals	Hours/Week - 2	
Skill Based Elective - II		Credits - 2	
Course Code - 19UCO5SBE2AP / 19UCC5SBE2AP		Internal 40	External 60

Course Objective

- To learn the statistical computation skill through SPSS Package.
- To develop an ability to analyze and interpret the data with statistical evidences.
- To apply the demonstrated knowledge in the field of research.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	Recall the basic concepts of statistics	K1
CO2	Explain the significance of data analysis by preparing a concise report.	K2
CO3	Apply the concepts of parametric and non-parametric tests and perform statistical analysis that can test hypotheses.	K3
CO4	Analyse and practice data coding, measurement, editing and reliability check in SPSS.	K4

Syllabus

Unit-I Introduction (12 Hours)

Sampling and Data Collection – Methods of Data Collection – Primary and Secondary Data - Data Coding in SPSS - Entering and Editing Data - Characteristics of Variables - Type of Scale of Measurements, Choosing appropriate scale and measurement to the data - Adding Value, Labels, Grouping Data - Transforming Variables.

Unit – II Preliminary Analysis and Charts (12 Hours)

Reliability of Data – Selection of Tools for Analysis – Introduction to Hypothesis Testing – Hypothesis Testing Procedure -Frequencies Table - Percentages Analysis –Mean – Median – Mode -Charts - Bar Charts, Histograms, Pie Charts, Box plots, Cluster Bar and Charts Scatter Diagrams.

Unit – III Parametric & Non –Parametric Test**(12 Hours)**

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.

Unit – IV Relationship among Variables**(12 Hours)**

Correlation: Pearson product moment Correlation, Spearman Rank Correlation, Partial Correlation, Simple linear Regression, Multiple Linear Regression: Assumptions, overall significance, Variable selection methods.

Unit – V Report Writing**(12 Hours)**

Report writing and presentation – Steps in Report writing - Types of reports – Substance of Reports – Formats of Reports – Presentation of a Report - Documentation - Foot Note - Bibliography.

List of Practicals

- Questionnaire Framing
- Data Collection and Data Reliability
- Frequency Analysis
- Preparation of Charts
- Mean, Median and Mode
- “T” Test
- ANOVA
- Chi – Square Test
- Correlation
- Regression
- Report Writing

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, AppaIyerSivakumar	Management Research	Pearson Education	2006

	and M. Mathirajan	Methodology		
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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 and Group Discussion.

Course Designer

Dr. S. Jayalakshmi – Assistant Professor, Department of Commerce.

SKILL BASED ELECTIVE - III

B. SKILLS FOR COMPETITIVE EXAMINATION

2019 – 2020 Onwards

Semester - V	Skills for Competitive Examination	Hours/Week - 2	
Skill Based Elective - III		Credits - 2	
Course Code - 19UCO5SBE3B / 19UCC5SBE3B		Internal -	External 100

Course Objective

- To develop students with professional and ethical attitude, effective communication skills and the attitude of working in group/with people for successful careers.
- To use current technologies, skills and tools necessary for computing practices.
- To help students to succeed in competitive exams.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	Select prospective career in Government and Corporate Sector	K1
CO2	Outline a sense of awareness and other information about various competitive examinations	K2
CO3	Solve a problem and to identify the appropriate computing requirement	K3
CO4	Motivate the students to prepare for high level competitive exams	K4

Syllabus

Unit – I Reasoning Ability (6 Hours)

Coding & Decoding - Puzzles- Seating Arrangement - Logical reasoning - Ranking and Order- Alphanumeric series - Data Sufficiency - Syllogism - Input and Output - Statement, Argument & Assumption - Reasoning Analogy - Reasoning inequality - Fundamental arithmetical operations - Blood Relations.

Unit – II Quantitative Aptitude (6 Hours)

Simplification and Approximation - Profit & Loss - Number Series - Quadratic Equations - Problems on Ages - Boat and Stream - Speed, Time & Distance – Percentage- Ratio & Proportion - Number System - Simple & Compound interest - Mixture & Allegations - Time and Work - Pipes and Cistern- Problems on Trains.

Unit – III Data Analysis and Interpretation (6 Hours)

Data Interpretation (Bar Graph, Line Chart, Tabular, Caselet, Radar/Web, Pie Chart) - Linear Equation – Probability.

Unit – IV English Language**(6 Hours)**

Reading Comprehension - Cloze test - Fill in the blanks - Tense rules - Sentence Rearrangement - Error detection - Preposition rules - Paragraph Completion - Idioms & Phrases.

Unit – V General Awareness**(6 Hours)**

Common Abbreviations - UN and Other Important World Organizations - Current Events of National and International Importance - Current Ministers and Governors - Capitals & Currencies - Monuments and Places of India.

Distribution of Marks: Multiple Choice Questions - 100 Marks

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	R.S. Aggarwal	A Modern Approach to Logical Reasoning	S Chand	2006
2.	R.S. Aggarwal	Quantitative Aptitude for Competitive Examinations	S Chand	2017

Reference Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	B.S. Sijwali , InduSijwali	A New Approach to REASONING Verbal & Non-Verbal	Arihant	2014
2.	Oswal	Quantitative Aptitude For Competitive Examinations	Oswal	2020

Pedagogy

Lecture, Power Point Presentation, Assignment, Quiz, Seminar, Experience Discussion & Group Discussion.

Course Designer

Ms. N. Akilandeswari – Assistant Professor, Department of Commerce.

B.COM.
VI SEMESTER
SYLLABUS

CORE COURSE – XII
MANAGEMENT ACCOUNTING
2019 – 2020 Onwards

Semester - VI	Management Accounting	Hours/Week - 6	
Core Course - XII		Credits - 5	
Course Code - 19UCO6CC12		Internal 25	External 75

Course Objective

- To understand the concepts and techniques of Management Accounting.
- To enhance a manager's ability to make effective Economic Decisions.
- To understand and analyze accounting information for Decision-Making, Planning and Control.

Course Outcome

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

CO Number	CO Statement	Knowledge Level
CO1	List out the concepts of Management Accounting	K1
CO2	Infer on the financial statements and develop knowledge to present a good Management Report	K2
CO3	Use cost-volume-profit analysis in Decision Making	K3
CO4	Analyse and interpret the performance of the firm through preparation of Financial Statements	K4

Mapping with Programme Outcomes

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

S-Strong , M- Medium , L- Low

Syllabus

Unit – I Introduction (18 Hours)

Management Accounting – Meaning, Scope, Objectives – Relationship between Financial, Cost and Management Accounting – Financial Statement Analysis – Comparative Statement – Common Size Statement – Trend Analysis.

Unit – II Fund Flow & Cash Flow Statement (18 Hours)

Fund Flow Statement – Meaning - Preparation – Schedule of changes in working capital – Fund from operations – Sources and applications – Cash flow Statement – Preparation of cash flow statement as per Accounting Standard 3.

Unit - III Marginal Costing & Ratio Analysis (18 Hours)

Marginal Costing – Concepts – CVP analysis – BEP –Margin of Safety — Ratio Analysis – Meaning – Classification – Liquidity, Solvency, Turnover and Profitability ratios.

Unit - IV Budgetary Control & Standard Costing (18 Hours)

Budget and Budgetary Control – Meaning – Advantages – Preparation of Sales, Production, Purchase, Cash and Flexible Budget. Standard Costing – Meaning, Advantages and Limitations – Variance Analysis – Material and Labour Variance only.

Unit - V Capital Budgeting (18 Hours)

Capital Budgeting – Meaning, Importance – Appraisal Method – Payback Period – Accounting Rate of Return – Discounted Cash Flow – Net Present Value – Profitability Index – Internal Rate of Return.

Distribution of Marks: Theory 20% and Problem 80%

Text Book

S. No.	Authors	Title	Publishers	Year of Publication
1.	M.N. Arora	Cost and Management Accounting	Himalaya Publishing House	2015
2.	S. N. Maheshwari	Advanced Cost Accounting	Sultan Chand & Sons	2015
3.	Ramachandran & Srinivasan	Management Accounting	Sri Ram Publications	2015
4.	Khan and Jain	Management Accounting	Tata McGraw Hill	2015

Reference Book

S. No.	Authors	Title	Publishers	Year of Publication
1.	Ray Proctor	Managerial Accounting for Business Decisions	Pearson Publications	2016
2.	R.S.N. Pillai & Bhagavati	Management Accounting	S. Chand Publications	2015

Pedagogy

Lecture, Power Point Presentation, Group Discussion, Seminar, Quiz & Assignment

Course Designer

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

CORE COURSE – XIII**DIRECT TAXATION****2019 – 2020 Onwards**

Semester - VI	Direct Taxation	Hours/Week –6	
Core Course –XIII		Credits –5	
Course Code - 19UCO6CC13		Internal 25	External 75

Course Objective

- To help the students understand and apply basic concepts and provisions of Income Tax Act.
- To lay down a foundation for computing gross total income and total tax liability.
- To gain procedural knowledge about Income Tax law in force for the relevant assessment year.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	Define the basic concepts of Income Tax and Residential status of an individual	K1
CO2	Explain the taxable income from other sources	K2
CO3	Apply and practice the computation of Total Income of house property and business or profession	K3
CO4	Examine the tax liability of an assessee.	K4

Mapping with the Program Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	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 Introduction to Income Tax (18 hours)

IncomeTax 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 – Income exempt under Sec.10.

Unit – II Income from Salaries (18 hours)

Computation of Income from Salaries – Annual accretion – Provident Fund - Allowances – Perquisites – Types and treatment – Profit in lieu of salary – Exempted profits – Deduction u/s 16.

Unit - III Income from House Property & Profits and Gains of Business or Profession (18 hours)

Computation of Income from House Property – Determination of GAV,NAV – Deduction out of annual value – Exempted House Property Income -Profits and Gains of Business or Profession – Meaning – Computation - Expenses expressly allowed – Expenses expressly disallowed.

Unit – IV Income from Capital Gain & Other Sources (18 hours)

Computation of capital gain – Cost of acquisition – Cost of improvement – Exempted capital gain– Tax on capital gain - Computation of income from other sources – Specific incomes and other incomes chargeable under the head income from other sources.

Unit – V Gross Total Income & Tax Liability (18 hours)

Assessment of Individual - Set off and carry forward of losses –Deduction from Gross total income – Total tax liability - Income tax Authorities – Procedure for assessment – Tax Deducted at Source (TDS)– 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	SahithyaBhavan Publications	2020
2	Dr. N. Hariharan	Income Tax Law and Practice	Vijay Nicole Chennai	2020

Reference

S.No.	Authors	Title	Publishers	Year of Publication
1	T.S.Reddy and Y. Hari Prasad Reddy	Income Tax Theory, Law and Practice	Margham Publications, Chennai	2020
2	Dr. VinodK.Singhania, Dr. KapilSinghania	Direct Taxes Law and Practice	Taxmann Publications	2021

Pedagogy

Lecture, Power Point Presentation, Group Discussion, Seminar, Quiz, Assignment & Experience Discussion.

Course Designer

Dr.M.A.Parveen Banu, Associate Professor, Department of Commerce.

CORE PRACTICAL – II
ACCOUNTING PACKAGE- PRACTICALS
2019 – 2020 Onwards

Semester - VI	Accounting Package - Practicals	Hours/Week - 6	
Core Practical - II		Credits - 5	
Course Code - 19UCO6CC2P		Internal 40	External 60

Course Objective

- To enable the students to learn basic concepts of accounting packages.
- To impart knowledge about Goods and Services Tax.

Course Outcome

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

CO Number	CO Statement	Knowledge Level
CO1	Recall the basic concepts of manual accounting	K1
CO2	Explain the procedure for creating a company	K2
CO3	Apply the accounting procedures for Ledger creation, Accounting vouchers and Cost centre.	K3
CO4	Analyse stock group, stock category, stock item and compare stock category summary with godown summary	K4
CO5	Estimate budget	K5

Mapping with Programme Outcomes

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

S-Strong , M- Medium , L- Low

Syllabus

Unit – I Introduction (18 Hours)

Introduction to Accounting Packages – Features – Introduction to Tally – Features of Tally – Creation – Alteration and Deletion of Company – Accounting Features – Accounting Groups – User defined groups – Ledger creation, alteration and deletion – Final Accounts and Balance Sheet.

Unit – II Accounting Voucher (18 Hours)

Accounting Vouchers – Various types of Accounting Vouchers – Voucher entries–

Extraction of Day book and Trial balance – Cost centres – Cost categories – Cost centre class – Bill wise details – Interest calculation.

Unit – III Budget Creation (18 Hours)

Budget creation and alteration – Variance analysis – Payroll preparation – Statutory features – voucher entries.

Unit - IV Inventories (18 Hours)

Inventory Masters: Creation, Alteration and Deletion of Stock Groups, Stock Categories, Units of Measures, Godowns and Stock items – Inventory Features – Entries in Accounting and Inventory vouchers using stock items.

Unit - V GST& Generating Reports (18 Hours)

Introduction to GST – Registration - Creating Company with GST – Creating Tax Ledgers- Recording GST Sales – Financial Reports: Trial Balance – Profit and Loss – Balance Sheet – Working Capital – Cash Flow and Fund Flow Statement – Bank Reconciliation Statement - Stock Summary.

List of Practicals

1. Creation, alteration and deletion of companies and user defined accounting groups
2. Creation, alteration and deletion of ledger and final accounts and balance sheet preparation.
3. Voucher entries in double entry mode
4. Voucher entries using cost centres and cost categories
5. Voucher entries using bill wise details and interest calculation
6. Creation and alteration of budgets and variance analysis
7. Creation, alteration and deletion of inventory masters
8. Order processing and voucher entries using accounting and inventory vouchers.
9. Generating Accounting and Inventory Reports

Text Book

S.No	Authors	Title	Publishers	Year of publication
1	A.K. Nadhani	Implementing Tally ERP	BPB Publications, Chennai	2019

2	Tally Education Private Ltd., Bengaluru	Tally ERP 9	BPB Publications	2017
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Reference

S.No	Authors	Title	Publishers	Year of publication
1	Vishnu P. Singh	Tally ERP 9 with GST	Sultan Chand & Sons	2018
2	V. Srinivasavallabhan	Computer Applications in Business	Sultan Chand & Sons	2018

Pedagogy

Lecture, Power Point Presentation, Lab Demonstration, Group Discussion, Quiz, Assignment & Activity.

Course Designer

Ms. J. Lalithambigai, Assistant Professor, Department of Commerce.

MAJOR BASED ELECTIVE – II
A. HUMAN RESOURCE MANAGEMENT
2019 – 2020 Onwards

Semester - VI	Human Resource Management	Hours/Week –5	
Major Based Elective – II		Credits –4	
Course Code – 19UCO6MBE2A		Internal 75	External 25

Course Objective

- To understand the Human Resource Management and System at various levels.
- To develop relevant skills necessary for application in HR related issues.
- To integrate the understanding of various HR concepts along with the domain concept in order to take correct business decisions.

Course Outcome

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

CO Number	CO Statement	Knowledge Level
CO1	Define the basic concepts, functions and processes of HRM.	K1
CO2	Summarise the steps for recruitment and selection	K2
CO3	Apply the procedures for managing performance and compensation	K3
CO4	Analyse the various ways and methods of developing, maintaining and integrating human resources.	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	M	M	M
CO4	M	M	M	M	M

S-Strong , M- Medium , L- Low

Syllabus

Unit – I Introduction to HRM (15 Hours)

Meaning, Definition, Nature and Scope of HRM – Characteristics – Objectives – Significance – Functions – Qualities of Human Resource Manager – HRM Environment – Preconditions for the success of HRM – Limitations of HRM – Human Resource Management in a changing Environment – Workforce Diversity – Downsizing – Voluntary Retirement Scheme.

Unit –II Acquiring Human Resources (15 Hours)

Human Resources Planning – Features – Objectives – Importance – Limitations and factors influencing HRP – Job Analysis and Job Design – Process – Techniques – Uses – Recruitment – Sources – Techniques – Recent Trends in Recruitment – Factors affecting recruitment – Selection – Steps in Selection Process – Placement, Induction and Socialisation.

Unit – III Developing Human Resources (15 Hours)

Employee Training – Need – Importance – Types – Objectives and Identifying Training Needs – Methods and Techniques of Training – Executive Development – Objectives – Importance – Process – Principle – Human Resource Development – Concept – Objectives, Mechanisms and Assumptions of HRD – Need – Significance – Principles – Scenario of HRD in Indian Industry – Emotional Quotient – Mentoring – Total Quality Management.

Unit – IV Managing Performance and Compensation (15 Hours)

Performance Appraisal – Concept – Objectives – Process – Importance – Methods – Essentials – Performance Appraisal through MBO – 360 Degree Appraisal Technique – Job Evaluation – Concepts – Objectives – Process – Advantages – Methods – Limitations – Wage and Salary Administration – Factors affecting wages – Objectives – Principles – Essentials of a sound wage and salary structure – Incentives.

Unit – V Maintaining and Integrating Human Resources (15 Hours)

Employee Health and Safety – Significance of Occupational Health – Working Conditions affecting Health – Occupational Hazards and Diseases – Statutory Provisions concerning Health Employee Safety – Significance Causes of Industrial Accidents – Employee Welfare – Meaning – Significance – Types – Social Security – Work Environment – Job Satisfaction – Concept – Determinants – Quality of Work Life – Management of Stress and Burnout.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	C.B.Gupta	Human Resource Management	Sultan Chand & Sons	2015

Reference

S.No.	Authors	Title	Publishers	Year of Publication
1.	Dr. S.S. Khanka	Human Resource Management	S.Chand	2018
2.	V.S.P. Rao	Human Resource Management	Excel Books	2020
3.	Dessler, G and Varkkey, B	Human Resource Management	Prentice Hall	2017

Pedagogy

Lecture, Power Point Presentation, Group Discussion, Seminar, Quiz, Assignment &

Experience Discussion.

Course Designer

Dr.J. Praba, Assistant Professor, Department of Commerce.

MAJOR BASED ELECTIVE - II

B. E-COMMERCE

2019 – 2020 Onwards

Semester - VI	E-Commerce	Hours/Week –5	
Major Based Elective - II		Credits –4	
Course Code - 19UCO6MBE2B		Internal 25	External 75

Course Objective

- To enable the students to understand the fundamental aspects of E-commerce, modes of electronic payment and security issues in the cyber network.
- To learn the business models of E-Commerce.
- To understand the key issues involved in managing electronic commerce initiatives.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	List out the concepts of E-commerce	K1
CO2	Interpret the need for internet based payments	K2
CO3	Apply business models of E-commerce and its applications of internet	K3
CO4	Analyse the security issues in cyberspace	K4

Mapping with Programme Outcomes

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

S – Strong; M – Medium; L – Low

Syllabus

Unit – I Introduction of Electronic Commerce

(15 Hours)

E-Commerce – Need and importance - Advantages and Disadvantages – E-commerce vs.

Traditional Commerce –E-Commerce framework – E-Commerce & Media Convergence – The anatomy of E-Commerce applications - Global trading environment and adopting of e-commerce.

Unit – II Internet and World Wide Web (15 Hours)

Internet and Intranet - Benefits and Limitations – Internet architecture – Electronic Data Interchange - World Wide Web concepts and technology – Http, TCP/IP, HTML, XML – Internet as a Network Infrastructure – NSFNET: Architecture & Components – National Research & Educational Network – Market Process influencing the I-way – Components of I-way – Network Access Equipment – WWW Architecture – Web background: Hypertext publishing – Technology behind the web.

Unit – III Web based Business (15 Hours)

Business models of e-commerce – B2B, B2C, B2G – Application of e-commerce to Supply Chain Management- Product and service digitization – Online marketing and advertising – Electronic customer relationship management – Consumer oriented E-commerce Applications – Mercantile process models – Mercantile models from the consumer’s perspective and merchant’s perspective.

Unit – IV Electronic Payment System and Electronic Data Interchange (15 Hours)

Overview of the electronic payment technology – Requirements for internet based payments – Electronic payment media – EPS – Types – Digital token based EPS – Debit Card, Credit Card and Smart Card– Risks & EPS - Designing EPS.

Unit – V Electronic Security (15 Hours)

Security in the cyberspace –Antivirus programs – Security protection and recovery encryption – Authentication and trust – Network Security and Firewall – Client server network security and its threats – Data and message security – Encrypted documents and E-Mail - Internet security protocols and standards.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Ravi Kalakota Andrew B.Whinston	Frontiers of Electronic Commerce	Pearson	2013
2.	Elias. M.Awad	Electronic Commerce	Prentice Hall of India Pvt. Ltd.,	2002

Reference

S. No.	Authors	Title	Publishers	Year of Publication
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1.	Zheng Qin	Introduction to E - Commerce	T Singha University Press,Beijing	2009
2.	Harold F Tipton	Information Security Management Handbook	Pearson Publication	2003
3.	Ron A Weber	Information System Control and Audit	Pearson Publication	2004
4.	Turban Lee, King & Chang	Electronic Commerce – A Managerial Perspective	Pearson Publication	2006
5.	Dr. S.V. SrinivasanVallabhan	E- Commerce	Vijay Nicole Imprints Pvt., Ltd.,	2010

Pedagogy

Lecture, Power Point Presentation, Assignment, Quiz, Seminar, Group Discussion & Experience Discussion.

Course Designer

Dr. C. Subha, Assistant Professor, Department of Commerce.

MAJOR BASED ELECTIVE – III

FINANCIAL SERVICES

2019 – 2020 Onwards

Semester - VI	Financial Services	Hours/Week –6	
Major Based Elective – III		Credits –4	
Course Code - 19UCO6MBE3A		Internal 75	External 25

Course Objective

- To understand the importance, structure and operation of the financial system.
- To think critically and creatively to identify better solutions within business constraints.
- To provide in-depth study of financial intermediaries and operation of financial system.

Course Outcome

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

CO Number	CO Statement	Knowledge Level
CO1	Define the structure of financial system and capital market	K1
CO2	Explain the composition of money market functions and guidelines of SEBI	K2
CO3	Identify the functions and procedures of secondary markets	K3
CO4	Develop the basic ideas on merchant banking, venture capital, mutual funds and derivatives	K4

Mapping with Programme Outcomes

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

S-Strong , M- Medium , L- Low

Syllabus

Unit – I Indian Financial System, Capital Market and SEBI (18 Hours)

Financial System – Functions – Financial concept – Financial intermediaries – Financial Market – Meaning – Importance – Classification of Financial Market. Capital Market: Importance of Capital Markets – Financial Instruments – Features – SEBI – Objectives – Functions and Powers of SEBI – SEBI Guidelines.

Unit –II Money Market and Primary Market (18 Hours)

Money Market – Features – Importance – Composition of Money Market: Call money Market – Commercial Bills Market – Acceptance Market – Treasury Bill Market – Recent Developments in Money Market. New Issue Market – Meaning – Function – Relationship between New Issue Market and Stock Exchange – Methods of Floating New issues.

Unit – III Secondary Market**(18 Hours)**

Secondary Market – Functions – Procedures – Listing of Securities – Registration of Stock Brokers – Functions – Kinds of Brokers and their assistance – Indian Stock Exchange: Objectives – Functions. Online Trading – BSE – NSE – OTCEI – MCX – SX. Brokers: Functions of Brokers – Kinds of Brokers and their assistances – Kinds of Speculators – Speculative Transactions – Recent Developments in secondary market.

Unit – IV Merchant Banking**(18 Hours)**

Merchant Banking – Meaning – Definition – Scope and Objectives – Features - Functions – Services – Difference between Merchant Banking and Investment Banking - Merchant Banker's Code of Conduct.

Unit – V Venture Capital**(18 Hours)**

Venture Capital – Meaning – Features – Scope – Importance – Growth of Venture Capital Funds – Venture Capital funding process – Types - Nitin Desai Committee's Recommendations.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	E. Gordon and K. Natarajan	Financial Markets and Services	Himalaya Publishing House	2016

Reference

S.No.	Authors	Title	Publishers	Year of Publication
1.	S. Gurusamy	Financial Markets & Institutions	Vijay Nicole Imprints Pvt. Ltd.	2015
2.	N. Bhole	Financial Institutions & Markets	Tata McGraw-Hill Education	2015

Pedagogy

Lecture, Power Point Presentation, Group Discussion, Seminar, Quiz, Assignment & Experience Discussion.

Course Designer

Ms. D. Indumathi, Assistant Professor, Department of Commerce.

MAJOR BASED ELECTIVE – III

B. ORGANISATIONAL BEHAVIOUR

2019 – 2020 Onwards

Semester – VI	Organisational Behaviour	Hours/Week – 6	
Major Based Elective – III		Credits – 4	
Course Code - 19UCO6MBE3B		Internal 75	External 25

Course Objective

- To understand the structure and behaviour of organisation.
- To explain individual behaviour related to motivation and rewards.
- To learn and appreciate different cultures and diversity in the workplace.

Course Outcome

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

CO Number	CO Statement	Knowledge Level
CO1	Define basic concepts of an organizational behaviour and their relationship with social sciences	K1
CO2	Interpret the requisites of working environment – internal and external	K2
CO3	Build individual and organisational traits to improve learning, culture and the work system	K3
CO4	Examine the differences and similarities between leadership, motivation and communication	K4

Mapping with Programme Outcomes

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

S-Strong , M- Medium , L- Low

Syllabus

Unit – I Introduction to Organisational Behaviour (18 Hours)

Organisational Behaviour - Meaning – Definition – Characteristics – Need for studying OB – Disciplines contributing to OB – Relationship with other Social Sciences – Approaches to OB.

Unit – II Perception, Personality and Learning (18 Hours)

Perception – Meaning – Process – Factors influencing Perception – Attitude – Factors influencing attitude – Personality Development – Determinants of Personality – Types - Personality Traits – Learning – Theories & Principles of Learning.

Unit – III Group Dynamics and Stress Management**(18 Hours)**

Group Dynamics – Formal and Informal Groups – Stress Management – Causes and Effects of Stress – Coping Strategies for Stress.

Unit – IV Leadership, Motivation and Communication**(18 Hours)**

Leadership – Concepts Theories and Styles – Motivation – Theories of Motivation – Communication – Conflict Management – Role Conflict – Interpersonal Conflict.

Unit – V Organizational Development and Effectiveness**(18 Hours)**

Organizational Development (OD) – Meaning – Nature – Objectives – Process – Organizational Effectiveness (OE) – Process and Factors Influencing Organizational Effectiveness – Organizational Culture – Concept and determinants of Organizational Culture.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	K. Aswathappa	Organisational Behaviour	Himalaya Publishing House, New Delhi	2016

Reference

S.No.	Authors	Title	Publishers	Year of Publication
1.	Dr. S. S. Khankha	Organisational Behaviour	S. Chand Publishing	2006
2.	L. M. Prasad	Organisational Behaviour	Sultan Chand & Sons	2014
3.	Robbins Stephen P and Timothy A. Judge	Organisational Behaviour	Prentice Hall of India Pvt. Ltd., New Delhi	2008
4.	Luthans Fred	Organisational Behaviour	Mc Graw Hill, International New York	2004
5.	Robins S.P and Mathew M	Organisational Theory: Structure Design and Application	Prentice Hall of India Pvt. Ltd	2010

Pedagogy

Lecture, Power Point Presentation, Group Discussion, Seminar, Quiz , Assignment & Activity.

Course Designer

Ms. N. Akilandeswari, Assistant Professor, Department of Commerce.

B.COM. CA
VI SEMESTER
SYLLABUS

CORE COURSE - XI
CORPORATE ACCOUNTING

2019 – 2020 Onwards

Semester - VI	Corporate Accounting	Hours/Week - 6	
Core Course - XI		Credits - 5	
Course Code - 19UCC6CC11		Internal 25	External 75

Course Objective

- To understand various adjustments related to share capital.
- To know the pattern of final accounts of the company.
- To understand the provisions of the Company Act and to build accountability in corporate sector.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO 1	Recall the conceptual background of Company Accounts	K1
CO2	Explain the concepts and techniques on the issue and redemption of Preference Shares and Debentures	K2
CO3	Build knowledge on value of goodwill and shares of business firm.	K3
CO4	Analyse the accounts of Holding Companies and Banking Companies	K4

Mapping with Programme Outcomes

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

S – Strong; M – Medium; L – Low

Syllabus

Unit – I Accounting of Equity Shares (18 Hours)

Introduction to Company Act - Issue of shares: Par, Premium and Discount, Forfeiture and Reissue of Shares – Underwriting of Shares: Marked, Unmarked & Firm underwriting, Complete underwriting and partial underwriting.

Unit – II Accounting of Preference Shares & Debentures (18 Hours)

Issue and Redemption of Preference Shares - Provisions relating to issue and redemption of preference shares - Issue and Redemption of debentures.

Unit – III Profit Prior to incorporation & Final Accounts of a Company (18 Hours)

Profit Prior to incorporation - Treatment of profit or loss prior to incorporation - Preparation of Final accounts of companies - Company Balance Sheet - Computation of Managerial Remuneration.

Unit – IV Holding Company Accounts (18 Hours)

Accounts of Holding Companies (excluding Inter Company Holdings).

Unit – V Accounting of Banking & Insurance Company (18 Hours)

Accounts of Banking Companies (new format) and Insurance Companies - Preparation of Profit and Loss Account – Balance Sheet.

Distribution of Marks: Theory 20% & Problems 80%

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Reddy. T S and Murthy. A	Corporate Accounting	Margham Publications	2018

Reference Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	S.P. Jain & K.L. Narang	Corporate Accounting	Kalyani Publishers	2017
2.	Gupta. R L and Radhasamy. M	Corporate Accounting	Sultan Chand & Sons	2013
3.	M.C. Shukla & T.S. Grewal	Advanced Accountancy	Sultan Chand & Sons	2016

Pedagogy

Lecture, Power Point Presentation, Assignment, Quiz, Seminar & Group Discussions,

Course Designer

Dr. P. Banu, Assistant Professor, Department of Commerce.

CORE COURSE – XII
INCOME TAX THEORY LAW & PRACTICE

2019 – 2020 Onwards

Semester - VI	Income Tax Theory Law & Practice	Hours/Week – 6	
Core Course – XII		Credits – 5	
Course Code - 19UCC6CC12		Internal 25	External 75

Course Objective

- To help the students understand and apply basic concepts and provisions of Income Tax Act.
- To lay down a foundation for computing gross total income and total tax liability.
- To gain procedural knowledge about Income Tax law in force for the relevant assessment year.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	Define the basic concepts of Income Tax and Residential status of an individual	K1
CO2	Explain the taxable income from other sources	K2
CO3	Apply and practice the computation of Total Income of house property and business or profession	K3
CO4	Examine the tax liability of an assessee.	K4

Mapping with the Program Outcomes

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

S-Strong , M- Medium , L- Low

Syllabus

Unit - I Introduction to Income Tax (18 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 – Income exempt under Sec.10.

Unit - II Income from Salaries (18 hours)

Computation of Income from Salaries – Annual accretion – Provident Fund - Allowances – Perquisites – Types and treatment – Profit in lieu of salary – Exempted profits – Deduction u/s 16.

Unit - III Income from House Property & Profits and Gains of Business or Profession (18 hours)

Computation of Income from House Property – Determination of GAV,NAV – Deduction out of annual value – Exempted House Property Income - Profits and Gains of Business or Profession – Meaning – Computation - Expenses expressly allowed – Expenses expressly disallowed.

Unit - IV Income from Capital Gain & Other Sources (18 hours)

Computation of capital gain – Cost of acquisition – Cost of improvement – Exempted capital gain – Tax on capital gain - Computation of income from other sources – Specific incomes and other incomes chargeable under the head income from other sources.

Unit - V Gross Total Income & Tax Liability (18 hours)

Assessment of Individual - Set off and carry forward of losses – Deduction from Gross total income – Total tax liability - Income tax Authorities – Procedure for assessment – Tax Deducted at Source (TDS) – 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	2020
2	Dr. N. Hariharan	Income Tax Law and Practice	Vijay Nicole Chennai	2020

Reference

S.No.	Authors	Title	Publishers	Year of Publication
1	T.S.Reddy and Y. Hari Prasad Reddy	Income Tax Theory, Law and Practice	Margham Publications, Chennai	2020
2	Dr. Vinod K.Singhania, Dr. Kapil Singhania	Direct Taxes Law and Practice	Taxmann Publications	2021

Pedagogy

Lecture, Power Point Presentation, Group Discussion, Seminar, Quiz, Assignment & Experience Discussion.

Course Designer

Dr. M. A. Parveen Banu, Associate Professor, Department of Commerce.

CORE PRACTICAL – III
COMPUTERIZED ACCOUNTING - PRACTICALS
2019 – 2020 Onwards

Semester - VI	Computerized Accounting - Practicals	Hours/Week - 6	
Core Practical - III		Credits - 5	
Course Code - 19UCC6CC3P		Internal 40	External 60

Course Objective

- To enable the students to learn basic concepts of accounting packages.
- To impart knowledge about Goods and Services Tax.

Course Outcome

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

CO Number	CO Statement	Knowledge Level
CO1	Recall the basic concepts of manual accounting	K1
CO2	Explain the procedure for creating a company	K2
CO3	Apply the accounting procedures for Ledger creation, Accounting vouchers and Cost centre.	K3
CO4	Analyse stock group, stock category, stock item and compare stock category summary with godown summary	K4
CO5	Explain and generate different types of reports	K5

Mapping with Programme Outcomes

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

S-Strong , M- Medium , L- Low

Syllabus

Unit – I Introduction to Tally ERP (18 Hours)

Computerized Accounting – Meaning and Features – Advantages and Disadvantages – Computerized Vs. Manual Accounting – Introduction to Tally ERP 9- Creating a Company – Altering and Deleting a Company.

Unit – II Ledgers, Groups and Vouchers (18 Hours)

Creating the ledgers- Multiple Ledgers – Altering and Deleting Ledgers – Creating Groups – Altering and Deleting Groups – Payment voucher – Receipt Voucher – Contra and Journal Voucher – Inventory Voucher.

Unit - III Inventory**(18 Hours)**

Integrating Accounts and Inventory – Stock Group – Multiple Stock Groups - Stock Category – Multiple Stock Categories - Units of Measure – Stock Items – Stock Valuation - Godown and Locations.

Unit - IV Advanced Accounting and Inventory in Tally ERP 9**(18 Hours)**

Bill wise Details – Cost Centres and Cost Categories – Multiple stock Valuation - Sales and Purchase Order Processing - Tracking Inventory – Rejection in and Rejection Out - Batch wise details – Bill of Materials – Reorder levels – Movement analysis – Profitability Analysis.

Unit - V GST & Generating Reports**(18 Hours)**

Introduction to GST – Registration - Creating Company with GST – Creating Tax Ledgers - Recording GST Sales – Financial Reports: Trial Balance – Profit and Loss – Balance Sheet – Working Capital – Cash Flow and Fund Flow Statement – Bank Reconciliation Statement - Stock Summary.

List of Practicals

10. Creation, alteration and deletion of companies and user defined accounting groups.
11. Creation, alteration and deletion of ledger and final accounts and balance sheet preparation.
12. Voucher entries in double entry mode.
13. Voucher entries using cost centres and cost categories
14. Voucher entries using bill wise details and interest calculation
15. Creation, alteration and deletion of inventory masters.
16. Order processing and voucher entries using accounting and inventory vouchers.
17. Generating Accounting and Inventory Reports

Text Book

S.No	Authors	Title	Publishers	Year of Publication
1	A.K. Nadhani	Implementing Tally ERP	BPB Publications, Chennai	2019
2	Tally Education Private Ltd., Bengaluru	Tally ERP 9	BPB Publications	2017

Reference

S.No	Authors	Title	Publishers	Year of publication
1	Vishnu P. Singh	Tally ERP 9 with GST	Sultan Chand & Sons	2018
2	V. Srinivasavallabhan	Computer Applications in Business	Sultan Chand & Sons	2018

Pedagogy

Lecture, Power Point Presentation, Lab Demonstration, Group Discussion, Quiz & Assignment.

Course Designer

Ms. S. Praveena, Assistant Professor, Department of Commerce.

MAJOR BASED ELECTIVE – II
A. HUMAN RESOURCE MANAGEMENT

2019 – 2020 Onwards

Semester - VI	Human Resource Management	Hours/Week – 5	
Major Based Elective – II		Credits – 4	
Course Code – 19UCC6MBE2A		Internal 75	External 25

Course Objective

- To understand the Human Resource Management and System at various levels.
- To develop relevant skills necessary for application in HR related issues.
- To integrate the understanding of various HR concepts along with the domain concept in order to take correct business decisions.

Course Outcome

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

CO Number	CO Statement	Knowledge Level
CO1	Define the basic concepts, functions and processes of HRM.	K1
CO2	Summarise the steps for recruitment and selection	K2
CO3	Apply the procedures for managing performance and compensation	K3
CO4	Analyse the various ways and methods of developing maintaining and integrating human resources	K4

Mapping with Programme Outcomes

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

S-Strong , M- Medium , L- Low

Syllabus

Unit – I Introduction to HRM (15 Hours)

Meaning, Definition, Nature and Scope of HRM – Characteristics – Objectives – Significance – Functions – Qualities of Human Resource Manager – HRM Environment – Preconditions for the success of HRM – Limitations of HRM – Human Resource Management in a changing Environment – Workforce Diversity – Downsizing – Voluntary Retirement Scheme.

Unit – II Acquiring Human Resources (15 Hours)

Human Resources Planning – Features – Objectives – Importance – Limitations and factors influencing HRP – Job Analysis and Job Design – Process – Techniques – Uses – Recruitment – Sources – Techniques – Recent Trends in Recruitment – Factors affecting recruitment – Selection – Steps in Selection Process – Placement, induction and socialisation.

Unit – III Developing Human Resources**(15 Hours)**

Employee Training – Need – Importance – Types – Objectives and Identifying Training needs – Methods and Techniques of Training – Executive Development – Objectives – Importance – Process – Principle – Human Resource Development – Concept – Objectives, Mechanisms and Assumptions of HRD – Need – Significance – Principles – Scenario of HRD in Indian Industry – Emotional Quotient – Mentoring – Total Quality Management.

Unit – IV Managing Performance and Compensation**(15 Hours)**

Performance Appraisal – Concept – Objectives – Process – Importance – Methods – Essentials – Performance Appraisal through MBO – 360 Degree Appraisal Technique – Job Evaluation – Concepts – Objectives – Process – Advantages – Methods – Limitations – Wage and Salary Administration – Factors affecting wages – Objectives – Principles – Essentials of a sound wage and salary structure – Incentives.

Unit – V Maintaining and Integrating Human Resources**(15 Hours)**

Employee Health and Safety – Significance of Occupational Health – Working Conditions affecting Health – Occupational Hazards and Diseases – Statutory Provisions concerning Health Employee Safety – Significance Causes of Industrial Accidents – Employee Welfare – Meaning – Significance – Types – Social Security – Work Environment – Job Satisfaction – Concept – Determinants – Quality of Work Life – Management of Stress and Burnout.

Text Book

S.No	Authors	Title	Publishers	Year of Publication
1.	C.B. Gupta	Human Resource Management	Sultan Chand & Sons	2015

Reference

S.No	Authors	Title	Publishers	Year of Publication
1.	Dr. S.S. Khanka	Human Resource Management	S.Chand	2018
2.	V.S.P. Rao	Human Resource Management	Excel Books	2020
3.	Dessler, G and Varkkey, B	Human Resource Management	Prentice Hall	2017

Pedagogy

Lecture, Power Point Presentation, Group Discussion, Seminar, Quiz, Assignment & Experience Discussion.

Course Designer

Dr. J. Praba, Assistant Professor, Department of Commerce.

MAJOR BASED ELECTIVE - II

B. MODERN BANKING

2019 – 2020 Onwards

Semester - VI	Modern Banking	Hours/Week –5	
Major Based Elective - II		Credits –4	
Course Code - 19UCC6MBE2B		Internal 25	External 75

Course Objective

- To acquaint the students with the fundamentals of banking.
- To make the students aware of banking business and practices.
- To enlighten the students regarding the new concepts introduced in the banking system.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	List out the concepts of Banking Regulation Act, functions of commercial banks and its role in economic development	K1
CO2	Identify the functions of product and services offered in a banking sector	K2
CO3	Build knowledge about the various electronic payment methods	K3
CO4	Classify and demonstrate the types of deposits, cheques, loans and advances	K4

Mapping with Programme Outcomes

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

S – Strong; M – Medium; L – Low

Syllabus

Unit – I Introduction to Banking (15 Hours)

Banking meaning and Definition – Banking Regulation Act 1949 – Functions of Commercial Banks – Nationalization and privatizations of banks in India – Role of banks in Economic Development – Women Bank.

Unit – II Banker Customer Relationship and Types of Accounts (15 Hours)

Central Banking – Meaning – Functions of RBI – Definition of banker and Customer – General Relationship – Who can be a customer – Various types of account – Types of deposits – General precautions for opening Accounts – KYC Norms.

Unit – III Negotiable Instruments**(15 Hours)**

Meaning, Definition and types of Negotiable Instruments – Endorsement – Meaning, definition and kinds - Cheques – Crossing of Cheques – Types – Payment and collection of Cheques – Legal status – Truncated cheque and e- cheque.

Unit – IV Loans and Advances & Banking Ombudsman Scheme**(15 Hours)**

Loans and advances – Principles of sound lending – Style of credit – Types of loans – Lien, Mortgage, Pledge and Hypothecation – General principles of secured advances – Advances against goods and document of title of goods – The Banking Ombudsman Scheme.

Unit – V E – Banking**(15 Hours)**

Electronic delivery channels – Credit cards – Debit Cards – ATM – E – Banking – E-Banking transactions – Mobile banking – Inter Bank Mobile Payment (IMPs) – Virtual Currency – Models of E-banking – Advantages – Constraints – Security measures – Electronic Payment System (EPS) – NEFT, RTGS, SWIFT, WIRE.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Sundaram & Varshney	Banking Theory Law & Practice	Sultan Chand & Sons	2014
2.	E.Gorden and K.Natarajan	Banking Theory Law & Practice	Himalaya Publishing House	2017

Reference

S.No.	Authors	Title	Publishers	Year of Publication
1.	Dr. S. Gurusamy	Banking Theory Law & Practice	Vijay Nicole Imprints (P) Ltd	2016
2.	Kandasami. K.P	Banking Theory Law & Practice	Sultan Chand & Company	2010

Pedagogy

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

Course Designer

Dr. D. Sarala, Assistant Professor, Department of Commerce.

MAJOR BASED ELECTIVE - III

A. AUDITING

2019 – 2020 Onwards

Semester - VI	Auditing	Hours/Week – 6	
Major Based Elective - III		Credits – 4	
Course Code - 19UCC6MBE3A		Internal 25	External 75

Course Objective

- To provide in-depth study of auditing principles, concepts and its practices.
- To know the meaning of internal control, internal check and audit.
- To impart knowledge about the methods of auditing and their applications.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	Tell the concepts of auditing framework systems	K1
CO2	Illustrate the roles and responsibilities of a company auditor	K2
CO3	Apply latest technological procedures in auditing	K3
CO4	Examine the different types of vouchers	K4

Mapping with Programme Outcomes

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

S – Strong; M – Medium; L – Low

Syllabus

Unit – I Introduction to Audit (18 Hours)

Introduction to Audit – Meaning and Definition – Objectives of Audit – Classification of Audit – Internal and External Audit – Types – Advantages and Limitations – Internal Check Advantages and Disadvantages – Procedure of Audit.

Unit – II Vouching (18 Hours)

Vouching, meaning and importance – Vouching of Credit and Cash Transactions – Verification and Valuation of assets and liabilities – Objectives – Vouching of Impersonal Ledgers – Vouching of debit and credit side of cash book.

Unit – III Role of an Auditor**(18 Hours)**

Appointment of auditor - Auditors duty regarding depreciation – Audit of limited companies – Auditors qualification and disqualification – Rights, duties and power of Auditor – Auditor Financial Statements – Auditors liability.

Unit – IV Investigation and Audit Report**(18 Hours)**

Investigation – Objects of investigation – Investigation under different situation – Divisible Profits and Dividends – Professional Ethics – Auditing of Computerised accounting – Audit Reports – Types – Contents of Audit Reports – Sinking fund – Reserve Fund – Capital Reserve – Secret Reserve – Auditors Duty in connection with Reserve.

Unit – V EDP Audit**(18 Hours)**

EDP Auditing – Definition – Need for control – Effects of EDP Auditing – Steps in EDP Audit – Legal influences of EDP Audit – Division of Auditing in EDP Environment – Control in EDP Environment.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	S.Vengadamani	Practical Auditing	Margham Publications	2013
2.	B.N.Tandon	Principles of Auditing	S.Chand and Company, New Delhi.	2007

Reference

S.No.	Authors	Title	Publishers	Year of Publication
1.	Ravinder Kumar and Virendar Sharma	Auditing Principles and Practices	PHI Learning Pvt. Ltd., New Delhi.	2009
2.	Dr. L. Natarajan	Practical Auditing	Margham Publications	2018
3.	Dr. V. Radha	Practical Auditing	Prasanna Publications	2014

Pedagogy

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

Course Designer

Ms. Shilpa A. Talreja, Assistant Professor, Department of Commerce.

MAJOR BASED ELECTIVE – III

B. MANAGEMENT INFORMATION SYSTEM

2019 – 2020 Onwards

Semester – VI	Management Information System	Hours/Week – 6	
Major Based Elective - III		Credits – 4	
Course Code – 19UCC6MBE3B		Internal 25	External 75

Course Objective

- To integrate the knowledge and skills in the field of Management Information System.
- To cope up with the emerging challenges of management in the upcoming Technology Scenario.
- To improve business decision making and gain competitive advantage.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	List out the theoretical concepts of Management Information System	K1
CO2	Explain the security risks associated with Managerial Information Systems	K2
CO3	Apply information system in various Managerial Functions	K3
CO4	Analyse the application of information system in Planning and Decision Making	K4

Mapping with Programme Outcomes

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

S – Strong; M – Medium; L – Low

Syllabus

Unit – I Introduction (18 Hours)

Management Information System – Meaning – Features – Requisites of an effective MIS – MIS Model – Components – Sub system of MIS - Role and Importance – Corporate Planning for MIS – Growth of MIS in an organization – Limitations of MIS.

Unit – II Information System (18 Hours)

System concepts – Elements – Characteristics - Types of System – Information System: Meaning – Definition – Features – Needs – Roles – Major challenges of Information System – System Development Life Cycle.

Unit – III Functional Information System (18 Hours)

Financial Information – Marketing Information – Personnel Information – Production Information – Sales Information – Accounting Information – Input – Output – Model – Advantages and Disadvantages.

Unit – IV System Analysis and Design (18 Hours)

System Investigation – System Analysis – System Design – System Implementation – System Maintenance – Database Management System.

Unit – V Information System Application (18 Hours)

Enterprise Resource Planning (ERP): An overview – Meaning – Characteristics – Benefits and Limitations – ERP and related technologies – Business Process Re-engineering – Data Warehousing – Data Mining – Decision Support System.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Murthy C	Management Information System	Himalaya Publications	2015
2.	Sadagopan S	Management Information System	PHI Learning	2012
3.	Gordan. B Davis and Margrethe H. Osan	Management Information System	Mc GREW Hills Publication	2011
4.	O'Brien J.A.	Management Information System	Tata McGraw Hill Publication	2010

Reference Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	Aman Jindel	Management Information System	Kalyani Publications	2012
2.	Kenneth C. Laudon Jane P. Laudon	Management Information System	Pearson Education	2014

Pedagogy

Lecture, Power Point Presentation, Assignment, Quiz, Seminar & Group Discussion.

Course Designer

Dr. C. Subha – Assistant Professor, Department of Commerce.

ANNEXURE - I

MINUTES OF THE MEETING

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
PG & RESEARCH DEPARTMENT OF MATHEMATICS
Minutes for the Fifth Meeting of the BOS on 02.06.2021

RESOLUTION NO.BOS/05/01

Ratified to make the following changes in the V Semester for B.Sc Mathematics (2019-2020 Batch and onwards), Board of Studies Members Suggested that

- For all the courses, more number of Reference books were added.
- Skill Based Elective may be changed as Mathematical Tools/Software.
- For V Semester, Abstract Algebra Core Course Text book should be ‘Topics in Algebra’ by I.N.Herstein.
- For V Semester, Real Analysis Core Course the Text book should be of ‘International Standard’.

RESOLUTION NO.BOS/05/02

- The Curriculum and Syllabus of VI Semester, B.Sc Mathematics for Core courses and Major Based Elective Courses (2019-2020 onwards) were discussed.

RESOLUTION NO.BOS/05/03

- To consider and approve the Programme structure and the I Semester Syllabus of B.Sc Mathematics (2021-2022 Batch and onwards).

2019-2020
V SEMESTER AND
VI SEMESTER SKELETON

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	6	3	25	75	100	
		Core Course – VIII (CC)	Real Analysis	19UMA5CC8	6	6	3	25	75	100	
		Core Course – IX (CC)	Statics	19UMA5CC9	5	4	3	25	75	100	
		Core Course – X (CC)	Methods in Numerical Analysis	19UMA5CC10	5	4	3	25	75	100	
		Core Practical – I (CP)	Numerical methods with MATLAB Programming (Practical)	19UMA5CC1P	2	2	3	40	60	100	
	IV	Skill Based Elective – I	Introduction to R	19UMA5SBE1A	2	2	3	25	75	100	
			Introduction to Statistical Tools and Techniques – SPSS	19UMA5SBE1B							
		Skill Based Elective – II	Statistical Tools and Techniques – R Programming (Practical)	19UMA5SBE2AP	2	2	3	40	60	100	
			Statistical Tools and Techniques – SPSS (Practical)	19UMA5SBE2BP							
		UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100	
	V	Extra credit course	Swayam Online Course	To be fixed Later	As per UGC Recommendations						
	TOTAL				30	28	-	-	-	800	

Sem	Part	Course	Title	Subject Code	Ins.	Credit	Exam	Marks		Total
					Hrs		Hours	Int	Ext.	
VI	III	Core Course – XI (CC)	Linear Algebra	19UMA6CC11	5	5	3	25	75	100
		Core Course – XII (CC)	Complex Analysis	19UMA6CC12	5	5	3	25	75	100
		Core Course – XIII (CC)	Dynamics	19UMA6CC13	5	4	3	25	75	100
		Core Course – XIV (CC)	Operations Research	19UMA6CC14	4	4	3	25	75	100
		Major Based Elective – II	Graph Theory	19UMA6MBE2A	4	3	3	25	75	100
			Number Theory	19UMA6MBE2B						
	Major Based Elective – III	Fuzzy Sets and Systems	19UMA6MBE3A	4	3	3	25	75	100	
		Astronomy	19UMA6MBE3B							
	IV	Skill Based Elective – III	LaTeX (Practical)	19UMA6SBE3AP	2	2	3	40	60	100
			Python Programming (Practical)	19UMA6SBE3BP						
	V	Extension Activities	Extension Activities	19UGEA	-	1	-	-	-	-
		Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100
TOTAL					30	28	-	-	-	800
GRAND TOTAL					180	140	-	-	-	4100

**SBE II & III
(PRACTICALS)**

SKILL BASED ELECTIVE – II (A)
STATISTICAL TOOLS AND TECHNIQUES – R PROGRAMMING (PRACTICAL)
2019-2020 Onwards

Semester – V	STATISTICAL TOOLS AND TECHNIQUES – R PROGRAMMING (PRACTICAL)	Hours/Week – 2	
Skill Based Elective –II(A)		Credits – 2	
Course Code – 19UMA5SBE2AP		Internal 40	External 60

Objectives:

- To explore and understand how to use the R documentation.
- To familiar with R interactive environment.
- To understand how to create and manipulate datas in R.

Course Outcome:

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Navigate in the R Studio interface.	K2
CO2	Apply the Statistical Programming Software.	K2
CO3	Explain concepts related to Statistical datas.	K3
CO4	Explain the terms of constructs, control statements, string functions.	K3
CO5	Compute R programming from a statistical Perspective.	K3

Mapping with Programme Outcomes:

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

S-Strong, M-Medium, L-Low

SILL BASED ELECTIVE – II (A)
STATISTICAL TOOLS AND TECHNIQUES – R PROGRAMMING
SYLLABUS

1. Creating and Displaying data.
2. Matrix Manipulations.
3. Creating and manipulating a List and an Array.
4. Frequency Distribution.
5. Bar diagrams, Bar plots and subdivided Bar plots.
6. Pie diagram, 3D Pie diagram and Histogram.
7. Measures of Central Tendency.
8. Quantiles.
9. Variation of data.
10. Correlation and Regression.

Web links:

1. <https://youtu.be/V8eKsto3Ug>
2. <https://youtu.be/BvKETZ6kr9Q>
3. <https://youtu.be/HPJn1CMvtmI>
4. <https://youtu.be/ANMuuq502rE>
5. <https://youtu.be/I6FJo8x1wZE>

Pedagogy:

Power point presentation, Hands on training.

SKILL BASED ELECTIVE – II (B)
STATISTICAL TOOLS AND TECHNIQUES – SPSS (PRACTICAL)
2019-2020 Onwards

Semester - V	STATISTICAL TOOLS AND TECHNIQUES - SPSS	Hours/Week - 2	
Skill Based Elective – II(B)		Credits - 2	
Course Code - 19UMA5SBE2BP		Internal 40	External 60

Objectives:

- To analyse scientific data related with social science.
- To process critical data.
- To manipulate and decipher survey data.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Apply the built in functions for data manipulation.	K2
CO2	Explain the ideas and concepts of various charts and Box plots.	K2
CO3	Classify the given data for various tests.	K2
CO4	Solve Measures of Central Tendency and Dispersion.	K3
CO5	Compute Correlation and Regression.	K3

Mapping with Programme Outcomes:

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

S-Strong, M-Medium, L-Low

SKILL BASED ELECTIVE – II (B)
STATISTICAL TOOLS AND TECHNIQUES - SPSS (PRACTICAL)
SYLLABUS

1. Frequencies: Counts and Percents
2. Measures of Central Tendency
3. Measures of Dispersion
4. Histograms, Bar Charts, Boxplots and Scatter Plots
5. T-test and Chi-square Test
6. Correlation
7. Regression

Web links:

1. <https://www.youtube.com/watch?v=Bku1p481z80>
2. <https://www.youtube.com/watch?v=zFBUfZEBWQ>
3. <https://www.youtube.com/watch?v=bapuGcjiwiLQ>
4. <https://www.youtube.com/watch?v=C2Qa5d9ij0Y>
5. <https://www.youtube.com/watch?v=cNrnSEWKJgg>

Pedagogy:

Power Point Presentation, Hands on training.

SKILL BASED ELECTIVE – III (A)

LaTeX (PRACTICAL)

2019-2020 Onwards

Semester – VI	LaTeX (PRACTICAL)	Hours/Week – 2	
Skill Based Elective – III (A)		Credits – 2	
Course Code – 19UMA6SBE3AP		Internal 40	External 60

Objectives:

- To introduce the basic concepts of LaTeX, a typesetting software.
- To get knowledge about creating a bibliographic database.
- To write mathematical documents in LaTeX.

Course Outcome:

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Define and use new commands within LaTeX.	K1
CO2	Apply mathematical formulae using LaTeX.	K2
CO3	Create a table using LaTeX.	K3
CO4	Classify various types of formulae, equations, matrix etc. by using LaTeX.	K3
CO5	Prepare a bibliography for a particular document.	K3

Mapping with Programme Outcomes:

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

S-Strong, M-Medium, L-Low

SKILL BASED ELECTIVE – III (A)

LaTeX (PRACTICAL)

SYLLABUS

1. Create a LaTeX document for the given Mathematical Expression.
2. Create a table in LaTeX document.
3. Construct a LaTeX document using sums, integrals and limits.
4. Construct a differential equation and integral equation.
5. Create a LaTeX document that contains the following: Title – Author’s name – Abstract– Introduction – Sections.
6. Create a bibliography in LaTeX document.
7. Create a letter in LaTeX.

Web links:

1. <https://www.youtube.com/watch?v=fCzF5gDy60g>
2. <https://www.youtube.com/watch?v=0ivLZh9xK1Q>
3. <https://www.youtube.com/watch?v=bCumVPGR4ts>
4. <https://www.youtube.com/watch?v=kefvRACdXHs>
5. <https://www.youtube.com/watch?v=8byt3ywt1H8&list=RDCMUCGCHc7LsEYT62dQauh2NYw&index=8>

Pedagogy:

Power point presentation, Hand on Training.

SKILL BASED ELECTIVE – III (B)
PYTHON PROGRAMMING (PRACTICAL)

2019-2020 Onwards

Semester – VI	PYTHON PROGRAMMING (PRACTICAL)	Hours/Week – 2	
Skill Based Elective –III(B)		Credits – 2	
Course Code – 19UMA6SBE3BP		Internal 40	External 60

Objectives:

- To explore and understand how to use python.
- To describe the core syntax and semantics of Python programming language.
- To understand how to create and manipulate data's in python.

Course Outcome:

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Interpret the fundamental Python syntax and the use of Python input statements.	K2
CO2	Classify various control structures of Python in simple programs.	K3
CO3	Compute simple programs using input statements of Python programming language.	K3
CO4	Infer the usage of Dictionaries, Sets and Object-Oriented programming concepts in Python.	K4
CO5	Explain the need for working with functions in Python.	K2

Mapping with Programme Outcomes:

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

S-Strong, M-Medium, L-Low

SKILL BASED ELECTIVE – III (B)
PYTHON PROGRAMMING (PRACTICAL)
SYLLABUS

1. Compute the GCD of two numbers.
2. Find the square root of a number (Newton's method).
3. Exponentiation (power of a number).
4. Find the maximum of a list of numbers.
5. Linear search and Binary search.
6. Selection sort, Insertion sort and Merge sort.
7. First n prime numbers.
8. Multiply matrices.
9. Programs that take command line arguments (word count).
10. Find the most frequent words in a text read from a file.

Web links:

1. <https://youtu.be/rfscVS0vtbw>
2. <https://youtu.be/uQrJ0TkZlc>
3. <https://youtu.be/1QDvkkdyGw0>
4. <https://youtu.be/t8pPdKYpowI>
5. https://youtu.be/woVJ4N5nl_s

Pedagogy:

Power point presentation, Hand on Training.

2019-2020
VI SEMESTER
SYLLABUS

Sem	Part	Course	Title	Subject Code	Ins.	Credit	Exam	Marks		Total
					Hrs		Hours	Int	Ext.	
VI	III	Core Course – XI (CC)	Linear Algebra	19UMA6CC11	5	5	3	25	75	100
		Core Course – XII (CC)	Complex Analysis	19UMA6CC12	5	5	3	25	75	100
		Core Course – XIII (CC)	Dynamics	19UMA6CC13	5	4	3	25	75	100
		Core Course – XIV (CC)	Operations Research	19UMA6CC14	4	4	3	25	75	100
		Major Based Elective – II	Graph Theory	19UMA6MBE2A	4	3	3	25	75	100
			Number Theory	19UMA6MBE2B						
	Major Based Elective – III	Fuzzy Sets and Systems	19UMA6MBE3A	4	3	3	25	75	100	
		Astronomy	19UMA6MBE3B							
	IV	Skill Based Elective – III	LaTeX (Practical)	19UMA6SBE3AP	2	2	3	40	60	100
			Python Programming (Practical)	19UMA6SBE3BP						
		Extension Activities	Extension Activities	19UGEA	-	1	-	-	-	-
		Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100
		TOTAL			30	28	-	-	-	800
	GRAND TOTAL			180	140	-	-	-	4100	

Core Course – XI (CC)
LINEAR ALGEBRA
2019-2020 Onwards

Semester - VI	LINEAR ALGEBRA	Hours/Week –5	
Core Course – XI (CC)		Credit – 5	
Course Code – 19UMA6CC11		Internal 25	External 75

Objectives:

- To facilitate a better understanding of vector space.
- To analyse problems in linear algebra.
- To solve problems in matrices.

Course Outcome:

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Explain the ideas of Vector Spaces, Linear Independence and Bases.	K3
CO2	Distinguish the concepts of Roots of a Polynomial and the Algebra of Linear Transformations.	K3
CO3	Explain the concepts of matrix and Elementary transformation.	K3
CO4	Compute Characteristic Equation of a matrix and its inverse by Cayley Hamilton theorem.	K3
CO5	Solve the problems related to Eigen Values and Eigen Vectors	K3
CO6	Describe Inner Product Space and Modules.	K3

Mapping with Programme Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	S	S
CO2	S	S	S	S	S
CO3	M	M	S	S	S
CO4	M	M	S	S	S
CO5	S	S	S	S	S
CO6	M	S	M	M	S

S-Strong, M-Medium, L-Low

Core Course – XI (CC)

LINEAR ALGEBRA

2019-2020 Onwards

Unit I (15 Hours)

Elementary Basic Concepts – Linear Independence and Bases – Dual Spaces.

Unit II (15 Hours)

Roots of polynomials – Construction with Straight edge and Compass - More about Roots. - The Algebra of Linear Transformations – Characteristic Roots.

Unit III (15 Hours)

Algebra of Matrices – Types of Matrices – The Inverse of a Matrix – Elementary Transformations – Rank of a matrix.

Unit IV (15 Hours)

Characteristic Equation and Cayley – Hamilton theorem – Eigen Values and Eigen Vectors.

Unit V (15 Hours)

Inner Product Spaces: Norm – Orthogonal – Orthogonal Complement – Subspace – Gram Schmidt orthogonalization process – Modules.

TEXT BOOKS:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	I.N.Herstein	Topics in Algebra	John Wiley & Sons	2013
2.	Arumugam S and Thangapandi Issac A	Modern Algebra	Scitech Publications (India) Private Limited, Chennai.	2012

CHAPTERS AND SECTIONS:

Unit	Chapter	Sections
I	4[1]	4.1 – 4.3
II	5[1]	5.3 – 5.5
	6[1]	6.1 & 6.2
III	7[2]	7.0 -7.5
IV	7[2]	7.7 & 7.8
V	4[1]	4.4 & 4.5

REFERENCE BOOKS:

S.No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	P. B. Bhattacharya, S. K. Jain and S. R. Nagpaul	First Course in Linear Algebra	Wiley Eastern Limited	1985
2.	Kenneth Hoffman and Ray Kunze	Linear Algebra	PHI Learning Private Limited	2009
3.	K. S. Narayanan and T. K. Manicavachagom Pillay	Modern Algebra, Volume I	S. Viswanathan Private Limited	1982

Web links:

1. <https://youtu.be/1XIT3Y2oyAU>
2. <https://youtu.be/Pc2dWW3aSrK>
3. <https://youtu.be/ERfbtPBEYVA>
4. <https://youtu.be/6NFIsQ7APY>
5. <https://youtu.be/fdsgsMP9JnA>

Pedagogy:

Power point presentations, Group Discussion, Seminar, Quiz, Assignment, Lecture.

CORE COURSE–XII(CC)

COMPLEX ANALYSIS

2019-2020 Onwards

Semester – VI	COMPLEX ANALYSIS	Hours/Week – 5	
Core Course –XII (CC)		Credit – 5	
Course Code – 19UMA6CC12		Internal 25	External 75

Objectives:

- Identify curves and region in the complex plane defined by simple expressions.
- To study about the concepts of Complex Variables and Complex Integration
- To know about the concept of Power Series Expansion, Singularities and Residues.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Describe the functions of Complex variables, continuity and differentiation of complex variable functions, C – R equations of analytic functions.	K2
CO2	Explain about Elementary transformations in Complex variables.	K2
CO3	Compute Complex Integration through Cauchy's theorem.	K3
CO4	Determine the Power series expansions for Taylor's and Laurent's series.	K4
CO5	Diagnose the singularity concept and residues, solving definite integrals using residues.	K4

Mapping with Programme Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	S	S	M	S	M
CO3	S	S	S	S	M
CO4	S	S	S	M	M
CO5	S	S	S	M	M

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

CORE COURSE –XII (CC)**COMPLEX ANALYSIS**

2019-2020 Onwards

UNIT I

Analytical Functions: (15 Hours)

Functions of a Complex Variable – Limits– Theorems on Limits- Limits Involving the Point at Infinity – Continuity – Derivatives – Cauchy-Riemann Equations – Sufficient Conditions for Differentiability – Polar- Coordinates - Analytic Functions – Examples - Harmonic functions.

UNIT II

(15 Hours)

Integrals:

Definite Integrals of Functions $w(t)$ – Contours – Cauchy- Goursat Theorem – Proof of the Theorem – Simply Connected Domains – Multiply Connected Domain – Cauchy Integral Formula – An Extension of the Cauchy Integral Formula – Some Consequences of the Extension – Liouville’s Theorem and the Fundamental Theorem of Algebra – Maximum Modulus Principle.

UNIT III

(15 Hours)

Series:

Convergence of Sequences – Convergence of Series – Taylor’s Series – Proof of Taylor’s Theorem – Examples – Laurent Series – Proof of Laurent’s Theorem – Examples.

Mapping by Elementary Functions :

Linear Transformations – The Transformation $w = 1/z$ – Mappings by $1/z$ – Linear Fractional Transformations – An Implicit Form – Mappings of the Upper Half Plane – The Transformation $w = \sin z$ – Mappings by z^2 and Branches of $z^{1/2}$.

UNIT IV**(15 Hours)****Residues and Poles:**

Isolated Singular Points – Residues – Cauchy’s Residue Theorem – Residue at infinity – The Three Types of Isolated Singular Points – Residues at Poles – Examples – Zeros of Analytic Functions – Zeros and Poles – Behaviour of Functions Near Isolated Singular Points.

UNIT V**(15 Hours)****Applications of Residues:**

Evaluation of Improper Integrals – Example – Improper Integrals from Fourier Analysis – Jordan’s Lemma – Indented Paths – An Indentation Around a Branch Point – Integration Along a Branch Cut – Definite Integrals Involving Sines and Cosines – Argument Principle – Rouché’s Theorem.

TEXT BOOKS:

S.No.	Authors	Title of the Book	Publishers Name	Year of Publication
1.	James Ward Brown and Ruel V.Churchill	Complex Variables and Applications	McGraw Hill Higher Education. Eighth Edition, New York.	2009

CHAPTERS AND SECTIONS:

UNIT	CHAPTER	SECTIONS	PAGE NUMBER
I	2	12, 15 - 19, 21 - 26	35-38, 45-59, 63-82
II	4	38,39, 46 - 54	119 – 126, 150 - 175
III	5 and 8	55 – 62, 90 - 97	181 – 208, 311 - 336
IV	6	68 – 77	229 - 260
V	7	78 – 87	261 - 298

REFERENCE BOOKS:

S.No	Authors	Title of the Book	Publishers Name	Year of Publication
1.	S.Arumugam, A.Thangapandi Isaac & A.Somasundaram	Complex Analysis	New Scitech Publications (India) Pvt Ltd.	2005
2.	T.K.Manickavachagam Pillai	Complex Analysis	S.Viswanathan Publishers Pvt Ltd, Chennai.	1994
3.	Duraipandian. P, KayalalPachaiyappa	Complex Analysis	S. Chand & company Pvt. Ltd, 1 st Edition, New Delhi.	2014

Web links:

1. <https://www.youtube.com/watch?v=b5VUnapu-qs>.
2. <https://www.youtube.com/watch?v=2v95JHiapxU>.
3. <https://www.youtube.com/watch?v=WBvRL-QCEN8>.
4. https://www.youtube.com/watch?v=qjpLIIVo_6E.
5. <https://www.youtube.com/watch?v=o77UV7YrWvw>.

Pedagogy:

Power Point Presentation, Group Discussion, Seminar, Assignment.

CORE COURSE – XIII (CC)

DYNAMICS

2019-2020 Onwards

Semester – VI	DYNAMICS	Hours/Week – 5	
Core Course - XIII (CC)		Credits – 4	
Course Code – 19UMA6CC13		Internal 25	External 75

Objectives:

- To analyze the bodies in motion using the basics of kinematics.
- To provide the basic knowledge of equilibrium of a particle.
- To develop a working knowledge to handle practical problems.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Explain the motion under the action of central force.	K2
CO2	Compute motion of a straight line using relative velocity and acceleration.	K3
CO3	Apply the concepts of impulsive forces and impact of spheres.	K3
CO4	Ascertain the various aspect of projectile.	K4
CO5	Examine simple harmonic motions and its characteristics.	K4
CO6	Determine differential equation and pedal equation of a central orbit.	K4

Mapping with Programme Outcomes:

COS/POS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	M	S	S
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	S	M	S
CO6	S	S	S	S	S

S-Strong, M-Medium, L-Low

CORE COURSE – XIII (CC)
DYNAMICS
SYLLABUS

UNIT I (15 Hours)

Kinematics:

Basic units – Velocity – Acceleration – Coplanar Motion.

UNIT II (15 Hours)

Projectile:

Forces on a Projectile – Projectile projected on an inclined plane – Enveloping parabola or bounding parabola.

UNIT III (15 Hours)

Impact:

Impulsive force – Impact of sphere – Impact of two smooth spheres – Impact of a smooth sphere on a plane – Oblique Impact of two smooth spheres.

UNIT IV (15 Hours)

Rectilinear motion under varying forces:

Simple harmonic motion – S.H.M. along a horizontal line – S.H.M. along a vertical line.

UNIT V**(15 Hours)****Central Orbits:**

General Orbits – Central Orbit – Conic as a centred orbit.

TEXT BOOKS:

S.No	Authors Name	Title Of The Book	Publishers Name	Year Of Publication
1.	P. Duraipandian, Laxmi Duraipandian and Muthamizh Jayapragasam	Mechanics	S.Chand & Company Pvt Ltd	2014

CHAPTERS AND SECTIONS:

UNIT	CHAPTER	SECTIONS
I	1	1.1-1.4
II	13	13.1-13.3
III	14	14.1-14.5
IV	12	12.1-12.3
V	16	16.1-16.3

REFERENCE BOOKS:

S.No	Authors Name	Title Of The Book	Publishers Name	Year Of Publication
1.	M.K.Venkataraman	Dynamics	Agasthiyar Publications	2009
2.	A.V.Dharmapadham	Dynamics	S. Viswanathan Publishers Pvt Ltd	2006
3.	Narayanan S	A Text book of Dynamics	S. Chand and Company	1986

Web links:

1. <https://youtu.be/40RU9IWdfTA>
2. <https://youtu.be/qk7KV0lIKrM>
3. https://youtu.be/4HZtV_PGHo0
4. <https://youtu.be/uM2HpLBVAkA>
5. https://youtu.be/MINmlY_yoZ0
6. <https://youtu.be/NsNUuSxaa2Y>

Pedagogy:

Power point presentations, Group Discussion, Seminar, Quiz , Assignment, , Brain storming, e-content, Lecture.

CORE COURSE – XIV (CC)
OPERATIONS RESEARCH
2019-2020 Onwards

Semester – VI	OPERATIONS RESEARCH	Hours/Week – 4	
CORE COURSE – XIV		Credits – 4	
Course Code - 19UMA6CC14		Internal 25	External 75

Objectives:

- To impart knowledge in concepts and tools of operations research.
- To equip the students with mathematical methods formatted for their major concepts..
- To apply these techniques constructively to make effective business making.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Explain the Game theory problems	K2
CO2	Illustrate the Network Problems.	K2
CO3	Describe the Inventory Models.	K2
CO4	Solve the given LPP under various methods.	K3
CO5	Compute solutions to Transportation and Assignment Problem.	K3

Mapping with Programme Outcomes:

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

S-Strong, M-Medium, L-Low

**CORE COURSE – XIV (CC)
OPERATIONS RESEARCH
SYLLABUS**

UNIT I

(12 Hours)

Linear Programming Problem:

Introduction – Linear Programming Problem – Mathematical formulation of the problem– Illustrations on Mathematical formulation of Linear Programming Problems.

Linear Programming Problem-Graphical solution and Extension:

Introduction – Graphical Solution Method – Some Exceptional Cases – General Linear Programming Problem – Canonical and Standard Forms of Linear Programming Problem.

Linear Programming Problem-Simplex Method:

Introduction – The Computational Procedure

UNIT II

(12 Hours)

Linear Programming Problem - Simplex Method:

Use of Artificial Variables

Duality in Linear Programming:

Introduction – General Primal - Dual Pair –Formulating a Dual Problem – Dual Simplex Method.

UNIT III

(12 Hours)

Transportation Problem :

Introduction– LP formulation of the Transportation Problem – Existence of Solution in T.P - Solution of a Transportation Problem – Finding an initial basic feasible solution –Test for optimality-Economic Interpretation of u_j 's and v_j 's- Degeneracy in Transportation Problem-Transportation Algorithm (MODI Method).

Assignment problem:

Introduction – Mathematical Formulation of the Problem – Solution Methods of Assignment Problem –Special cases in Assignment Problems – The Travelling Salesmen problem.

UNIT IV**(12 Hours)****Games and Strategies:**

Introduction- Two Person Zero sum Games –Some Basic Terms– The Maximin - Minimax Principle –Games without Saddle Points – Mixed Strategies – Graphical Solution of 2 x n and m x 2 games.

Inventory control:

Introduction – Types of Inventories – Reasons for carrying inventories– The inventory Decisions– Objectives of scientific inventory control– Cost associated with inventories– Factors affecting inventory control– An inventory control problem– the concept of EOQ- Deterministic Inventory Problems with no Shortages – Deterministic Inventory Problems with Shortages.

UNIT V**(12 Hours)****Network Scheduling by PERT/CPM:**

Introduction– Network : Basic components – Logical Sequencing – Rules of Network Construction – Concurrent activities– Critical Path analysis–Probability Considerations in PERT-Distinction between PERT and CPM.

TEXT BOOKS:

S.NO.	AUTHORS	TITLE	PUBLISHERS
1.	Kanti Swaroop, Gupta.P.K,& Manmohan	Operations Research	Sultan Chand & Sons, 2014

CHAPTERS AND SECTIONS:

UNIT	CHAPTER	SECTIONS
I	2	2.1-2.4
	3	3.1-3.5
	4	4.1, 4.3
II	4	4.4
	5	5.1-5.3,5.9
III	10	10.1-10.3,10.8-10.13
	11	11.1-11.4, 11.7
IV	17	17.1-17.6
	19	19.1-19.11
V	25	25.1-25.8

REFERENCE BOOKS:

S.NO.	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	Hamdy A. Taha	Operations Research, An Introduction	Prentice Hall of India	2002
2.	Richard Bronson	Theory and Problems of Operations Research	Tata McGraw Hill Publishing Company	2001
3	S Kalavathy	Operations Research	Vikas apublishing House Private Limited	2013

Web links:

1. <https://youtu.be/ItOuvM2KmD4>
2. <https://youtu.be/SZdKDeubMg8>
3. <https://www.youtube.com/watch?v=vKVkOpNDZ2s>
4. <https://youtu.be/M8POtpPtQZc>
5. <https://youtu.be/8IRrgDoV8Eo>

Pedagogy:

Power point presentations, Group Discussions, Seminar, Quiz, Assignment.

MAJOR BASED ELECTIVE – II (A)

GRAPH THEORY

2019-2020 Onwards

Semester – VI	GRAPH THEORY	Hours/Week – 4	
Major Based Elective – II (A)		Credits – 3	
Course Code – 19UMA6MBE2A		Internal 25	External 75

Objectives:

- To understand the fundamental concepts in graph theory.
- To introduce the notion of graph theory and its applications.
- To learn the techniques of Combinatorics in graph theory.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Define basic definitions of graphs	K1
CO2	Explain the notion of Eulerian Graphs.	K2
CO3	Describe the concepts of Hamiltonian Graphs and Characterization of Trees.	K2
CO4	Compute the properties of Planar Graphs.	K3
CO5	Apply the concepts of Directed Graphs for solving Kruskal's and Dijkstra's Algorithms.	K3

Mapping with Programme Outcomes:

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

S – Strong, M – Medium, L – Low.

MAJOR BASED ELECTIVE – II (A)

GRAPH THEORY

SYLLABUS

UNIT I

(12 Hours)

Introduction:

Introduction - The Konigsberg Bridge Problem.

Graphs and Subgraphs:

Introduction-Definition and Examples - Degrees - Subgraphs - Isomorphism - Independent Sets and Coverings.

UNIT II

(12 Hours)

Graphs and Subgraphs:

Matrices - Operations on Graphs.

Connectedness:

Introduction-Walks, Trails and Paths – Connectedness and Components.

Eulerian and Hamiltonian Graphs:

Introduction- Eulerian Graphs.

UNIT III

(12 Hours)

Eulerian and Hamiltonian Graphs:

Hamiltonian Graphs (Omit Chavatal Theorem).

Trees:

Introduction-Characterization of Trees - Centre of a Tree.

UNIT IV**(12 Hours)****Planarity:**

Introduction - Definition and Properties - Characterization of Planar Graphs.

UNIT V**(12 Hours)****Directed Graphs:**

Introduction - Definitions and Basic Properties.

Some Applications:

Introduction -Connector Problem - Shortest Path Problem.

TEXT BOOKS:

S.No.	Authors Name	Title Of The Book	Publishers Name	Year Of Publication
1.	S. Arumugam & S. Ramachandran	Invitation to Graph Theory	SciTech Publications (India) Pvt. Ltd, Chennai.	2006

CHAPTERS AND SECTIONS:

UNIT	CHAPTER	SECTIONS
I	1	1.0, 1.1
	2	2.0 – 2.4, 2.6
II	2	2.8, 2.9
	4	4.0, 4.1, 4.2
	5	5.0, 5.1
III	5	5.2
	6	6.0 – 6.2
IV	8	8.0 – 8.2
V	10	10.0, 10.1
	11	11.0 – 11.2

REFERENCE BOOKS:

S.No.	Authors Name	Title Of The Book	Publishers Name	Year Of Publication
1.	Narsingh Deo	Graph Theory with applications to Engineering and Computer Science	Prentice Hall of India	2004
2.	Gary Chartrand and Ping Zhang	Introduction to Graph Theory	Tata McGraw-Hill Edition	2004
3.	S. Arumugam and S. Ramachandran	Introduction to Graph Theory	SciTech Publications (India)Pvt., Ltd.,	2006

Web links:

1. <https://youtu.be/AtDgXyluW-Y>
2. <https://youtu.be/gxL6kCc9yS4>
3. <https://youtu.be/ONdaQOJK574>
4. <https://youtu.be/mm9YUqZTsNE>
5. <https://youtu.be/wnYtITkWAYA>
6. https://youtu.be/amaH38_mXK4

Pedagogy:

Power point presentations, Group Discussions, Seminar, Quiz, Assignment.

MAJOR BASED ELECTIVE – II (B)
NUMBER THEORY
2019-2020 Onwards

Semester – VI	NUMBER THEORY	Hours/Week – 4	
Major Based Elective – II(B)		Credits – 3	
Course Code – 19UMA6MBE2B		Internal 25	External 75

Objectives:

- To highlight the details and distinctions in the world of numbers.
- To equip the students with basic concepts of Congruences formatted for their major concepts.
- To prepare the students for coding through Congruences.

Course Outcome:

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Apply the concept of divisibility and the linear Diophantine equations.	K2
CO2	Explain permutations and combinations in Fermat’s little theorem and Wilson’s theorem.	K2
CO3	Describe the basic properties of congruences.	K2
CO4	Solve the congruences using Chinese Remainder theorem and Polynomial congruences.	K3
CO5	Compute the theory of multiplicative arithmetic function and the Mobius inversion formula.	K3

Mapping with Programme Outcomes:

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

S - Strong, M - Medium, L - Low

MAJOR BASED ELECTIVE – II (B)

NUMBER THEORY

SYLLABUS

UNIT I

(12 Hours)

The Fundamental Theorem of Arithmetic:

Euclid's Division Lemma – Divisibility – The Linear Diophantine Equation – The Fundamental Theorem of Arithmetic.

UNIT II

(12 Hours)

Combinatorial and Computational Number Theory:

Permutations and Combinations – Fermat's Little Theorem – Wilson's Theorem – Generating Functions.

UNIT III

(12 Hours)

Fundamentals of Congruences:

Basic Properties of Congruences – Residue Systems

Solving Congruences:

Linear Congruences – The Theorems of Fermat and Wilson Revisited.

UNIT IV

(12 Hours)

Solving Congruences:

The Chinese Remainder Theorem – Polynomial Congruences.

Arithmetic Functions:

Combinatorial Study of n .

UNIT V**(12 Hours)****Arithmetic Functions:**

Formulae for $d(n)$ and n – Multiplicative Arithmetic Function – The Mobius Inversion Formula.

TEXT BOOKS:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	George E. Andrews	Number Theory	W.B. Saunders Company	1971

CHAPTERS AND SECTIONS:

UNIT	CHAPTER	SECTION
I	2	2.1 – 2.4
II	3	3.1 – 3.4
III	4	4.1 & 4.2
	5	5.1 & 5.2
IV	5	5.3 & 5.4
	6	6.1
V	6	6.2 – 6.4

REFERENCE BOOKS:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	David M. Burton	Elementary Number Theory, 7 th Edition	Mc Graw Hill Publishing Company	2011
2.	S.G.Telang	Number Theory	Tata McGraw-Hill Publishing Company Limited	2003
3.	Joseph H. Silverman	A Friendly Introduction to Number Theory	Pearson Education	2009

Web Links:

1. <https://www.youtube.com/watch?v=ep695eRaAyU>
2. <https://www.youtube.com/watch?v=vPRNx6rv7SM>
3. <https://www.youtube.com/watch?v=zP9t001PXiU>
4. <https://www.youtube.com/watch?v=Owcepi5zoF0>
5. <https://www.youtube.com/watch?v=nT2KAKNDG58>
6. https://www.youtube.com/watch?v=4_1D1BBibzw

Pedagogy:

Power point presentation, Group Discussion, Seminar, Assignment.

MAJOR BASED ELECTIVE COURSE – III (A)

FUZZY SETS AND SYSTEMS

2019-2020 Onwards

Semester – VI	FUZZY SETS AND SYSTEMS	Hours/Week – 4	
Major Based Elective – III (A)		Credits – 3	
Course Code – 19UMA6MBE3A		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 Number	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	Explain the basic concepts of arithmetic fuzzy numbers.	K3
CO4	Compose clear and accurate proofs using the concepts of Fuzzy logic and propositions.	K6
CO5	Develop Fuzzy concepts to design fuzzy control system models.	K6

Mapping with Programme Outcomes:

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

S-Strong, M-Medium, L-Low

MAJOR BASED ELECTIVE – III (A)

FUZZY SETS AND SYSTEMS

SYLLABUS

UNIT I

(12 Hours)

FUZZY SET THEORY:

Introduction – Fuzzy Versus Crisp – Number System – Interval – Sets – Representation of a Set – Types of Sets – Subsets – Universal Set – Venn Diagrams – Operations on Sets – Difference of Two Sets – Some Important Results – Some More Results – Some Results on Venn Diagrams – Fuzzy Sets – Fuzzy Set: Definition – Types of Fuzzy Sets – Characteristics of Fuzzy Sets – Other Important Operations – General Properties : Fuzzy Vs Crisp.

UNIT II

(12 Hours)

OPERATIONS ON FUZZY SETS:

Introduction – Some Important Theorems – Extension Principle for Fuzzy Sets – Fuzzy Compliments – Further Operations on Fuzzy Sets – t-Norms and t-Conorms – Definition of Intersection and Union by Hamacher – Yager’s Union and Intersection of Two Fuzzy Sets – Union and Intersection of Two Fuzzy Sets as given by Dubois and Prade – Extension Principle for Fuzzy Sets – Aggregation Operations.

UNIT III**(12 Hours)****FUZZY NUMBERS AND ARITHMETIC:**

Introduction – Fuzzy Numbers – Algebraic Operations with Fuzzy Numbers – Binary Operation of Two Fuzzy Numbers – Some Special Extended Operations – Extended Operations for L-R Representation of Fuzzy Sets – Fuzzy Arithmetic – Arithmetic Operations on Fuzzy Numbers in the Form of α -Cut Sets – Fuzzy Equations – Approximate Methods of Extension – Interval Analysis in Arithmetic – Lattice of Fuzzy Numbers.

UNIT IV**(12 Hours)****FUZZY LOGIC:**

An Overview of Classical Logic – Connectives – Types of Sentences – Truth Values and Truth Table – Tautology – Algebra of Statements – Validity of Arguments – Logical Identities of Crisp Logic – Well Formed Formulas (WFF) – Predicates and Quantifiers – Quantifiers and Logical Operators – Normal Forms – Fuzzy Logic and Fuzzy Propositions – Fuzzy Connectives– Fuzzy Inference – Fuzzy Propositions – Fuzzy Quantifiers.

UNIT V**(12 Hours)****FUZZY SYSTEMS AND FUZZY CONTROL:**

Introduction – Fuzzy Rule Based System – Fuzzification and Defuzzification – Fuzzy Control – Assumptions in a Fuzzy Control System Design – Design of Fuzzy Controllers – Fuzzy Control System Models.

TEXT BOOKS:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	Sudhir K. Pundir & Rimple Pundir	Fuzzy Sets and their Applications	A Pragati Edition	2006

CHAPTERS AND SECTIONS:

UNIT	CHAPTER	SECTIONS
I	1	1.1 - 1.21
II	2	2.1 - 2.11
III	3	3.1 - 3.12
IV	7	7.1 - 7.17
V	8	8.1 - 8.7

REFERENCE 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
2.	George J. Klir and Bo Yuan	Fuzzy Sets & Fuzzy Logic Theory and Applications	Prentice-Hall of India	1995
3.	Kwang H.Lee	First course on Fuzzy theory and Applications	Springer	2005

Web links:

1. <https://youtu.be/HjCTfx2AAaw>
2. <https://youtu.be/XHNhqCSGV60>
3. <https://youtu.be/6daiRieEQIU>
4. <https://youtu.be/N8yhE1GaaQc>
5. <https://youtu.be/po4FxxE9c8>

Pedagogy:

Power point presentation, Group Discussion, Seminar, Quiz, Assignment.

MAJOR BASED ELECTIVE – III (B)

ASTRONOMY

2019–2020 Onwards

Semester – VI	ASTRONOMY	Hours/Week – 4	
Major Based Elective – III (B)		Credits – 3	
Course Code -19UMA6MBE3B		Internal 25	External 75

Objectives:

- To introduce the exciting world of astronomy to the students.
- To help the students to study spherical trigonometry in the field of astronomy.
- To understand the movements of the celestial objects.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Explain the concepts of Celestial sphere, diurnal motion, Celestial coordinates and sidereal time.	K2
CO2	Classify circumpolar stars, zones of earth, perpetual day, dip of horizon and twilight.	K3
CO3	Derive refraction, laws of refraction, tangent formula, Cassini's formula, horizontal refraction, geocentric parallax and horizontal parallax.	K3
CO4	Discuss lunar and solar eclipses and ecliptic limits.	K3
CO5	Ascertain Kepler's laws, verification of 1 st and 2 nd laws in the case of earth, Anomalies, Kepler's equation, Seasons, causes and kinds of years.	K4

Mapping with Programme Outcomes:

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

S–Strong, M–Medium, L–Low

MAJOR BASED ELECTIVE – III (B)

ASTRONOMY

SYLLABUS

UNIT I

(12 Hours)

Relevant properties of sphere and formulae in spherical trigonometry (no proof, no problems) – Celestial sphere and diurnal motion – Celestial coordinates – sidereal time.

UNIT II

(12 Hours)

Morning and evening stars – circumpolar stars – diagram of the celestial sphere – zones of earth – perpetual day – dip of horizon – twilight.

UNIT III

(12 Hours)

Refraction – laws of refraction – tangent formula – Cassini’s formula – horizontal refraction – geocentric parallax – horizontal parallax.

UNIT IV

(12 Hours)

Kepler’s laws – Anomalies – Kepler’s equation – Kinds of years.

UNIT V

(12 Hours)

Moon–sidereal and synodic months – elongation – phase of moon – eclipses–umbra and penumbra – lunar and solar eclipses – ecliptic limits – maximum and minimum number of eclipses near a node and in a year – Saros of Chaldeans.

TEXT BOOKS:

S. No	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	S. Kumaravel and Susheela Kumaravel	Astronomy	SKV Publications	2004

CHAPTERS AND SECTIONS:

UNIT	CHAPTER	SECTIONS
I	1	1 – 38
	2	39 – 79
II	2	80–86
	3	87 – 101, 106 – 116
III	4	117–134
	5	135 – 144
IV	6	146–149
	7	158–172,175–189
V	12	229–255
	13	256–275

REFERENCE BOOKS:

S.No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	G.V. Ramachandran	Astronomy	Mission Press, Palayamkottai.	1965

Web links:

1. <https://youtu.be/GIMAocKlagM>
2. <https://youtu.be/qNLAB-Rdcgs>
3. <https://youtu.be/F6Tkb8syTK8>
4. <https://youtu.be/re3oEKX6Fks>
5. <https://youtu.be/ZS2FvljOXsk>

Pedagogy:

Power point presentations, Group Discussion, Seminar, Quiz , Assignment, e-content, Lecture.

SKILL BASED ELECTIVE – III (A)

LaTeX (PRACTICAL)

2019-2020 Onwards

Semester – VI	LaTeX (PRACTICAL)	Hours/Week – 2	
Skill Based Elective – III (A)		Credits – 2	
Course Code – 19UMA6SBE3AP		Internal 40	External 60

Objectives:

- To introduce the basic concepts of LaTeX, a typesetting software.
- To get knowledge about creating a bibliographic database.
- To write mathematical documents in LaTeX.

Course Outcome:

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Define and use new commands within LaTeX.	K1
CO2	Apply mathematical formulae using LaTeX.	K2
CO3	Create a table using LaTeX.	K3
CO4	Classify various types of formulae, equations, matrix etc. by using LaTeX.	K3
CO5	Prepare a bibliography for a particular document.	K3

Mapping with Programme Outcomes:

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

S-Strong, M-Medium, L-Low

SKILL BASED ELECTIVE – III (A)

LaTeX (PRACTICAL)

SYLLABUS

1. Create a LaTeX document for the given Mathematical Expression.
2. Create a table in LaTeX document.
3. Construct a LaTeX document using sums, integrals and limits.
4. Construct a differential equation and integral equation.
5. Create a LaTeX document that contains the following: Title – Author’s name – Abstract– Introduction – Sections.
6. Create a bibliography in LaTeX document.
7. Create a letter in LaTeX.

Web links:

1. <https://www.youtube.com/watch?v=fCzF5gDy60g>
2. <https://www.youtube.com/watch?v=0ivLZh9xK1Q>
3. <https://www.youtube.com/watch?v=bCumVPGR4ts>
4. <https://www.youtube.com/watch?v=kefvRACdXHs>
5. <https://www.youtube.com/watch?v=8byt3ywt1H8&list=RDCMUCGCHc7LsEYT62dQauh2NYw&index=8>

Pedagogy:

Power point presentation, Hand on Training.

SKILL BASED ELECTIVE – III (B)
PYTHON PROGRAMMING (PRACTICAL)

2019-2020 Onwards

Semester – VI	PYTHON PROGRAMMING (PRACTICAL)	Hours/Week – 2	
Skill Based Elective –III(B)		Credits – 2	
Course Code – 19UMA6SBE3BP		Internal 40	External 60

Objectives:

- To explore and understand how to use python.
- To describe the core syntax and semantics of Python programming language.
- To understand how to create and manipulate data's in python.

Course Outcome:

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Interpret the fundamental Python syntax and the use of Python input statements.	K2
CO2	Classify various control structures of Python in simple programs.	K3
CO3	Compute simple programs using input statements of Python programming language.	K3
CO4	Infer the usage of Dictionaries, Sets and Object-Oriented programming concepts in Python.	K4
CO5	Explain the need for working with functions in Python.	K2

Mapping with Programme Outcomes:

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

S-Strong, M-Medium, L-Low

SKILL BASED ELECTIVE – III (B)
PYTHON PROGRAMMING (PRACTICAL)
SYLLABUS

1. Compute the GCD of two numbers.
2. Find the square root of a number (Newton's method).
3. Exponentiation (power of a number).
4. Find the maximum of a list of numbers.
5. Linear search and Binary search.
6. Selection sort, Insertion sort and Merge sort.
7. First n prime numbers.
8. Multiply matrices.
9. Programs that take command line arguments (word count).
10. Find the most frequent words in a text read from a file.

Web links:

1. <https://youtu.be/rfscVS0vtbw>
2. <https://youtu.be/uQrJ0TkZlc>
3. <https://youtu.be/1QDvkkdyGw0>
4. <https://youtu.be/t8pPdKYpowI>
5. https://youtu.be/woVJ4N5nl_s

Pedagogy:

Power point presentation, Hand on Training.

RATIFICATION

**CORE COURSE-VII (CC)
ABSTRACT ALGEBRA
2019-2020 Onwards**

Semester - V	ABSTRACT ALGEBRA	Hours/Week – 6	
CORE COURSE-VII		Credits – 6	
Course Code – 19UMA5CC7		Internal 25	External 75

Objectives:

- To prepare students to understand the concepts and properties of algebra and their application.
- To provide the principles and practices of algebra.
- To Construct a legitimate proof involves different skills and expertise problem solving.

Course Outcome:

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Explain the basic concept of Abstract Algebra and give examples.	K2
CO2	Describe the concept of cyclic subgroups.	K2
CO3	Apply properties of normal subgroups and quotient groups, finite groups and Cayley tables.	K3
CO4	Compose clear and accurate points using the concept of rings.	K5
CO5	Assess the impact of unique factorization domain, Euclidean domain.	K6

Mapping with Programme Outcomes:

COs/POs	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

CORE COURSE-VII (CC)
ABSTRACT ALGEBRA
SYLLABUS

UNIT I **(18 hours)**

Definition of a Group- Some Examples of Groups- Some Preliminary Lemmas- Subgroups.

UNIT II **(18 hours)**

A Counting Principle – Normal Subgroups and Quotient Groups – Homomorphisms.

UNIT III **(18 hours)**

Automorphisms- Cayley’s Theorem - Permutation Groups.

UNIT IV **(18 hours)**

Definition and Examples of Rings – Some Special Classes of Rings – Homomorphisms – Ideals and Quotient Rings.

UNIT V **(18 hours)**

More Ideals and Quotient Rings – The Field of Quotient of an Integral Domain - Euclidean Rings – A Particular Euclidean Ring.

TEXT BOOKS:

S.No	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	I.N.Herstein	Topics in Algebra	John Wiley & Sons	2013

CHAPTERS AND SECTIONS:

UNIT	CHAPTER	SECTIONS
I	2	2.1-2.4
II	2	2.5-2.7
III	2	2.8-2.10
IV	3	3.1-3.4
V	3	3.5-3.8

REFERENCE BOOKS:

S.No	Authors Name	Title of the book	Publishers Name	Year of Publication
1.	S.Arumugam & A.Thangapandi Isaac	Modern Algebra	Scitech Publications India (Pvt)Ltd	May 2017
2.	T.K.Manicavachagam Pillai, T.Natarajan, K.S.Ganapathy	Algebra	S.Viswanathan Pvt Limited, Chennai	2004
3.	Joseph Rotman	Galois Theory, 2 nd Edition	Springer Verlag	1990

Web links:

6. <https://youtu.be/CJpZJLYKk0I>
7. <https://youtu.be/mcX0sMnYyMU>
8. <https://youtu.be/IrQMV4zGF44>
9. <https://youtu.be/7LtpPI46O0Q>
10. <https://youtu.be/K1iuXqHFWRw>

Pedagogy:

Power point presentation, Group Discussion, Seminar, Quiz, Assignment.

CORE COURSE – VIII (CC)

REAL ANALYSIS

2019 – 2020 Onwards

Semester – V	REAL ANALYSIS	Hours/Week – 6	
Core Course – VIII		Credits – 6	
Course Code - 19UMA5CC8		Internal 25	External 75

Objectives:

- To enable the students to understand the basic concepts of Analysis.
- To impart knowledge in concepts of solving various problems regarding field axioms.
- To Construct a proof that involves different problem solving ideas and expertise in them.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Describe the fundamental properties of real numbers that lead to the formal development of real analysis.	K2
CO2	Understand the concept of limit of a function on the real line \mathbb{R} and metric space.	K2
CO3	Describe the continuous and discontinuous functions on metric spaces.	K2
CO4	Explain the concept of connectedness, completeness and compactness.	K2
CO5	Classify the basic concepts of Riemann integration.	K3

Mapping with Programme Outcomes:

COs/POs	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

CORE COURSE – VIII (CC)

REAL ANALYSIS

SYLLABUS

Unit I (18 Hours)

Sets and functions

Sets and elements – Operations on sets – Functions – Real-valued functions – Equivalence, Countability – Real numbers - Least upper bounds.

Unit II (18 Hours)

Limits and metric spaces

Limits of a function on the real line – Metric spaces – Limits in metric spaces.

Unit III (18 Hours)

Continuous functions on metric spaces

Functions continuous at a point on the real line – Reformulation – Functions continuous on a metric space – Open sets – Closed sets – Discontinuous functions on \mathbb{R}^1 – The distance from a point to a set.

Unit IV (18 Hours)

Connectedness, completeness and compactness

More about open sets – Connected sets – Bounded sets and totally bounded sets – Complete metric spaces – Compact metric spaces – Continuous functions on compact metric spaces – continuity of the inverse function – uniform continuity.

Unit V**(18 Hours)****Calculus**

Sets of measure zero – Definition of the Riemann integral –Existence of the Riemann integral –Properties of the Riemann integral – Derivatives – Rolle’s Theorem – The law of the mean - Fundamental theorems of calculus.

TEXT BOOK:

S.No	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	Richard R. Goldberg	Methods of Real Analysis	Oxford & IBH Publishing Co. Pvt. Ltd, New Delhi	Reprint 2019

CHAPTERS AND SECTIONS:

UNIT	CHAPTER	SECTIONS
I	1	1.1-1.7
II	4	4.1-4.3
III	5	5.1-5.6
IV	6	6.1 -6.8
V	7	7.1-7.8

REFERENCE BOOKS:

S.NO.	AUTHORS	TITLE OF THE BOOK	PUBLISHERS	YEAR OF PUBLICATION
1.	Tom M. Apostol	Mathematical Analysis	Addison-Wesley Publishing Company	Fifth Printing 1981
2.	Robert G. Bartle and Donald R. Sherbert	Introduction to Real Analysis	John Wiley & Sons Private Ltd.,	3 rd Edition, 2007
3.	M. K. Singal, Asha Rani Singal	A First Course in Real Analysis	R. Chand & Co	2007

Web links:

1. <https://youtu.be/XjiT88Czx5c?t=15>
2. <https://youtu.be/1diSwLMJpvs?t=626>
3. <https://youtu.be/YEG18ISnThE?t=4>
4. <https://youtu.be/4TzGkHFnn7g?t=3>
5. <https://youtu.be/y5tni8My-VY?t=4>

Pedagogy:

Assignment, Seminar, Lecture, Quiz, Group discussion, Brain storming, e-content.

CORE COURSE – X (CC)
METHODS IN NUMERICAL ANALYSIS
2019-2020 Onwards

Semester – V	METHODS IN NUMERICAL ANALYSIS	Hours/Week –5	
Core Course – X (CC)		Credits – 4	
Course Code – 19UMA5CC10		Internal 25	External 75

Objectives:

- To introduce the basic concepts of solving algebraic and transcendental equations.
- To introduce the numerical techniques of interpolation in various intervals.
- To understand the knowledge of numerical techniques of differentiation and integration.

Course Outcomes:

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Apply numerical methods to solve Algebraic, Transcendental equations.	K2
CO2	Explain and solve the numerical techniques of interpolation in various intervals.	K2
CO3	Solve numerical integration and differentiation.	K3
CO4	Solve the system of linear equation with understanding by appropriate methods.	K3
CO5	Compute the numerical solution of ordinary differential equation by various methods.	K3

Mapping with Programme Outcomes:

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

S-Strong, M-Medium, L-Low

CORE COURSE – X (CC)
METHODS IN NUMERICAL ANALYSIS
SYLLABUS

UNIT I **(15 Hours)**

SOLUTION OF ALGEBRAIC AND TRANSCENDENTAL EQUATIONS:

Introduction – Method of False Position – Iteration Method – Newton-Raphson Method – Ramanujan’s Method – Secant Method – Muller’s Method.

UNIT II **(15 Hours)**

INTERPOLATION:

Introduction – Errors in Polynomial Interpolation – Finite Differences –Newton’s Formulae for Interpolation – Interpolation with Unevenly Spaced Points: Lagrange’s Interpolation Formula – Divided Differences and Their Properties: Newton’s General Interpolation Formula.

UNIT III **(15 Hours)**

NUMERICAL DIFFERENTIATION AND INTEGRATION:

Introduction – Numerical Differentiation – Numerical Integration: Trapezoidal Rule – Simpson’s 1/3 Rule – Simpson’s 3/8 Rule – Boole’s and Weddle’s Rules –Use of Cubic Splines – Romberg Integration – Newton-Cotes Integration Formulae.

UNIT IV**(15 Hours)****NUMERICAL LINEAR ALGEBRA:**

Introduction – Solution of Linear Systems – Direct Methods : Gauss Elimination – Necessity for pivoting – Gauss-Jordan Method – Modification of the Gauss Method to Compute the Inverse – Solution of Linear Systems – Iterative Methods.

UNIT V**(15 Hours)****NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS:**

Introduction – Solution by Taylor’s Series – Picard’s Method of Successive Approximations – Euler’s Method: Modified Euler’s Method, Runge - Kutta Methods – Predictor – Corrector Methods.

TEXT BOOKS:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	S. S. Sastry	Introductory Methods of Numerical Analysis	Fifth Edition , PHI Learning Private Limited, Delhi	2018

CHAPTERS AND SECTIONS:

UNIT	CHAPTER	SECTION
I	2	2.1, 2.3 – 2.8
II	3	3.1 – 3.3, 3.6, 3.9 (3.9.1 Only) & 3.10 (3.10.1 Only)
III	6	6.1, 6.2 & 6.4
IV	7	7.1, 7.5 (7.5.1– 7.5.4) & 7.6
V	8	8.1–8.3, 8.4(8.4.2 Only), 8.5 & 8.6

REFERENCE BOOKS:

S.No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	M.K. Jain, S.R.K. Iyengar and R.K. Jain	Numerical Methods for Scientific and Engineering Computations	New Age International Private Limited	1999
2.	C.E. Froberg	Introduction to Numerical Analysis	II Edition , Addison Wesley	1979
3.	Dr. P. Kandasamy, Dr.K. Thiligavathy and Dr.K. Gunavathi	Numerical Methods	S. Chand & Company Pvt.	2013

Web links:

1. https://www.youtube.com/watch?v=3j0c_FhOt5U
2. <https://nptel.ac.in/courses/111/107/111107105/>
3. <https://www.youtube.com/watch?v=0rtaUUonwkU>
4. <https://nptel.ac.in/courses/111/107/111107106/>
5. <https://www.youtube.com/watch?v=QugqSa3GI-w>

Pedagogy:

Power point presentation, Group Discussion, Seminar, Quiz, Assignment.

CORE PRACTICAL – I (CP)
NUMERICAL METHODS WITH MATLAB PROGRAMMING (PRACTICAL)
2019-2020 Onwards

Semester – V	NUMERICAL METHODS WITH MATLAB PROGRAMMING (PRACTICAL)	Hours/Week – 2	
Core Practical –I (CP)		Credits – 2	
Course Code – 19UMA5CC1P		Internal 40	External 60

Objectives:

- To identify different mathematical problems and reformulate them in a way that is appropriate for numerical treatment.
- Use functions from the programming language library for efficient calculations and visualisation.
- Solve problems systematically and to implement the solution in MATLAB.

Course Outcome:

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Describe the use of fundamental data structures.	K2
CO2	Apply MATLAB effectively to analyze and visualize data.	K3
CO3	Solve scientific and mathematical problems.	K3
CO4	Apply basic functions for numerical integration, differentiation, and curve fitting.	K3
CO5	Compute simple programs in MATLAB	K3

Mapping with Programme Outcomes:

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

S-Strong, M-Medium, L-Low

CORE PRACTICAL – I (CP)
NUMERICAL METHODS WITH MATLAB PROGRAMMING (PRACTICAL)
SYLLABUS

1. Newton – Raphson method of solving equations.
2. Lagrange’s method of interpolation.
3. Trapezoidal rule of integration.
4. Simpson’s 1/3 rule of integration.
5. Gauss – Elimination method of solving simultaneous equations.
6. Gauss – Seidal method of solving simultaneous equations.
7. R-K fourth order method of solving differential equations.

Web links:

1. <https://www.youtube.com/watch?v=NZfd-EuBYyo>
2. <https://www.youtube.com/watch?v=PLHC4NKNxys>
3. <https://in.mathworks.com/videos/introduction-to-matlab-81592.html>
4. <https://www.youtube.com/watch?v=ajJD0Df5CsY>
5. <https://www.youtube.com/watch?v=dOg631hdPIc>

Pedagogy:

Power point presentation, Hand on Training.

SKILL BASED ELECTIVE – I (A)
INTRODUCTION TO R
2019-2020 Onwards

Semester – V	INTRODUCTION TO R	Hours/Week – 2	
Skill Based Elective –I(A)		Credits – 2	
Course Code – 19UMA5SBE1A		Internal 25	External 75

Objectives:

- To explore and understand how to use the R documentation.
- To master the use of the R and R Studio interactive environment.
- To understand how to create and manipulate data's in R.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Navigate in the R Studio interface.	K2
CO2	Explain concepts of matrices and arrays.	K3
CO3	Discuss about List and data frames.	K3
CO4	Apply R effectively to analyze and visualize data.	K3
CO5	Classify various testing of hypothesis.	K2

Mapping with Programme Outcomes:

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

S-Strong, M-Medium, L-Low

SKILL BASED ELECTIVE – I (A)

INTRODUCTION TO R

SYLLABUS

UNIT I

(6 Hours)

Getting Started:

Obtaining and Installing R from CRAN – Opening R for the First Time – Saving Work and Exiting R – Conventions.

Numerics, Arithmetic, Assignment and Vectors:

R for Basic Math – Assigning Objects – Vectors.

UNIT II

(6 Hours)

Matrices and Arrays:

Defining a Matrix – Subsetting – Matrix Operations and Algebra – Multidimensional Arrays.

Non-Numeric Values:

Logical Values – Characters.

UNIT III

(6 Hours)

Lists and Data Frames:

Lists of Objects – Data Frames.

Special Values, Classes and Coercion:

Some Special Values – Understanding Types, Classes and Coercion.

UNIT IV**(6 Hours)****Elementary Statistics:**

Describing Raw Data – Summary Statistics.

Basic Data Visualization:

Barplots and Pie Charts – Histograms – Box-and-Whisker Plots – Scatter Plots.

UNIT V**(6 Hours)****Common Probability distributions:**

Common Probability Mass Functions – Common Probability Density Functions.

Hypothesis Testing:

Components of a Hypothesis Test – Testing Means – Testing Proportions – Testing Categorical Variables – Errors and Power.

TEXT BOOKS:

S.No	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	Tilman M. Davies	The Book of R A First Course in Programming and Statistics	No Starch Press Inc.,	2016

CHAPTERS AND SECTIONS:

UNIT	CHAPTER	SECTIONS
I	1	1.1 -1.4
	2	2.1 -2.3
II	3	3.1 - 3.4
	4	4.1 - 4.2
III	5	5.1 & 5.2
	6	6.1 & 6.2
IV	13	13.1 & 13.2
	14	14.1 – 14.4
V	16	16.1 & 16.2
	18	18.1 – 18.5

REFERENCE BOOKS:

S.No	Authors Name	Title of the Book	Publishers Name	Year ofPublication
1	Dr. Mark Gardener	Beginning R The Statistical Programming Language	John Wiley & Sons, Inc	2012
2	Joseph Schmuller	Statistical Analysis R for Dummies	John Wiley & Sons, Inc	2017
3	Andy Field Jeremy miles Zoe Field	Discovering Statistics Using R	Sage Publications Ltd	2012

Web links:

1. <https://youtu.be/V8eKsto3Ug>
2. <https://youtu.be/RwDV802ckU8>
3. <https://youtu.be/fDRa82lxzaU>
4. <https://youtu.be/IL0s1coNtRk>
5. <https://youtu.be/SJpd7KC18fQ?list=PLJ5C6gdAvBFF7qtFi8PvRK8x55jsUQ>

Pedagogy:

Power point presentations, Group Discussions, Seminar, Quiz, Assignment.

SKILL BASED ELECTIVE- I (B)
INTRODUCTION TO STATISTICAL TOOLS AND TECHNIQUES - SPSS
2019-2020 Onwards

Semester – V	INTRODUCTION TO STATISTICAL TOOLS AND TECHNIQUES - SPSS	Hours/Week – 2	
Skill Based Elective- I (B)		Credits – 2	
Course Code – 19UMA5SBE1B		Internal 25	External 75

Objectives:

- To learn basic data analysis and interpretation with SPSS.
- To manipulate and transform variables in SPSS.
- To establish a sound knowledge on SPSS.

Course Outcome:

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Explain the objectives of SPSS	K2
CO2	Apply SPSS for data interpretation	K3
CO3	Compute various test using SPSS	K3
CO4	Interpretation of several graphs in SPSS	K2
CO5	Classify Data View, Variable View and Output View Screens	K2

Mapping With Programme Outcomes:

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

S – Strong , M – Medium, L– Low

SKILL BASED ELECTIVE- I (B)

**INTRODUCTION TO STATISTICAL TOOLS AND TECHNIQUES - SPSS
SYLLABUS**

UNIT I

(6 hours)

First Encounters:

Introduction and objectives- Entering, Analyzing and Graphing Data

Navigating in SPSS:

SPSS variable View screen-SPSS data view screen-SPSS Main menu- Data Editor
Toolbar – Short tour of variable View screen.

UNIT II

(6 hours)

Getting Data In and Out of SPSS:

typing data using the computer keyboard- Saving your SPSS Data and Output files-
Opening your saved SPSS files – opening SPSS sample files- Copying and pasting data to
other applications-Importing files from other applications- Exporting SPSS files to other
applications.

Levels of Measurement:

Variable view screen: Measure column-Variables measured at the Nominal level-
Variables measured at the Ordinal level- Variables measured at the Scale level.

UNIT III

(6 hours)

Entering Variables and Data and Validating Data:

Entering Variables and assigning attributes (Properties)-Entering Data for each variable – Validating Data.

Working with Data and Variables:

Computing a new variable - Recoding Scale Data into a String Variable- Inserting new variables and Cases in to Existing Databases- Data View page: Copy, Cut and Paste procedures.

UNIT IV

(6 hours)

Using the SPSS Help Menu:

Help Options – Using Help Topics – Using Help Tutorial – Using Help Case Studies – Getting Help When Using Analyze on the Main Menu.

Creating Basic Graphs and Charts:

Using Legacy Dialogs to Create a Histogram – Using Chart Builder to Create a Histogram – Using Legacy Dialogs to Create a Bar Graph – Using Chart Builder to Create a Bar Graph - Using Legacy Dialogs to Create a line Graph - Using Chart Builder to Create a line Graph - Using Legacy Dialogs to Create a Pie Chart - Using Chart Builder to Create a Pie Chart.

UNIT V

(6 hours)

Editing and Embellishing Graphs:

Creating a Basic Graph – Editing a Basic Graph – Editing a Three-Dimensional Graph – Exporting Graphs to Documents.

Printing Data View, Variable View and Output Viewers Screens:

Printing Data From the Variable View Screen – Printing Variable Information From and Output Viewer – Printing Tables From and Output Viewer.

TEXT BOOKS:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	James B. Cunningham & James O. Aldrich	An Interactive Hands-on Approach	SAGE Publications India Pvt Ltd, New Delhi	2012

CHAPTERS AND SECTIONS:

UNIT	CHAPTERS	SECTIONS
I	1 & 2	1.1-1.2, 2.1-2.6
II	3 & 4	3.1-3.8, 4.1-4.5
III	5 & 6	5.1-5.4, 6.1-6.5
IV	7 & 8	7.1- 7.6, 8.1-8.9
V	9 & 10	9.1-9.5 10.1-10.4

REFERENCE BOOKS:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	Keith McCormick & Jesus Salcedo with Aaron Poh	SPSS Statistics for Dummies	Wiley India Pvt Ltd, New Delhi, 3 rd Edition.	2015
2.	Robert H. Carver & Jane Gradwohl Nash	Doing Data Analysis	Thompson Brooks/Cole	2013
3.	Dr. S .L. Gupta & Hitesh Gupta	SPSS17.0 for Researchers	International Book House Pvt. Ltd- 2 nd Edition.	2014

Web links:

1. <https://youtu.be/Bku1p481z80>
2. <https://www.youtube.com/watch?v=zFBUfZEBWQ>
3. <https://youtu.be/DmS63ivVjis>
4. <https://youtu.be/i8lmUkB4lag>

Pedagogy:

Power point presentation, Group Discussion, Seminar, Assignment.

SKILL BASED ELECTIVE – II (A)
STATISTICAL TOOLS AND TECHNIQUES – R PROGRAMMING (PRACTICAL)
2019-2020 Onwards

Semester – V	STATISTICAL TOOLS AND TECHNIQUES – R PROGRAMMING (PRACTICAL)	Hours/Week – 2	
Skill Based Elective –II(A)		Credits – 2	
Course Code – 19UMA5SBE2AP		Internal 40	External 60

Objectives:

- To explore and understand how to use the R documentation.
- To familiar with R interactive environment.
- To understand how to create and manipulate datas in R.

Course Outcome:

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Navigate in the R Studio interface.	K2
CO2	Apply the Statistical Programming Software.	K2
CO3	Explain concepts related to Statistical datas.	K3
CO4	Explain the terms of constructs, control statements, string functions.	K3
CO5	Compute R programming from a statistical Perspective.	K3

Mapping with Programme Outcomes:

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

S-Strong, M-Medium, L-Low

SILL BASED ELECTIVE – II (A)
STATISTICAL TOOLS AND TECHNIQUES – R PROGRAMMING
SYLLABUS

1. Creating and Displaying data.
2. Matrix Manipulations.
3. Creating and manipulating a List and an Array.
4. Frequency Distribution.
5. Bar diagrams, Bar plots and subdivided Bar plots.
6. Pie diagram, 3D Pie diagram and Histogram.
7. Measures of Central Tendency.
8. Quantiles.
9. Variation of data.
10. Correlation and Regression.

Web links:

1. [https://youtu.be/ V8eKsto3Ug](https://youtu.be/V8eKsto3Ug)
2. <https://youtu.be/BvKETZ6kr9Q>
3. <https://youtu.be/HPJn1CMvtmI>
4. <https://youtu.be/ANMuuq502rE>
5. <https://youtu.be/I6FJo8x1wZE>

Pedagogy:

Power point presentation, Hands on training.

SKILL BASED ELECTIVE – II (B)
STATISTICAL TOOLS AND TECHNIQUES – SPSS (PRACTICAL)
2019-2020 Onwards

Semester - V	STATISTICAL TOOLS AND TECHNIQUES - SPSS	Hours/Week - 2	
Skill Based Elective – II(B)		Credits - 2	
Course Code - 19UMA5SBE2B		Internal 40	External 60

Objectives:

- To analyse scientific data related with social science.
- To process critical data.
- To manipulate and decipher survey data.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Apply the built in functions for data manipulation.	K2
CO2	Explain the ideas and concepts of various charts and Box plots.	K2
CO3	Classify the given data for various tests.	K2
CO4	Solve Measures of Central Tendency and Dispersion.	K3
CO5	Compute Correlation and Regression.	K3

Mapping with Programme Outcomes:

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

S-Strong, M-Medium, L-Low

SKILL BASED ELECTIVE – II (B)
STATISTICAL TOOLS AND TECHNIQUES - SPSS
SYLLABUS

1. Frequencies: Counts and Percents
2. Measures of Central Tendency
3. Measures of Dispersion
4. Histograms, Bar Charts, Boxplots and Scatter Plots
5. T-test and Chi-square Test
6. Correlation
7. Regression

Web links:

1. <https://www.youtube.com/watch?v=Bku1p481z80>
2. <https://www.youtube.com/watch?v=zFBUfZEBWQ>
3. <https://www.youtube.com/watch?v=bapuGcjiwiLQ>
4. <https://www.youtube.com/watch?v=C2Qa5d9ij0Y>
5. <https://www.youtube.com/watch?v=cNrnSEWKJgg>

Pedagogy:

Power Point Presentation, Hands on training.

2021-2022
SKELETON

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
PG AND RESEARCH DEPARTMENT OF MATHEMATICS
B.Sc MATHEMATICS COURSE STRUCTURE
(For the candidates admitted in the year 2021-2022)

Sem	Part	Course	Course Title	Course Code	Ins. Hrs	Credit	Exam Hours	Marks		Total	
								Int	Ext		
I	I	Language Course – I (LC) – Tamil*/Other Languages +#	Ikkala Ilakkiyam	19ULT1/ 19ULH1/ 19ULS1/ 19ULF1	6	3	3	25	75	100	
			Story, Novel, History of Hindi Literature-I & Grammar – 1								
			History of Popular Tales Literature and Sanskrit Story								
			Communication in French –I								
	II	English Language Course - I (ELC)	Functional Grammar for Effective Communication –I	19UE1	6	3	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	6	3	25	75	100
			First Allied Course – I (AC)	Mathematical Statistics – I	19UMA1AC1	5	3	3	25	75	100
	IV	UGC Jeevan Kaushal Life skills	Universal Human Values	20UGVE	2	2	3	25	75	100	
					TOTAL	30	22	-	-	-	600

Sem	Part	Course	Course Title	Course Code	Ins.	Credit	Exam	Marks		Total	
					Hrs			Int	Ext		
II	I	Language Course – II (LC) - Tamil*/Other Languages +#	Idaikala Ilakkiyamum Pudhinamum	19ULT2/ 19ULH2/ 19ULS2/ 19ULF2	6	3	3	25	75	100	
			Prose, Drama, History of Hindi Literature –II & Grammar - 2								
			Poetry, Textual Grammar and Alakara								
			Communication in French –II								
	II	English Language Course – II(ELC)	Functional Grammar for Effective Communication –II	19UE2	6	3	3	25	75	100	
	III	Core Course – III (CC)	Analytical Geometry and Vector Calculus	20UMA2CC3	6	6	3	25	75	100	
				First Allied Course – II (AP)	Mathematical Statistics- II (Practical)	19UMA2AC1P	5	3	3	40	60
First Allied Course – III (AC)						Mathematical Statistics-III	19UMA2AC2	5	3	3	25
IV	Environmental Studies	Environmental Studies	21UGES	2	2	3	25	75	100		
V	Extra Credit Course	Swayam Online Course	To be fixed Later	As Per UGC Recommendations							
			TOTAL	30	20	-	-	-	600		

Sem	Part	Course	Course Title	Course Code	Ins.	Cred	Exam	Marks		Tot	
					Hrs		Hour	Int	Ext		
III	I	Language Course – III (LC) – Tamil*/Other Languages +#	Kappiyamum Naadagamum	19ULT3/ 19ULH3/ 19ULS3/ 19ULF3	6	3	3	25	75	100	
			Medieval, Modern Poem, Poetics & History of Hindi Literature – 3								
			Prose, Textual Grammar and Vakyarachana								
			Communication in French –III								
	II	English Language Course - III(ELC)	Reading and Writing For Effective Communication- I	19UE3	6	3	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)	Python Programming	21UMA3AC3	4	4	3	25	75	100
			Second Allied Course – II (AP)	Python Programming LAB	21UMA3AC2P	2	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 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	19ULC3ST1							
	V	Extra Credit Course	Swayam Online Course	To be fixed Later	As Per UGC Recommendations						
	TOTAL					30	24	-	-	-	700

Sem	Part	Course	Course Title	Course Code	Ins.	Credit	Exam Hours	Marks		Total	
					Hrs			Int	Ext		
IV	I	Language Course – IV(LC) - Tamil*/Other Languages +#	Pandaiya Ilakkiyam	19ULT4/ 19ULH4/ 19ULS4/ 19ULF4	6	3	3	25	75	100	
			Letter Writing, Precise Writing, General Essays, Technical Terms, Proverbs, Amplifications, Idioms & Phrases, History of Hindi Literature – 4								
			Drama, History of Drama Literature								
			Communication in French –IV								
	II	English Language Course – IV(ELC)	Reading and Writing For Effective Communication- II	19UE4	6	3	3	25	75	100	
	III	Core Course – VI (CC)	Sequences and Series	19UMA4CC6	6	5	3	25	75	100	
			Core Course – VII (CC)	Methods in Numerical Analysis	19UMA5CC10-R	4	3	3	25	75	100
			Second Allied Course – III (AC)	Internet of Things	21UMA4AC4	4	3	3	25	75	100
			Skill Based Elective-I (SBE)	Introduction to R	19UMA5SBE1A-R	2	2	3	40	60	100
	Introduction to Statistical Tools and Techniques – SPSS	19UMA5SBE1B-R									
	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	Extra Credit Course	Swayam Online Course	To be fixed Later	As Per UGC Recommendations							
TOTAL					30	21	-	-	-	700	

Sem	Part	Course	Course Title	Course Code	Ins.	Credit	Exam	Marks		Total	
					Hrs		Hours	Int	Ext.		
V	III	Core Course – VIII (CC)	Abstract Algebra	19UMA5CC7	6	5	3	25	75	100	
		Core Course – IX (CC)	Real Analysis	19UMA5CC8	5	5	3	25	75	100	
		Core Course – X (CC)	Statics	19UMA5CC9	5	4	3	25	75	100	
		Major Based Elective-I	Discrete Mathematics	19UMA4MBE1A-R	4	3	3	25	75	100	
			Automata Theory	19UMA4MBE1B-R							
			Essentials of Data Science	21UMA5MBE1C							
		Major Based Elective- II	Fuzzy Set Theory and its Applications	21UMA5MBE2A	4	3	3	25	75	100	
			Astronomy	19UMA6MBE3B-R							
			Artificial Intelligence	21UMA5MBE2C							
	Skill Based Elective-II	Statistical Tools and Techniques – R Programming (Practical)	19UMA5SBE2AP	2	2	3	40	60	100		
		Statistical Tools and Techniques – SPSS (Practical)	19UMA5SBE2BP								
	IV	Skill Based Elective -III	LaTeX (Practical)	19UMA6SBE3AP-R	2	2	3	40	60	100	
			Numerical methods with MATLAB Programming (Practical)	21UMA5SBE3BP							
			UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100
		V	Extra credit course	Swayam Online Course	To be fixed Later	As per UGC Recommendations					
		TOTAL			30	26	-	-	-	800	

Sem	Part	Course	Course Title	Course Code	Ins.	Credit	Exam	Marks		Total
					Hrs		Hours	Int	Ext.	
VI	III	Core Course – XI (CC)	Linear Algebra	19UMA6CC11	5	5	3	25	75	100
		Core Course – XII (CC)	Complex Analysis	19UMA6CC12	6	5	3	25	75	100
		Core Course – III (CC)	Dynamics	19UMA6CC13	5	5	3	25	75	100
		Core Course – XIV (CC)	Operations Research	19UMA6CC14	5	4	3	25	75	100
		Major Based Elective-III	Graph Theory	19UMA6MBE2A-R	4	3	3	25	75	100
			Mathematical Modelling	21UMA6MBE3B						
			Fundamentals of Big Data Analytics	21UMA6MBE3C						
		Major Based Elective-IV	Probability and Queuing Theory	21UMA6MBE4A	4	3	3	25	75	100
			Number Theory	19UMA6MBE2B-R						
			Web Technology	21UMA6MBE4C						
	V	Extension Activities	Extension Activities	-	1	-	-	-	-	
		Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100
TOTAL					30	27	-	-	-	700
GRAND TOTAL					180	140	-	-	-	4100

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	-	4	
Environmental Studies	-	1	
Universal Human Values	-	1	
Professional Skills	-	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
1. Theory	25	75
2. Practical	40	60
3. 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]

2021-2022
I SEMESTER
SYLLABUS

CORE COURSE-I (CC)
DIFFERENTIAL CALCULUS AND TRIGONOMETRY
2019-2020 Onwards

Semester - I	DIFFERENTIAL CALCULUS AND TRIGONOMETRY	Hours/Week – 5	
CORE COURSE-I		Credits – 5	
Course Code – 19UMA1CC1		Internal 25	External 75

Objectives:

- To inculcate the basics of differentiation and their applications.
- To introduce the notion of curvature, Evolutes and Involutives in polar co-ordinates.
- To understand the basic concepts of Trigonometry.

Course Outcome:

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Explain the basic concepts of differentiation, extreme functions of two variables.	K3
CO2	Apply the concept of differentiation for explaining curvature.	K3
CO3	Distinguish the trigonometric functions, related problems.	K3
CO4	Associate various types of hyperbolic and inverse hyperbolic functions and Solve problems in summation of trigonometric series.	K4
CO5	Examine the conceptual understanding and fluency with trigonometric functions, techniques and manipulations necessary for success in calculus.	K4

Mapping with Programme Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	S	S
CO2	M	S	S	M	S
CO3	S	S	M	M	S
CO4	S	S	M	M	S
CO5	M	M	S	S	M

S-Strong, M-Medium, L-Low

CORE COURSE-I (CC)
DIFFERENTIAL CALCULUS AND TRIGONOMETRY
SYLLABUS

UNIT I

Successive Differentiation: The n^{th} derivative – Standard results – Trigonometrical transformation – Formation of equations involving derivatives – Leibnitz formula for the n^{th} derivative of a product – A complete formal proof by induction.

Meaning of the Derivative: Geometrical interpretation – Meaning of the sign of the differential coefficient. Maxima and Minima of functions of two variables.

UNIT II

Curvature – Circle, radius and centre of curvature – Cartesian formula for the radius of curvature – The coordinates of the centre of curvature – Evolute and Involute - Radius of curvature when the curve is given in polar coordinates.

UNIT III

Expansions of $\cos n\theta$ and $\sin n\theta$ – Expansion of $\tan n\theta$ in powers of $\tan \theta$ – Expansion of $\tan(A + B + C + \dots)$ (omitting examples on formation of equations) - Powers of sines and cosines of θ in terms of functions of multiples of θ – Expansion of $\sin^n \theta$ and $\cos^n \theta$ when n is a positive integer– Expansions of $\sin \theta$ and $\cos \theta$ in a series of ascending powers of θ .

UNIT IV

Hyperbolic functions – Relation between hyperbolic functions – Inverse hyperbolic functions.

UNIT V

Logarithms of complex quantities - To find the logarithm of $x + iy$ – General value of logarithm of $x + iy$ – Summation of Trigonometrical Series – Method of differences – Some of series of n angles in arithmetic progression – Sum of cosines of n angles in arithmetic progression – Gregory's series.

TEXT BOOKS:

S.No	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	S. Narayanan, T. K.Manicavachagom Pillay	Calculus, Volume I	S. Viswanathan (Printer & publishers), Pvt Ltd	2015
2.	S. Narayanan, T. K.Manicavachagom Pillay	Trigonometry	S. Viswanathan (Printer & publishers), Pvt Ltd	2013

CHAPTERS AND SECTIONS:

UNIT	CHAPTER	SECTIONS
I	3	1.1 – 1.6 [1]
	4	2.1 & 2.2 [1]
	8	4 & 4.1[1]
II	10	2.1 - 2.6 [1]
III	3	1, 2, 3, 4, 4.1, 5 & 5.1 [2]
IV	4	1, 2, 2.1 - 2.3 [2]
V	5	5, 5.1, 5.2 [2]
	6	1, 2, 3.1 [2]

REFERENCE BOOKS:

S.No	Authors Name	Title of the book	Publishers Name	Year of Publication
1.	S. Arumugam and Issac	Calculus, Volume I	New Gamma Publishing House	1991
2.	S. Narayanan, T.K. Manichavasagam Pillai	Trigonometry	S. Viswanathan Pvt Limited and Vijay Nicole Imprints Pvt Limited	2004
3.	A.Singaravelu and R.Rama	Differential Calculus and Trigonometry	R publications, Nagapattinam	2003

Pedagogy:

Power point presentation, Group Discussion, Seminar, Quiz, Assignment.

CORE COURSE-II (CC)
INTEGRAL CALCULUS AND FOURIER SERIES
2019-2020 Onwards

Semester - I	INTEGRAL CALCULUS AND FOURIER SERIES	Hours/Week – 6	
CORE COURSE-II		Credits – 5	
Course Code – 19UMA1CC2		Internal 25	External 75

Objectives:

- To inculcate the basics of Integration and their applications.
- To introduce the order of Integration, Triple Integrals, Beta and Gamma functions.
- To understand the basic concepts of Fourier series.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Apply the concepts of double, triple integrals.	K3
CO2	Distinguish the concepts of Beta and Gamma functions.	K3
CO3	Apply the concepts of half range Fourier series for solving problems necessary for success in calculus.	K3
CO4	Associate various types of Fourier series for solving problems.	K4
CO5	Evaluate the types of integration.	K5

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	S
CO5	S	M	S	S	M

S - Strong, M - Medium, L - Low

CORE COURSE-II (CC)
INTEGRAL CALCULUS AND FOURIER SERIES
SYLLABUS

UNIT I

Integration: Integration of rational algebraic functions $\frac{lx + m}{ax^2 + bx + c} dx$ - Integration of Irrational functions $\frac{px + q}{\sqrt{ax^2 + bx + c}} dx$ - Any expression of the form $\frac{dx}{(x + k)\sqrt{ax^2 + bx + c}}$ - $\frac{dx}{a + b \cos x}$ (Integration of these types only)

UNIT II

Multiple Integrals: Definition of the double integral - Evaluation of the double Integral- Triple Integrals.

UNIT III

Improper Integrals: Beta and Gamma functions: Definitions - convergence of (n) - Recurrence formula of gamma functions - Properties of Beta functions - Relation between Beta and Gamma functions -Definite integrals using Gamma functions.

UNIT IV

Fourier Series- Definition - Fourier Series expansion of periodic functions with period 2 - Even and Odd functions.

UNIT V

Half-Range Fourier Series - Definition - Development in cosine series and sine series – Change of Interval - Combination of Series.

TEXT BOOKS:

S.No	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	S. Narayanan, T.K.Manicavachagam Pillai.	Calculus Vol II	S. Viswanathan (Printer & publishers), Pvt Ltd	2015
2.	S. Narayanan, T.K.Manicavachagam Pillai.	Calculus Vol III	S. Viswanathan (Printer & publishers), Pvt Ltd	2014

CHAPTERS AND SECTIONS:

UNIT	CHAPTER	SECTIONS
I	7	7.3 (Type II)[1]
	8	Case II and case V[1]
	9	Full [1]
II	5	2.1, 2.2 & 4 [1]
III	7	2.1-2.3, 3 to 5 [1]
IV	6	1, 2, 3 [2]
V	6	4, 5.1, 5.2, 6, 7 [2]

REFERENCE BOOKS:

S.No	Authors Name	Title of the book	Publishers Name	Year of Publication
1.	Shanti Narayan	Integral Calculus	S.Chand & Company Ltd	2002
2.	Shanti Narayan & P.K.Mittal	Integral Calculus	S.Chand & Company Ltd	2008
3.	U.P.Singh, R.J.Srivastava & N.H.Siddiqui	Integral Calculus	Wistom Press	2011
4.	J.K.Goyal & K.P.Gupta	Laplace and Fourier Transforms	Pragati Prakashan	2009

Pedagogy:

Power point presentation, Group Discussion, Seminar, Quiz, Assignment.

FIRST ALLIED COURSE-I (AC)
MATHEMATICAL STATISTICS – I
2019-2020 Onwards

Semester – I	MATHEMATICAL STATISTICS – I	Hours/Week – 5	
FIRST ALLIED COURSE-I		Credits – 3	
Course Code – 19UMA1AC1		Internal 25	External 75

Objectives:

- To learn the basic concepts of statistics.
- To learn the basic ideas of statistical tools.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Describe the concept of probability theory and identify applications in real situations.	K2
CO2	Explain the derivation of moment generating function, characteristic function, probability generating function and the proof of Chebychev’s inequality with its applications.	K2
CO3	Compute the index numbers by different types of methods.	K3
CO4	Define and Classify the two dimensional random variables.	K3
CO5	Interpret the various properties of expectation, variance and The concept of covariance.	K3
CO6	Distinguish between a discrete and a continuous random variable.	K4

Mapping with Programme Outcomes:

COs/ POs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	M	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

FIRST ALLIED COURSE-I (AC)
MATHEMATICAL STATISTICS – I
SYLLABUS

UNIT I

Theory of probability : Introduction – Short History – Definitions of Various Terms – Mathematical or Classical or ‘a Priori’ Probability – Statistical or Empirical Probability – Mathematical Tools: Preliminary Notion of sets – Sets and Elements of Sets – Operations on Sets – Algebra of Sets - Axiomatic approach to Probability – Random Experiment (Sample Space) – Event – Some Illustrations – Algebra of Events – Probability : Mathematical Notion – Probability Function – Laws of Addition of Probabilities – Extension of General Law of Addition of Probabilities – Law of Multiplication or Theorem of Compound Probability – Extension of Multiplication Law of Probability – Independent Events – Pair wise Independent Events – Mutually Independent Events – Baye’s theorem.

UNIT-II

Random Variables and Distribution Functions : Random Variable – Distribution Functions – Properties of Distribution Function – Discrete Random Variable – Probability Mass Function – Discrete Distribution Function – Continuous Random Variable – Probability Density Function – Various Measures of Central Tendency, Dispersion, Skewness and Kurtosis for Continuous Probability Distribution Function – Continuous Distribution Function – Joint Probability Mass Function and Marginal and Conditional Probability Function – Joint Probability Distribution Function – Joint Density Function, Marginal Density Function - Independent Random Variables – The Conditional Distribution Function and Conditional Probability Density Function.

UNIT-III

Mathematical Expectation – Addition Theorem of Expectation – Multiplication Theorem of Expectation – Co-variance – Expectation of a Linear Combination of Random Variables – Variance of a Linear Combination of Random Variables – Expectation of a Continuous random variable – Conditional Expectation and Conditional Variance.

UNIT-IV

Moment Generating Function – Theorems on moment Generating Functions– Cumulants– Additive Property of Cumulants – Effect of Change of Origin and Scale of Cumulants – Characteristic Function – Properties of Characteristic Functions – Uniqueness Theorem of Characteristic Functions – Chebychev’s Inequality – Weak Law of Large Numbers– Bernoulli’s Law of Large Numbers.

UNIT-V

Index numbers : Introduction – Meaning – Definition – Characteristics – Uses – Types of Index Numbers – Problems in the Construction of Index Numbers – Choice of Formula – Notations – Unweighted Index Numbers – Weighted Index Numbers – Quantity Index Numbers – Test of Consistency of Index numbers – Chain Base Method – Conversion of Chain Index into Fixed Index – Base Shifting – Splicing two Index Number Series – Deflating Index Numbers – Consumer Price Index – Meaning and Need – Uses – Construction of Consumer Price Index – Method of Constructing Consumer Price Index numbers – Aggregate Expenditure method – Family Budget method – Limitations of Index Numbers.

TEXT BOOKS:

S.No	Authors Name	Title of the Book	Publishers Name	Year of Publication
1.	S.C.Gupta & V.K.Kapoor	Elements Of Mathematical Statistics	Sultan Chand & Sons, New Delhi	2004
2.	R.S.N.Pillai & Bhagavathi	Statistics, Theory And Practice	S.Chand & Sons, New Delhi	2008

CHAPTERS AND SECTIONS:

UNIT	CHAPTER	SECTIONS
I	4	4.1 to 4.8 [1]
II	5	5.1 to 5.5.5 [1]
III	6	6.1 to 6.8 [1]
IV	6	6.9 to 6.13.1 [1]
V	14	Full [2]

REFERENCE BOOKS:

S.No	Authors Name	Title of the book	Publishers Name	Year of Publication
1.	S.C.Gupta & V.K.Kapoor	Fundamentals Of Mathematical Statistics	Sultan Chand & Sons.	2015
2.	T.Veerarajan	Probability, Statistics And Random Processes	Tata McGraw Hill education Private Limited	2010
3.	G.S.S.Bhisma Rao	Probability And Statistics	Scitech Publications (India) Pvt. Ltd	2011

Pedagogy:

Power point presentation, Group Discussion, Seminar, Quiz, Assignment.

ANNEXURE - J

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
NATIONALLY ACCREDITED (III CYCLE) WITH "A" GRADE BY NAAC
ISO 9001:2015 Certified
TIRUCHIRAPPALLI – 18

PG DEPARTMENT OF PHYSICS



B.Sc., PHYSICS SYLLABUS



MINUTES OF THE VIRTUAL BOARD OF STUDIES MEETING OF PG DEPARTMENT OF PHYSICS, CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS) HELD ON SATURDAY, MAY 29, 2021 @ 10.00 A.M.

The following members attended the meeting:

(1) Dr. T. R. Seshadri	Subject Expert
(2) Dr. R. Nagalakshmi	Subject Expert
(3) Mrs. A. Santhakumari	Industrial Expert
(4) Mrs. C. Mercy Gnana Malar	Alumna
(5) Dr. S. Gowri	Member
(6) Dr. R. Meenakshi	Member
(7) Dr. R. Gayathri	Member
(8) Ms. S. Priya	Member
(9) Ms. D. Devi	Member
(10) Ms. A. Mary Girija	Member
(11) Dr. K. Kannagi	Member
(12) Ms. N. Manopradha	Member
(13) Ms. RA.Kiruthika	Member
(14) Dr. B. Anitha	Member
(15) Ms. J. Aarthi	Member
(16) Dr. M. Kavimani	Member
(17) Ms. T. Noorunnisha	Member
(18) Ms. R. Mekala	Member

The leave of absence was granted to Dr. G. Maheswari, Chairperson&Head and Prof.S. Rajasekar, Subject Expert, Bharathidasan University, Tiruchirappalli.

The Agenda for the meeting was as follows:

1. ITEM NO. BOS/05/01

To Consider and approve the Syllabus of Core Course, Major Based Elective-II and Major Based Elective-III of B.Sc., Physics Programme (2019-2020 batch and onwards) for Semester-VI and recommend to Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli.

2. ITEM NO. BOS/05/02

Appreciation of Board of studies members who contributed to prepare the syllabus.

3. ITEM NO. BOS/05/03

Any other item with the permission of chair.

Dr. S. Gowri, Associate Professor, PG Department of Physics extended the warm welcome to the members. Discussions based on the agenda were carried out.

ITEM NO. BOS/05/01

To Consider and approve the Syllabus of Core Course, Major Based Elective-II and Major Based Elective-III of B.Sc., Physics Programme (2019-2020 batch and onwards) for Semester-VI and recommend to Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli.

The committee members discussed and approved the syllabus of Core Course, Major Based Elective-II, and Major Based Elective-III of B.Sc., Physics Programme (2019-2020 batch and onwards) for Semester-VI with some minor modifications.

Suggestions made during the Discussion:

The following changes have been recommended by the committee with regard to *Core Course-IX Classical and Quantum Physics*

- In Unit-III the topics, Electron microscope and Gamma ray microscope has been Excluded.
- In Unit-V the topics, operators and their properties has been Excluded.
- The book of Quantum mechanics theory and Applications by Ajoy Ghatak and S.Loganathan has been included as text book
- The text book of Concept of Modern Physics by Arthur Beiser has been removed from the reference books and the text of book of Quantum Mechanics by Leonard I. Schiff has been included.
- The instructional hours has been changed to 20 hrs for Unit-III and 16 hours for Unit-V as per the suggestion given by the subject expert Prof. T.R.Seshadri.

The following changes have been recommended by the committee with regard to *Major Based Elective-II Computational Physics*

- It has been suggested to use one computational technique in unit-III and Unit-IV

The following changes have been recommended by the committee with regard to *Major Based Elective-III Medical Physics*

- In Unit III-Medical Imaging Techniques, it has been suggested to include the introductory ideas of functional MRI.
- It has been suggested to include the following books, Biomedical engineering by Atheena Millagi Pandian S, Biomedical Fresher by Atheena Pandian and Biomedical Engineering: Bridging Medicine and Technology by W.Mark Saltzmann as reference books.

The following changes have been recommended by the committee with regard to *Major Based Elective-III Astrophysics and Cosmology*

- Few topics in Unit-IV and Unit-V have been excluded as per the suggestion given by the subject Expert Prof. T.R.Seshadri.
- IGNOU PHE-15 Astronomy and Astrophysics has been included as text book.

“Resolved that the Syllabus of Core Course, Major Based Elective-II, and Major Based Elective-III of B.Sc., Physics Programme (2019-2020 batch and onwards) for Semester-VI be approved & recommended to Academic Council, Cauvery College for Women (Autonomous) for further action”.

ITEM NO.BOS/05/02

Appreciation of Board of studies members who contributed to prepare the syllabus

Dr.S.Gowri, Associate Professor, reported the members about the efforts of all the members of Board of studies to prepare the syllabus of Semester-VI of B.Sc., Physics Programme for the academic year (2019-2020 Batch and onwards)

It was resolved as under,

“Resolved that the Appreciation of Board of studies members who contributed to prepare the syllabus be noted”

ITEM NO.BOS/05/03

There being no other matter, the meeting was concluded with a vote of thanks to the chair.

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TIRUCHIRAPPALLI – 18

PG DEPARTMENT OF PHYSICS



B.Sc., PHYSICS SYLLABUS
SEMESTER – VI

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
B.Sc., PHYSICS PROGRAMME STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2019-2020 onwards)

Sem	Part	Course	Title	Course code	Inst Hrs/week	Credit	Exam Hrs	Marks		Total	
								Int	Ext		
V	III	Core Course-V (CC)	Optics	19UPH5CC5	5	5	3	25	75	100	
		Core Course-VI (CC)	Atomic and Nuclear Physics	19UPH5CC6	5	5	3	25	75	100	
		Core Course-VII (CC)	Analog Electronics	19UPH5CC7	6	5	3	25	75	100	
		Core Practical- V (CP)	Physics Practical-V	19UPH5CC5P	3	3	3	40	60	100	
		Major Based Elective-I	Materials Science	19UPH5MBE1A	5	5	3	25	75	100	
	Laser Physics		19UPH5MBE1B								
	IV	Skill Based Elective-II	Physics Concepts through 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							
		UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100	
	V	Extra Credit Course	Swayam Online Course	To be fixed later	As per UGC Recommendations						
	Total					30	29				800

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
B.Sc., PHYSICS PROGRAMME STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2019-2020 onwards)

Sem	Part	Course	Title	Course code	Inst Hrs/ week	Credit	Exam Hrs	Marks		Total
								Int	Ext	
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	
	V	Gender studies	Gender Studies	19UGGS	1	1	3	25	75	100
Extension Activities		Extension Activities	19UGEA	-	1	-	-	-	-	
Total					30	27				700

Semester-VI	DIGITAL ELECTRONICS & MICROPROCESSOR FUNDAMENTALS	Hours/Week-6	
Core Course – VIII		Credits-5	
Course Code-19UPH6CC8		Internal 25	External 75

Objectives

- To acquire knowledge of the basic Logic gates and its combinational circuits.
- To understand the fundamentals of microprocessor programs.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Classify different number system	K2
CO2	Analyze different methods used for simplification of Boolean expressions.	K3
CO3	Develop Combinational logic circuits.	K3
CO4	Develop synchronous and asynchronous sequential circuits.	K3
CO5	Utilize the knowledge of programming concepts of 8085 for various applications.	K4

Mapping with Programme Outcomes

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

S-Strong; M-Medium; L-Low

CORE COURSE – VIII

DIGITAL ELECTRONICS & MICROPROCESSOR FUNDAMENTALS

Unit-I: Digital Electronics Fundamentals **20 hrs**

Number Systems – Binary, Decimal, Hexa Decimal -Conversion from one number system to another - BCD code - Logic gates - AND, OR, NOT gates and its truth tables-NAND and NOR gates - Universal building blocks - Binary addition-subtraction-multiplication and division-complement- subtraction by 1's and 2's complement forms.

Unit-II: Simplification of Logic Circuits **15hrs**

Rules and laws of Boolean algebra - Demorgan's Theorems – Standard sum of product and product of sum forms –Min term and Max terms - Simplification of Boolean Expressions using Boolean Rules -Minimization Techniques for Boolean Expressions using Karnaugh Map(2,3 and 4 variables).

Unit-III: Combinational Circuits: **15 hrs**

Half adder- full adder- Half subtractor - Full subtractor - 4-bit adder/subtractor- Decoder - Encoder Multiplexer - Demultiplexer - A/D conversion – Successive approximation method – D/A conversion – R-2R ladder network.

Unit-IV: Sequential Logic Circuits **20hrs**

Flip Flops: Introduction to Sequential Circuits -Flip Flops – RS Flip Flop – Clocked RS Flip Flop D Flip Flop – JK Flip Flop – T Flip Flop – Triggering of Flip Flops – Master Slave Flip Flop

Shift Registers: Introduction to shift registers-Basic Shift Register Operations-Types of shift registers - SISO – SIPO – PIPO – PISO- Applications of Registers.

Counters: Introduction to counters -Types of Counters-Asynchronous and synchronous counters –Ring counter-Johnson's counter –Ripple counter-4 Bit Binary Up/Down counter-BCD counter-Applications of counters.

Unit-V: Microprocessor (INTEL 8085) **20 hrs**

Introduction to microprocessor and microcomputer – Architecture of Intel 8085 – Address bus – Data bus – Control bus – Pin configuration – Flags – Instruction format – Types of instructions – Addressing modes – Assembly language programming – Programmes for addition, subtraction, complement- Largest and smallest from the given list- Ascending and Descending Order.

Textbooks

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Donald P Leach, Albert Paul Malvino and Goutam Saha	Digital principles and applications	McGraw-Hill Inc, US	1995	7 th Edition
2.	V. Vijayendran	Digital fundamentals	S. Viswanathan Printers and Publishers Pvt. Ltd	2003	1 st Edition
3.	Virendra Kumar	Digital electronics Theory and Experiments	New Age International Publishers	2007	2 nd Edition
4.	B.Ram	Fundamentals of Microprocessor and Microcomputers	Dhanpat Rai Publications, New Delhi	1986	5 th Edition

Reference books

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Jacob Millman and Christo Halkias, Chetan D Parikh	Integrated Electronics	Mc. Graw Hill	2001	2 nd Edition
2.	Herbert Taub and Donald Schilling	Digital integrated electronics	Mc. Graw Hill	1977	2 nd Edition
3.	Ramesh S.Gaonkar	Microprocessor Architecture Programming, And Applications with the 8085.	Pearson Education	1984	5 th Edition

Pedagogy

Chalk and talk, Group Discussion, Seminar, Assignment, Power Point Presentation.

Course Designer

Ms.D.Devi

Semester-VI	CLASSICAL AND QUANTUM PHYSICS	Hours/Week-6	
Core Course – IX		Credits-5	
Course Code-19UPH6CC9		Internal 25	External 75

Objectives

- To expose the students to the fundamentals of Theoretical Physics
- To provide the students with knowledge of the applications of Quantum Physics

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO 1	Define the concepts of Conservation Laws for a single particle, D'Alembert's Principle, Lagrange's equation and its applications.	K1
CO 2	Relate the different concepts of Hamilton's equation of motion.	K2
CO 3	Classify the types of classical concepts and explain the De Broglie's matter waves.	K2
CO 4	Identify the basic postulates of quantum mechanics.	K3
CO 5	Develop the knowledge about solvable quantum states.	K3

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	S	M	M
CO4	S	M	M	M	M
CO5	S	S	M	M	M

S – Strong; M – Medium; L – Low

CORE COURSE – IX

CLASSICAL AND QUANTUM PHYSICS

Unit – I: Elementary Principles of Classical Mechanics **18 hrs**

Newtonian mechanics: Conservation laws for a single particle and a system of particles – Types of constraints – Generalized coordinates – D'Alembert's principle and Lagrange's equation of motion – Applications to : (a) Motion of one particle, (b) Atwood's machine and (c) bead sliding on rotating wire.

Unit – II: Hamiltonian Formalism **18 hrs**

Variational principle and derivation of Hamilton's equation of motion – Principle of least action – Phase space – cyclic coordinates – conservation theorems: generalized momenta and energy.

Unit – III: Genesis of quantum transition **20 hrs**

Inadequacy of classical concepts: Black body radiation - Planck's hypothesis – Photoelectric effect – Compton effect – de Broglie's hypothesis – matter waves – wave length, wave velocity and group velocity – Experimental evidences for de Broglie's matter waves: Davison and Germer experiment – G.P. Thomson's experiment – Heisenberg's uncertainty Principle.

Unit – IV: Basic formalism of quantum mechanics **18 hrs**

Setting of Schrodinger wave equation – Plane wave solution - Probability interpretation of ψ and conditions on wave equation – Eigenfunctions and eigenvalues – Expectation values Linear and hermitian operators and their properties - Postulates of quantum mechanics - Ehrenfest's theorem.

Unit – V: Exactly solvable systems **16 hrs**

Free particle - Linear harmonic oscillator – Particle in a box – Rectangular barrier potential and tunnel effect – Rigid rotator – Hydrogen atom.

Text books

S. No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	S.L. Gupta, V. Kumar and H.V.Sharma	Classical Mechanics	S.Chand & Company Ltd	2012	Revised
2.	R. Murughesan	Modern Physics	S. Chand & Company Ltd, New Delhi	2016	Revised
3.	G. Aruldas	Classical Mechanics	PHI Publisher	2008	Revised

Reference books

S. No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1	Ajoy Ghotak and S. Loganathan	Quantum Mechanics: Theory and Applications	Mc.Graw Hill	1999	6 th
2	H.Goldstein	Classical Mechanics	Narosa Book distributors, New Delhi	1980	Revised
3	N.C.Rana and P.S.Joag	Classical Mechanics	Tata Mc. Graw Hill, New Delhi	1991	Revised
4	P M. Mathews and K. Venkatesan	A Text Book of Quantum Mechanics	Tata Mc.Graw Hill, New Delhi	1987	Revised

Pedagogy

Lecture, Seminar, Interaction, Assignment, Power Point Presentation.

Pedagogy

Dr. M. Kavimani

Semester - VI	PHYSICS PRACTICAL - VI	Hours/Week - 5	
Core Practical – VI		Credit - 3	
Course Code - 19UPH6CC6P		Internal 40	External 60

Objectives

- To apply the theoretical knowledge of Digital electronics and Microprocessor through hands on learning experience.
- To enhance the problem solving skills in Digital electronics and Microprocessor

Course Outcomes

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

CO Number	CO statement	Knowledge level
CO 1	Apply the Microprocessor concept mathematical to obtain quantitative results for arithmetic progression	K1
CO 2	Demonstrate the Basic and the Universal gates	K2
CO 3	Construct and analyses the concepts of multiplexers, shift registers and counters.	K3
CO 4	Apply the concepts of digital electronics and verify the results	K3

Mapping with Programme Outcomes

CO's	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	M
CO2	S	S	M	S	M
CO3	S	S	M	S	M
CO4	S	S	M	S	S

S–Strong; M–Medium; L–Low

CORE PRACTICAL – VI
PHYSICS PRACTICAL –VI

List of Experiments: Any Twelve

Section- A – Digital Electronics

1. AND, OR and NOT gates using IC's.
2. NAND as universal gate.
3. NOR as universal gate.
4. Half Adder and Full adder circuits using logic gates.
5. Half Subtractor and Full Subtractor circuits using logic gates.
6. Flip flops using gates.
7. Demorgan's theorem.
8. BCD to 7 segment decoder- 7segment Led display.
9. Digital to analog converter.
10. Analog to digital converter.

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 system.
4. Conversion from hexadecimal to decimal system.

Text Books

S.No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1	Dr.S.Somasundaram	Practical Physics,	Apsara publications Tiruchirapalli	2012.	Reprint
2	Department of Physics	Practical Physics	(B.Sc Physics Main), St. Joseph's College, Tiruchirapalli.	1998	Reprint

Reference Books

S.No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1	S.Srinivasan, S.Sultan	A Text Book of Practical physics	Chand publications	2005	Reprint
2	R. Sasikumar	Practical Physics	PHI Learning Pvt. Ltd	2011	Reprint

Pedagogy

Demonstration and practical sessions

Course Designers

- 1.Ms. S.Priya
- 2.Ms. A.Mary Girija

Semester-VI	COMMUNICATION PHYSICS	Hours/Week-5	
Major Based Elective – II		Credits – 5	
Course Code- 19UPH6MBE2A		Internal 25	External 75

Objectives

- To acquire knowledge in basic concepts of communication systems.
- To learn about function of various communication systems.

Course Outcomes

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

CO Number	CO statement	Knowledge level
CO1	Outline the basic concepts of modulation and demodulation	K1
CO2	Critique the ideas of radar system and its applications	K3
CO3	Predict the parameters such as total internal reflection, acceptance angle and numerical aperture in order to formulate the optical sensor	K3
CO4	Utilization of GSM, Cell, FAX, Modem and Wi-Fi in mobile communication system	K3
CO5	Design and analysis of satellite communication systems	K4

Mapping with Programme Outcomes

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

S–Strong; M–Medium; L–Low

MAJOR BASED ELECTIVE – II A

COMMUNICATION PHYSICS

UNIT- I: Radio Communication

16 hrs

Modulation – Need for modulation – Types of modulation – Modulation factor – Limitations of amplitude modulation – Frequency modulation – Comparison of AM and FM modulation – Demodulation – Essentials in demodulation – AM and FM radio receivers – Difference between FM and AM receivers.

UNIT-II: Radar Communication

13 hrs

Basic radar system – Radar range – Antenna scanning – Pulsed radar system – A-scope – Plan position indicator – Tracking radar – Moving target indicator – Doppler effect – MTI Principle – CW doppler radar – Frequency modulator CW Radar.

UNIT-III: Optical Fiber Communication

16 hrs

Structure of optical fiber – Principal and propagation of light in optical fiber – Total internal reflection – Acceptance angle – Numerical aperture – Types of optical fibers based on material – Number of modes – Refractive index profile – Fiber optical communication system – Fiber optic sensors.

UNIT- IV: Wireless Communication

15 hrs

GSM – Mobile services– Concept of cell – System architecture – Radio interface – Logical channels and frame hierarchy – Protocols – Localization and calling – Handover– Facsimile (FAX) – Application – VSAT (very small aperture terminals) – Modem – IPTV (internet protocol television) – Wi-Fi – 3G.

UNIT-V: Satellite Communication

15 hrs

Introduction to satellite communication system – Satellite orbits – Classification of satellites – Basic components of satellite communication – Constructional features of satellites – Satellite foot points – Satellite communication in India.

Text Books

S.No	Author name	Title of the book	Publisher name	Year of Publication	Edition
1.	Metha V.K	Principles of Electronics	S.Chand	2013	Reprint
2.	Anokh Singh and Chopra A.K	Principles of communication Engineering	S.Chand	2013	Reprint
3.	Mani I. P	A text book of Engineering Physics	Dhanam Publications	2014	Revised

Reference Books

S.No	Author name	Title of the book	Publisher name	Year of Publication	Edition
1.	Dennis Roddy, John Coolen	Electronic Communication	PHI	1990	3 rd Edition
2.	Gerd Keiser	Optical fiber communications	McGrw Hill	2000	Reprint
3.	William C.Y. lee	Cellular telecommunication	Tata Mcgraw hill	1991	2 nd Edition

Pedagogy

Lecture with Discussion, Power point presentation, Seminar, Assignment.

Course Designer

Dr. B. Anitha

Semester-VI	COMPUTATIONAL PHYSICS	Hours/Week-5	
Major Based Elective – II B		Credits – 5	
Course Code- 19UPH6MBE2B		Internal 25	External 75

Objectives

- To solve the problems in physics using computational methods using MAT Lab.
- To Learn Scientific Word Processing using programming tools for preparing articles, papers etc. which include mathematical equations, picture and tables.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	To understand the basic programming techniques in MATLAB.	K1
CO2	To address analytically intractable problem errors	K2
CO3	Create a user-interface graphics objects in MAT LAB	K2
CO4	To understand various numerical techniques	K2
CO5	To show how physics can be applied in a much broader context than discussed in traditional curriculum	K3

Mapping with Programme Outcomes

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

S – Strong; M – Medium; L – Low

MAJOR BASED ELECTIVE-II B COMPUTATIONAL PHYSICS

UNIT I: Need of Computational Tools

10hrs

Example of problems in physics requiring computational approach- Basic computer architecture and latest advancements - Introduction to MATLAB - MATLAB Features -Desktop windows- MATLAB help and demos - MATLAB Functions-operators and Commands-saving and Loading data.

UNIT – II: Error Analysis

15hrs

Need for error analysis-Definition of error - Absolute error - Relative error - Precision - Addition - Subtraction -Multiplication - Division - Error in numerical methods - Truncation error - Round off Errors - Error propagation in arithmetic operations - Error propagation in iterated algorithms - Methods for reducing error - Mean - Median - Mode - Standard deviation -Variance - Correlation.

UNIT – III: Matlab and Data Visualization

15hrs

Creation of arrays and matrices - Arithmetic Operations– Saving and Restoring- - Solution of simultaneous equations- MATLAB plot module – Import export data - Plotting graphs-1D plot – 2D plot – mesh – surf – 3D plots.

UNIT – IV: Numerical Methods using MAT Lab

15hrs

Roots of algebraic and transcendental equations – bisection method, Newton Raphson method- solution of simultaneous linear equations by Gauss elimination methods- Interpolation – Lagrangian interpolation-Newton’s interpolation-Numerical Integration: Trapezoidal, Simpson’s method

UNIT V - Applications in Physics using MAT Lab

20hrs

Calculate time period using Simple Pendulum -Verify Hooke’s Law - Falling object in one dimension - Two dimensional motion- Projectile motion - V-I Characteristics of Junction and Zener diode .

Text Books

S.No.	Authors	Title of the book	Year of Publication	Publisher name	Edition
1	Amos Gilat	MATLAB An introduction with Applications	2007	John Wiley & Sons	4 th Edition
2	Kincaid D. and Cheney W	Numerical Analysis: Mathematics of Scientific Computing	2009	AMS, University Press, Hyderabad	1 st Edition
3	Rizwann Butt	Introduction to Numerical Analysis using MATLAB	2008	Jones and Bartlett Publishers	1 st Edition
4	Sastry S.S	Introductory Methods of Numerical Analysis	2005	Prentice Hall of India	4 th Edition
5	V.K.Mittal, R.C.Verma & S.C.Gupta	Computational Physics	2009	ANE Books	1 st Edition

Reference Books

S.No.	Author name	Title of the book	Year of Publication	Publisher	Edition
1	Joel Franklin	Computational Methods for Physics	2018	Cambridge University Press	1 st Edition
2	Gupta, Agarwal and Varshney	Design And Analysis of Algorithms	2008	PHI Learning	2 nd Edition

Pedagogy

Chalk and talk, Group discussion and Seminars and Quiz

Course Designer:

Dr.R.Gayathri

Semester-VI	MEDICAL PHYSICS	Hours/Week-5	
Major Based Elective – III		Credits – 5	
Course Code- 19UPH6MBE3A		Internal 25	External 75

Objectives

- To gain knowledge in general concepts of human body mechanism.
- To understand the principles, features and applications of ECG, EMG and EEG

Course Outcomes

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

CO number	CO statement	Knowledge level
CO1	List out the importance of physics in medicine.	K1
CO2	Explain the concept of mechanics of a human body.	K2
CO3	Compare the principles of ECG EMG and EEG.	K2
CO4	Explain the production, types and application of lasers in medicine.	K2
CO5	Summarize the ultrasound imaging method and its application in medical field.	K2
CO6	Make use of medical imaging techniques in day today life.	K3

Mapping with Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	S
CO2	S	M	S	M	M
CO3	M	S	S	S	M
CO4	S	M	M	S	M
CO5	S	M	M	S	S
CO6	M	S	S	S	S

S-Strong; M-Medium; L-Low

MAJOR BASED ELECTIVE – III A

MEDICAL PHYSICS

UNIT - I: Mechanics of Human Body

15 hrs

Static, Dynamic and Frictional forces in the Body –Composition, properties and functions of Bone – Heat and Temperature – Temperature scales –Clinical thermometer –thermography –Heat therapy – Cryogenics in medicine– Heat losses from body – Pressure in the Body – Pressure in skull, Eye and Urinary Bladder.

UNIT- II: Medical Instrumentation

15 hrs

Measurements of Non electrical parameters-Respiration-heart rate-temperature-blood Pressure - Electrical activity of the heart-effect of electrified on cardiac muscles stimulation laws-Arhythmias its detection- principles of Electro cardiography, Electromyography-Electroencephalography- measurement and displaying and recording of ECG- features of EMG &EEG and their applications.

UNIT - III: Lasers in Medicine

15 hrs

Introduction to laser-principle and production of laser- effects of laser radiation on tissues, Different types of lasers- photo thermal effects, photochemical effects –photodynamic therapy, Laser applications in therapy and diagnosis-ophthalmology,Fibreoptic endoscopy and dentistry. Laser as a beautician's tool-laser hazards-biological effects,

UNIT- IV: Medical Imaging Techniques

15 hrs

X-ray imaging-properties of X -rays- Production of X-rays-Planar X-ray imaging-instrumentation- γ -ray imaging-principle and working of single crystal scintillation camera (gamma camera) Magnetic resonance imaging-Introduction-ideas of NMR-Advantages- Clinical MRI, MRI instrumentation-Biological effect of NMR.

UNIT- V: Ultrasound Imaging

15 hrs

Ultrasound imaging- generation and detection of ultrasound - Properties -reflection -Transmission - attenuation - Ultrasound Transducers, Ultrasound instrumentation Mechanical and electronic probes-probes for external and internal use-Principles of A-mode-B-mode-M-mode-Scanning. Hazards and safety of ultrasound.

Textbooks

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	J.R.Cameron and J.G.Skofonick	Medical Physics	John Wiley & Sons	1978	1 st Edition
2.	R .W Wayanant	Lasers in Medicine	Plenum	2001	1 st Edition
3.	S .Webb	The physics of medical imaging	Hilger	1988	2 nd Edition
4.	R. S Khandpur	Handbook of Biomedical Instrumentation	Tata McGraw-Hill	1997	3 rd Edition
5.	S.Atheena Milagi Pandian	Biomedical Engineering	Amazon	2019	1 st Edition
6.	W.Mark Saltzman	Biomedical Engineering	Cambridge University Press	2009	1 st Edition

Reference books

S.No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	O.Glasser	Medical Physics Volume 1-3	Chicago	1946	2 nd Edition
2.	Leslie Cromwell	Biomedical Instrumentation and measurement	Prentice hall of India	1999	2 nd Edition
3.	John G. Webster	Medical Instrumentation Application and Design	John Wiley and sons	1998	3 rd Edition

Pedagogy

Chalk and talk, Group Discussion, Seminar, Assignment, PPT.

Course Designer

Ms.A.Mary Girija

Semester-VI	ASTROPHYSICS AND COSMOLOGY	Hours/Week-5	
Major Based Elective – III		Credits – 5	
Course Code- 19UPH6MBE3B		Internal 25	External 75

Objectives

- To provide students with the basic knowledge about the theory and techniques of observational astronomy and physics of the astrophysical phenomenon.
- To Learn the the large scale structure of the Universe and its history

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Define the major constituents of the universe and planets	K1
CO2	Explain the stellar astronomy	K2
CO3	Analyse the milky way galaxy	K2
CO4	Analyse the clusters in galaxy	K2
CO5	Derive the Big bang theory	K3

Mapping with Programme Outcomes

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

S – Strong; M – Medium; L - Low

MAJOR BASED ELECTIVE-III B ASTROPHYSICS AND COSMOLOGY

UNIT I: Introductory astronomy 15hrs

History of Astronomy-Overview of the major constituents of the universe- Solar System-Planets - laws of motion of planets-inner planets- outer planets- Extra solar planets- Methods of detection of extra solar planets- Black body radiation-specific intensity- luminosity

UNIT II: Stellar astronomy 20hrs

Measurement of stellar Parameters: Stars-general Distances to stars - trigonometric parallax; Stellar brightness – luminosity- flux-apparent magnitude- magnitude system- distance modulus- colour index- extinction- colour temperature- effective temperature- spectral classification of stars.

Stellar structure: Equation of Hydrostatic equilibrium - Bounds on Pressure and temperature in stars. Basics of radiative transfer emission coefficient- absorption coefficient-source function.

UNIT III: Evolution of stars 15hrs

Stellar Evolution: General idea of Main sequence. Quantitative discussion on evolution away from Main sequence.

End Stage of Stars: White Dwarfs, Neutron stars- Estimating their Mass radii relation.

Binary stars : - visual binary, eclipsing binary - spectroscopic binary

UNIT IV: Galactic and Extragalactic astronomy 15hrs

Milky way- Hubble classification of galaxies-Spiral galaxies-Elliptical galaxies-Irregular galaxies- Dwarf galaxies-Masses of galaxies-Rotation curves of galaxies-Dark matter. Groups and clusters of galaxies- Interacting galaxies-

UNIT V: Cosmology 10hrs

Standard Candles (Cepheids and SNe Type1a), Cosmic Distance Ladder, Olbers Paradox, Hubble Expansion, Cosmological Principle, Newtonian Cosmology

Text Books

S.No.	Authors	Title of the book	Year of Publication	Publisher name	Edition
1	Shu F	The physical universe,	1982	Univ Science Book	1 st Edition
2	Bradley W. Carroll & Dale A. Ostlie	An introduction to Modern Astrophysics	2006	Pearson	2 nd Edition
3	IGNOU	Basics of Astronomy - IGNOU course book PHE-15 Astronomy and Astrophysics	2006	Neeraj Publications	1 st Edition

Reference Books

S.No	Author name	Title of the book	Year of Publication	Publisher	Edition
1	Harwit M.	Astrophysical concepts	2000	Springer	2 nd Edition
2	G. B. Rybicki & Lightman A. P.	Radiative processes in Astrophysics	1986	Wiley-VCH	2 nd Edition

Pedagogy:

Chalk and talk, Power Point Presentation, Group discussion and Seminars, Quiz

Course Designer:

Dr.R.Gayathri

ANNEXURE - K



**PG DEPARTMENT OF CHEMISTRY
MINUTES OF BOARD OF STUDIES**

The Virtual Board of Studies Meeting for the Department of Chemistry held on Friday, 28th May, 2021 at 11.00 AM via Google Meet.

The board of studies members considered and approved the curriculum and syllabus of VI Semester of III UG Chemistry Programme.

The following members attended the meeting:

- | | |
|-----------------------------------|--------------------------------------------|
| 1. Dr. P.Pungayee Alias Amirtham. | Head & Chairperson |
| 2. Dr. R.Thiruneelakandan | University Nominee, Anna University |
| 3. Dr. P.Prabhu | Subject Expert, Madras University |
| 4. Dr.V.Padmini | Subject Expert, Madurai Kamaraj University |
| 5. Ms. U.D. Lingeswari | Member Alumna |
| 6. Dr.G.Sivasankari | Member |
| 7. Ms. A.Sharmila | Member |
| 8. Ms. P. Thamizhini | Member |
| 9. Dr.V.Sangu | Member |
| 10. Dr. K. Shenbagam | Member |
| 11. Dr.C.Rajarajeswari | Member |
| 12. Dr. R.Subha | Member |
| 13. Ms.S.Jeevitha | Member |
| 14. Dr.K.Uma Sivakami | Member |

The leave of absence was granted to, Ms.T.Indhumathi, Industrial Expert

Minutes of the meeting of FIFTH BoS MEET- 28.05.2021

The Agenda for the meeting was as follows:

The Chairperson, BoS of the Chemistry welcomed the members of BoS for V Board of studies meeting and thanked each one of them for sparing their valuable time to attend the meeting.

1. ITEM NO. BoS/05/01

To consider and approve the Syllabus of Core Course, Major Based Elective-II, Major Based Elective- III, Core Practical-VI of III B.Sc. Chemistry (2019-2020 batch onwards) for VI semester and recommended to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

2. ITEM NO. BoS/05/02

To consider and approve the ratification in the Skill Based Elective II & III paper from theory to practical in V semester syllabus of III B.Sc. Chemistry (2019-2020 batch onwards) and recommended to the Academic Council, Cauvery College for Women (Autonomous),Trichy-18.

Meeting ends with vote of thanks by the chairperson of BoS,

The following Resolution were passed by the BoS members

Resolution No. BoS/05/01

To consider and approve VI Semester Syllabus for B.Sc., Chemistry

Suggestions made by the Panel members during the discussion:

- To rearrange the topics in Unit-I & Unit -V of Core Course – Organic Chemistry -II (19UCH6CC8)
- To reduce few topics in the Unit–I of Core Course IX – Physical Chemistry-II (19UCH6CC9).
- To include one more metal ion in the Core Practical-VI Course code -19UCH6CC6P

- To include The Essentials of Understanding Nanoscience and Nanotechnology, T.Pradeep, 2007, Tata Mc Graw Hill, New York, Book in Couse Code - 19UCH6MBE2B.

➤ To minor modifications in the Major based Elective Paper III Course code 19UCHMBE2A

➤ The members appreciated the content of the syllabus and it was resolved as under.

“Resolved that to consider and approve the Core structure and curriculum of VI Semester for B.Sc., Chemistry Programme”.

Resolution No. BoS/05/02

Board of Studies members considered and approved the ratification of Skill Based Elective II & III from theory to practical in the V semester of III B.Sc. Chemistry (2019-2020 Batch onwards).

“It was resolved to change the theory of Skilled Based Elective II & III papers to practical in the V semester of III B.Sc., Chemistry (2019-2020 batch onwards) and recommended to the Academic Council Cauvery College for Women (Autonomous), Trichy-18”.

The Board of Studies meeting was resolved and concluded by recommending the syllabus of VI Semester of B.Sc. Chemistry to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

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		
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 (P)	19UCH5SBE2AP	2	2	3	40	60	100	
			Dye Chemistry (P)	19UCH5SBE2BP							
		Skill Based Elective III	Water Treatment Technology (P)	19UCH5SBE3AP	2	2	3	40	60	100	
			Biofuels (P)	19UCH5SBE3BP							
		UGC Jeevan Kaushal Life Skills	Professional Skill	19UGPS	2	2	3	25	75	100	
	V	Extra Credit Course	SWAYAM ONLINE COURSE	To be fixed later	As per UGC Recommendation						
	Total					30	29				800

SKILL BASED ELECTIVE - II
CHEMISTRY OF CONSUMER PRODUCTS (P)
2019-2020 ONWARDS

Semester-V	CHEMISTRY OF CONSUMER PRODUCTS (P)	Hours/Week-2	
Skill Based Elective -II		Credit-2	
Course Code-19UCH5SBE2AP		Internal 40	External 60

Objectives

This skill based course provides

- Students the basic knowledge in Chemistry of consumer products and modern trends in the industry.
- To provide the practical training to the students in consumer product analysis

Course outcomes

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

CO	CO Statements	Knowledge Level
CO1	Know about Chemistry and modern trends in the industry.	K1
CO2	Identify the cations and anions present in the mixture	K1
CO3	Demonstrate the experimental methods of group separation	K2

Mapping with Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	S	M	S	M	S
CO3	S	S	S	S	M

S-Strong ; M- Medium

SEMESTER-V

CHEMISTRY OF CONSUMER PRODUCTS (P) 2019-2020 ONWARDS

01. Detection of adulterants in milk and milk products.
02. Detection of adulterants in oil
- 03, Detection of adulterants in spices and cardiments
04. Detection of adulterants in food products.
05. Estimation of food colors. (Colorimetric analysis)
06. Industrial visit – Report

Text Books

S. No.	Author's Name	Year of Publication	Title of the Book	Publishers
1.	Sally A. Henrie,	2015	Green Chemistry Laboratory Manual for General Chemistry	Press Taylor & Francis Group, and Informa Business.

Course Designers

- ❖ **Dr. G. Sivasankari**, Assistant Professor, Department of Chemistry.
- ❖ **Dr. R. Subha**, Assistant Professor, Department of Chemistry

SKILL BASED ELECEITIVE -II**DYE CHEMISTRY (P)****2019-2020 ONWARDS**

Semester-V	DYE CHEMISTRY (P)	Hours/Week-2	
Skill Based Elective -II		Credit-2	
Course Code- 19UCH5SBE2BP		Internal 40	External 60

Objectives

This skill based course provides

- To enhance the basic knowledge in application of dyes in industries and water treatment.
- To provide the practical training to the students in preparation of dyes for fabrication.

Course outcomes

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

CO	CO Statements	Knowledge Level
CO1	Identify the usages of dyes in industries	K1
CO2	Quantify the presence of dyes in the samples	K1
CO3	Demonstrate the experimental methods of preparation of dyes.	K2

Mapping with Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	S	M	S	M	S
CO3	S	S	S	S	M

S-Strong ; M- Medium

SEMESTER-V
DYE CHEMISTRY (P)
2019-2020 ONWARDS

A. Preparation of Dyes

i) Azo dye preparation by coupling reaction

ii) Indigo dye preparation

B. Separation of given mixture by chromatographic method.

C. Quantitative analysis

i) Determination of microbial count in milk using dyes.

ii) Determination of photocatalytic activity of biomass using cationic dye.

iii) Determination of concentration of dyes in given sample using spectrophotometer.

Textbooks

S. No.	Author's Name	Year of Publication	Title of the Book	Publishers
1.	James Park and John Shore	1993	Practical Dyeing (Volume 1-3)	Textile Apparel and Fashion
2.	B.K. Sharma	2006	Analytical chemistry	Krishnan Praksham Median Meerut.

Course Designers

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

❖ **Dr.K. Umasivagami**, Assistant Professor, Department of Chemistry

SKILL BASED ELECETIVE -III
WATER TREATMENT TECHNOLOGY (P)
2019-2020 ONWARDS

Semester-V	WATER TREATMENT TECHNOLOGY (P)	Hours/Week-2	
Skill Based Elective - III		Credit-2	
Course Code-19UCH5SBE3AP		Internal 40	External 60

Objectives

This skill based course provides

- Knowledge on the design of wastewater treatment.
- Maintain the outflow level of impurities from water and wastewater treatment plant
- Manage sewage disposal

Course outcomes

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

CO	CO Statements	Knowledge Level
CO1	Design the treatment unit for water treatment	K1
CO2	Identify the outflow level of impurities from water	K1

Mapping with Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	S	M	S	M	S

S-Strong ; M- Medium

SEMESTER-V
WATER TREATMENT TECHNOLOGY (P)
2019-2020 ONWARDS

1. Determination of alkalinity in water sample.
2. Determination of total, temporary & permanent hardness of water by EDTA Method
3. Determination of dissolved oxygen content of water sample by Winkler's method.
4. Determination of chemical oxygen demand (COD) of wastewater
5. Determination of chloride content of water sample by Argentometric method
6. Determination of oil and grease from wastewater.

Text Books

S. No.	Author's Name	Year of Publication	Title of the Book	Publishers
1.	P. C. Jaiswal	2014	Soil, Plant and Water Analysis	Kalyani Publishers
2.	Dr. R. K. Trivedy and P. K. Goel.	1984	Chemical and Biological Analysis of Water	Environmental publications

Course Designers

- ❖ **Dr. G. Sivasankari**, Assistant Professor, Department of Chemistry.
- ❖ **Dr. K. Shenbagam**, Assistant Professor, Department of Chemistry

SKILL BASED ELECETIVE -III**BIOFUELS (P)****2019-2020 ONWARDS**

Semester-V	BIOFUELS (P)	Hours/Week-2	
Skill Based Elective -III		Credit-2	
Course Code-19UCH5SBE3BP		Internal 40	External 60

Objectives

This skill based course provides knowledge on

- Techniques to extract the oil from plant material.
- Identifying the different fuel viscosity.
- Calculating the yield of sugar

Course outcomes

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

CO	CO Statements	Knowledge Level
CO1	Know about the techniques to extract oil from plant	K1
CO2	Evaluate fuel viscosity	K1
CO3	Calculate the yield of sugar and types	K2

Mapping with Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5
CO1	M	S	M	S	S
CO2	S	M	S	M	S
CO3	M	S	M	S	M

S-Strong ; M- Medium

**SEMESTER-V
BIOFUELS (P)
2019-2020 ONWARDS**

Any five from the following experiments

1. Extraction of oil from plant sources.
2. Determination of fuel viscosity.
3. Conversion of vegetable oil to biodiesel
4. Extraction of sugar from sugar beet
5. Identification of starch and determination of glucose concentration
6. Determination of non- reducing sugars.

Text Books

S. No.	Author's Name	Year of Publication	Title of the Book	Publishers
1.	P. C. Jaiswal		Practical biofuel activities for school engagement and outreach	www.bbsrc.ac.uk
2.	Gerhard Knothe, Jürgen Krahl, Jon Van Gerpen	2015	The Biodiesel Handbook, 2 nd Edition	Elsevier Science

Reference Books

S. No.	Author's Name	Year of Publication	Title of the Book	Publishers
1.	R. D. Tyagi, Song Yan, Tian C. Zhang, Xiaolei Zhang	2019	Biodiesel Production Technologies, Challenges, and Future Prospects 2019	American Society of Civil Engineers

Course Designers

- ❖ **Dr. K. Shenbagam**, Assistant Professor, Department of Chemistry
- ❖ **Dr. G. Sivasankari**, Assistant Professor, Department of Chemistry

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	
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	6	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

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	
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	6	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

**CORE COURSE VIII
ORGANIC CHEMISTRY-II
2019-2020 ONWARDS**

Semester-VI	ORGANIC CHEMISTRY-II	Hours/Week-6	
Core Course-VIII		Credit-5	
Course Code- 19UCH6CC8		Internal 25	External 75

Objectives

- This course helps to learn the Chemistry of carbohydrates, proteins, vitamins, alkaloids and terpenoids.
- To recognize the rearrangement mechanism and spectroscopy techniques for the elucidation of structures.

Course Outcomes

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

CO	CO Statement	Knowledge Level
CO1	Recall the basic concepts of carbohydrates, proteins and vitamins.	K1
CO2	Validate the preparation and properties of amino acids, alkaloids and terpenoids	K2
CO3	Illustrate the structure of proteins and vitamins.	K3
CO4	Analyze the nucleophilic and electrophilic rearrangements.	K4
CO5	Deduce the structure of organic molecules using spectroscopic techniques.	K4

Mapping with Programme Outcomes

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

S- Strong; M-Medium

SEMESTER-VI
ORGANIC CHEMISTRY - II
2019-2020 ONWARDS

UNIT I Chemistry of Carbohydrates (18 Hrs)

Carbohydrate: Classification - properties of glucose and fructose - structure and configuration of monosaccharide – interconversion - ascending and descending series – mutarotation and epimerization - cyclic structure - determination of size of sugar rings. Disaccharides: Sucrose, maltose - structure elucidation. Polysaccharide: Starch and cellulose (elementary treatment).

UNIT II Chemistry of Proteins and Vitamins (18 Hrs)

Amino acids: Zwitter ion – isoelectric point - general methods of preparation and reactions of amino acids. Peptides: Peptide linkages. Proteins: Classification of proteins -structure of proteins -primary structure - secondary structure - tertiary structure - end group analysis - Edman method - denaturation - colour reactions of proteins. Nucleic acids: Elementary treatment of DNA and RNA. Vitamins: Classification, structure and biological importance of vitamins A, B1, B2, B6, B12 and C.

UNIT III Chemistry of Alkaloids and Terpenoids (18 Hrs)

Chemistry of natural products: Alkaloids: Classification, isolation - methods for synthesis of coniine, piperine, nicotine and quinine. Terpenoids: Classification - isoprene, special isoprene rule, methods for synthesis of citral, limonene, menthol and camphor.

UNIT IV Molecular Rearrangements (18 Hrs)

Molecular Rearrangements: Types of rearrangement (nucleophilic and electrophilic) – mechanism with evidence for the following re-arrangements - Pinacol – Pinacolone. Benzil - Benzilic acid, Benzidine, Claisen, Fries, Hofmann, Curtius, Lossen, Beckmann and Dienone – phenol rearrangements.

UNIT V Organic Spectroscopy

(18 Hrs)

UV - VIS spectroscopy: Types of electronic transitions – absorption and intensity shifts - Instrumentation- solvent effects on λ_{\max} - Woodward - Fieser rules - calculation of λ_{\max} : Dienes only. IR spectroscopy: Fundamental vibrations – selection rules- modes of vibrations - instrumentation - position of IR absorption frequencies for common functional groups. NMR spectroscopy: Principle - chemical shift- factors affecting the chemical shift - TMS, delta scales, splitting of signals - spin-spin coupling, NMR spectrum of EtOH, n -propyl bromide and isopropyl bromide.

Textbooks

S. No.	Author's Name	Year of Publication	Title of the Book	Publisher's Name
1.	Finar I.L.,	1996	Organic Chemistry, Vol 1&2	6th edition, Addison Wesley Longman, England.
2.	Bahl B.S. and Bahl A.,	2010	Advanced Organic Chemistry	12th edition, Sultan Chand & Co., New Delhi.
3.	Morrison R.T, Boyd R.N, and Bhattacharjee S. K	2011	Organic Chemistry	7th edition, Pearson, India.
4.	Sharma Y.R	2007	Elementary Organic Spectroscopy.	Revised edition, S. Chand Publishing, New Delhi.
5.	Silverstein, R. M, Webster, F. M	2015	Spectroscopy identification of Organic compounds,	7th edition, CRC Press,

Reference Books

S. No.	Author's Name	Year of Publication	Title of the Book	Publisher's Name
1.	Pine S.H.,	1987	Organic Chemistry	(5th edition), McGraw – Hill International Book Company, New Delhi.
2.	Seyhan N. Ege,	2005	Organic Chemistry	5th edition, Houghton Mifflin Co., New York.
3.	William Kemp	1991	Organic Spectroscopy	3rd edition, ELBS

4.	Pavia, D. L. Lampman, G. M, Kriz, G. S, Vyvyan, J. A	2015	Introduction to Spectroscopy	5th edition, Cengage Learning,
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Pedagogy

E-content, Lecture, Power point presentation, Seminar, Assignment, Quiz, Group Discussion, Mini project, Video / Animation

Course Designers

- ❖ **Ms. A. Sharmila**, Assistant Professor, Department of Chemistry
- ❖ **Dr.C.Rajarajeswari**, Assistant Professor, Department of Chemistry

CORE COURSE -IX (CC)
PHYSICAL CHEMISTRY-II
2019-2020 ONWARDS4

Semester –VI	PHYSICAL CHEMISTRY -II	Hours/Week-6	
Core Course -IX(CC)		Credit:5	
Course Code – 19UCH6CC9		Internal	External
		25	75

Objectives

- After studying this course students can understand electrochemistry, electrolytes, spectroscopy, molecular symmetry, and group theory.

Course Outcomes

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

CO	CO Statement	Knowledge Level
CO1	Apply various theories of weak and strong electrolyte to predict solubility and ionic products.	K2
CO2	Predict reduction potential of a metal and EMF the cell.	K3
CO3	Evaluate internuclear distance and bond strength using IR and rotational spectral data.	K3
CO4	Relate NMR and ESR concept to analyze structure of the molecules.	K2
CO5	Analyze symmetry of the molecule.	K2

Mapping with Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	M	M	S	S	S
CO4	S	S	S	S	S
CO5	S	M	M	S	S

S -Strong , M-Medium , L -Low

CORE COURSE -IX (CC)
PHYSICAL CHEMISTRY -II
2019-2020 ONWARDS

UNIT-I Electrochemistry –I

(18 Hrs)

Electrolytic conductance – specific, equivalent and molar conductance – measurement of conductance and cell constant. Variation of conductance with dilution – Strong and weak electrolytes. Migration of ions – transport number – determination (Hittorf and moving boundary methods) – Kohlrausch's law – applications – Ostwald's dilution law - Degree of dissociation of weak electrolytes – Determination of solubility of sparingly soluble salts – conductometric titrations- Theory of strong electrolytes – Debye – Huckel – Onsager theory-verification of Onsager equation.

UNIT- II Electrochemistry –II

(18 Hrs)

Galvanic cells – Reversible and Irreversible cells – EMF and its measurement – applications – Weston Standard cell – types of reversible single electrodes – SHE – Calomel electrode – quinhydrone and glass electrode - Nernst equation (emf of cells and single electrode potentials) – Nernst theory for single electrode potential –standard reduction potentials – electro chemical series – significance - Application of Gibbs –Helmholtz equation to galvanic cells – potentiometric titrations..

UNIT-III Spectroscopy- I

(18 Hrs)

Introduction - types of molecular spectra - electronic, vibrational, and rotational energy levels - Born-Oppenheimer approximation. Rotational spectroscopy: selection rule- Rotation spectra of diatomic molecules - determination of bond length and moment of inertia from rotational spectra - numerical problems. IR spectroscopy: theory - selection rules - stretching and bending vibrations - factors affecting vibrational frequencies - important spectral regions for the functional groups - finger print region- qualitative relation of force constant to bond energies.

UNIT – IV Spectroscopy- II

(18 Hrs)

Raman spectroscopy: Principle – Selection rule - Rayleigh and Raman scattering - Stokes and Anti-stokes lines - differences between IR and Raman spectroscopy - mutual exclusion principle. NMR spectroscopy: Theory of NMR - modes of nuclear spin-relaxation process - shielding effect - hyperfine splitting - coupling constants - chemical shift - factors affecting δ - NMR applications -

limitations. ESR spectroscopy: principle - energy level splitting - presentation of ESR spectrum for methyl - benzene radicals- deuterium – applications.

UNIT-V Quantum Chemistry & Group Theory

(18 Hrs)

Quantum postulates- wave function - significances- quantum mechanical operator-name and formula alone-Schrodinger wave equation derivation. Group theory - Concept of symmetry - symmetry operations and symmetry elements - groups and their basic properties – Point groups -classification of molecules into point groups - the symmetry operations of a molecule form a group – H₂O, BF₃ and NH₃ point groups.

Textbooks:

S.No.	Author Name	Year of Publication	Title of the Book	Publisher Name
1	Puri B. R. ,Sharma L. R. and Pathania M. S.	2019	Principles of Physical Chemistry	Shoban Lal Nagin Chand & Co., New Delhi
2	Gurdeep Raj	2014	Advanced Physical Chemistry	Goel Publishing House
3.	Banwell C.N	1994	Fundamentals of Molecular Spectroscopy	Mc Graw Hill Education, Noida
4.	Sharma B. K	2006	Spectroscopy	Goel Publishing house, Meerut
5.	Gopinathan M.S &. Ramakrishnan V	2013	Group theory in chemistry	Vishal publishing & Co –Punjab
6.	Soni P.L, Dharmarha O.P. & Dash U.N.	2016	Text book of Physical Chemist	Sultan Chand & Sons, New Delhi

Reference Books

S.No	Author Name	Year of Publication	Title of the Book	Publisher Name
1.	Puri B.R., Sharma L.R., and Kalia K.K.	1993	Principles of Physical Chemistry (23rd edition)	Shoban Lal Nagin Chand & Co.New Delhi.

2.	Bhattacharya P.K.	2014	Group theory and its Chemical Applications	Himalaya publishing House.
3.	Glasstone. S	2004	An Introduction to Electrochemistry	Affiliated East West press, New Delhi
4.	Drago R.S.	2010	Physical Methods in Inorganic Chemistry	John Wiley & Sons, New Jersey
5.	Atkins P.W.	1994	Physical Chemistry (5th edition)	Oxford University Press

Pedagogy

E-content, Lecture, Power Point Presentation, Seminar, Assignment, Quiz, Group discussion, Video/Animation.

Course Designers

Dr. V.Sangu, Assistant Professor, Department of Chemistry

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

CORE PRACTICAL VI
GRAVIMETRIC ANALYSIS AND ANALYTICAL TECHNIQUES (P)
2019-2020 ONWARDS

Semester-VI	GRAVIMETRIC ANALYSIS AND ANALYTICAL TECHNIQUES (P)	Hours/Week- 6	
Core Practical VI		Credit- 5	
Course Code-19UCH6CC6P		Internal 40	External 60

Objectives

This core practical provides.

- To perform the gravimetric analysis and estimating the given compound.
- To provide the practical training to the students in chromatographic techniques

Course outcomes

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

CO	CO Statements	Knowledge Level
CO1	Know about the accuracy in Gravimetric estimations and its significance	K1
CO2	Identify the compounds using Thin layer Chromatography	K2
CO3	Demonstrate the experimental method of Paper chromatography in the separation of amino acids and dyes	K2

Mapping with Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	S	M	M	M	S
CO3	S	S	S	S	M

S-Strong ; M- Medium

SEMESTER-VI
GRAVIMETRIC ANALYSIS AND ANALYTICAL TECHNIQUES
2019-2020 ONWARDS

OBJECTIVES

1. To learn the techniques of gravimetric analysis.
2. To perform the qualitative analysis of the given mixture using analytical techniques

GRAVIMETRIC ANALYSIS:

1. Estimation of Lead as Lead Chromate.
2. Estimation of Barium as Barium Chromate.
3. Estimation of Nickel as Nickel - DMG complex.
4. Estimation Calcium as Calcium Oxalate monohydrate
5. Estimation of Aluminium as Aluminium oxy quinolate.
- 6.

ANALYTICAL TECHNIQUES

1. Thin Layer Chromatography – Separation of mixtures of Nitro Anilines
2. Paper Chromatography – Separation of Amino Acids and Dyes

Text Books

S. No.	Author's Name	Year of Publication	Title of the Book	Publishers
1.	V. Venkateswaran, R. Veeraswamy and A. R. Kulandaivelu	1997	Basic Principles of Practical Chemistry, 2 nd Edition	Sultan Chand & Sons, New Delhi
2.	N. S Gnanaprakasam and G Ramamoorthi	2007	Organic Chemistry Lab Manual	S.V Printers

Reference Books

S. No.	Author's Name	Year of Publication	Title of the Book	Publishers
1.	Raj K Bansal	2001	Laboratory Manual of Organic Chemistry, 4 th Edition	New Age International Publishers

2.	A. I. Vogel, T.R Tatchell, B. S. Furniss, A.J. Hannaford and P.W.G.Smith	1989	Vogel's Textbook of Practical Organic Chemistry, 5 th Edition	Prentice Hall
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Course Designers

- ❖ **Dr. K. Shenbagam**, Assistant Professor, Department of Chemistry.
- ❖ **Dr. C. Rajarajeswari**, Assistant Professor, Department of Chemistry

MAJOR BASED EKECTIVE - I
NUCLEAR AND INDUSTRIAL CHEMISTRY
2019-2020 ONWARDS

Semester VI	NUCLEAR AND INDUSTRIAL CHEMISTRY	Hours/Week 6	
Major Based Elective-I		Credit 5	
Subject Code 19UCHMBE2A		Internal 25	External 75

Objective

- This course helps to learn the principles of nuclear and radiation chemistry.
- To understand the importance of fuels, paint and varnishes.

Course Outcomes

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

CO	CO Statement	Knowledge level
CO 1	Discuss about nuclear chemistry	K1
CO 2	Discuss about nuclear reactions and reactors	K2
CO 3	Explore about fundamentals of Radiochemistry	K2
CO 4	Discussing about various processes in industries	K3
CO 5	Explore about the essentials of Paints, Varnishes & Cleansing agents	K3

Mapping with Programme Outcomes

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

S-Strong; M-Medium

SEMESTER VI
NUCLEAR AND INDUSTRIAL CHEMISTRY
2019-2020 Onwards

UNIT I: Introduction to nuclear science **(18 Hrs)**

Introduction - composition of nucleus and nuclear forces - meson field theory- nuclear stability - mass defect - binding energy - packing fraction - n/p ratio - magic numbers - nuclear models - liquid drop - shell and collective model – isotopes - detection - separation- isobars, isotones and isomers.

Unit II Nuclear reactions and reactor **(18 Hrs)**

Nuclear reaction - comparison with chemical reaction - Types - fission (atom bomb) and fusion(hydrogen bomb) - photonuclear reactions -stripping, spallation and pick-up reactions - Stellar energy – nuclear reactor – nuclear projectile - atomic power projects in India.

UNIT III Radiation Chemistry **(18 Hrs)**

Radioactivity- laws of radioactivity- radioactive emanations - rate of disintegration - half life and average life - group displacement law – radioactive decay process (alpha, beta and gamma decay) - radioactive series – K capture – nuclear isomerism and isomeric transition- use of projectiles – Detection and measurement of radioactivity – radioisotopes applications - Hazards of radiation- radioactive waste disposal.

UNIT IV Common Chemicals in Industries **(18 Hrs)**

Gaseous fuels – Types –composition- manufacture and applications- fertilizers - manufacture of N, P, K and mixed-fertilizers - cement manufacture –composition - wet and dry processes - setting of cement. Primary constituents of paints- formulation of paints and varnishes - Characteristics of paint- manufacture- Preparation of cleansing agent - soaps- synthetic detergents-alkyl aryl sulphonate and cleansing action of soaps.

UNIT V: Agrochemicals **(18Hrs)**

Organophosphorus pesticides: Malathion, parathion and diazinon- Carabamates: Carbonyl, Bygon, Zirman, Zineb, Maneb, Alaicarb. Pyrethroids: Pyrethroids; Allethrin, cypermethrin,

Phenvalerate. Insect Pheromones and Repellants - applications in integrated pest management- Repellents: Butopytranexyl, Dimethylcarbonate, Dimethylterphthalate.

Text Books

S.No.	Author's Name	Year of Publication	Title of the Book	Publisher Name
1.	H.J.Arnika	2005	Essentials of Nuclear Chemistry	New Age International Publishers, New Delhi,
2.	S.Glasstone, D. Van Nostrand,	1987	Source Book on Atomic Energy	East-West press, New Delhi,
3.	P.P.Singh, T.M.Joesph, R.G.Dhavale.	1983	College Industrial Chemistry,	Himalaya Publishing House, Bombay, 4th Ed.,
4	A. Kent, Riegel	2009	Handbook of Industrial Chemistry,	CBS Publishers, New Delhi.
5.	B. K. Sharma	2013	Industrial Chemistry	Goel Publishing House

Reference Books

S.No.	Author's Name	Year of Publication	Title of the Book	Publishers Name
1.	A.K. Srivatsava and P. Jain	1989	Essentials of Nuclear chemistry	S. Chand, New Delhi,
2.	M. Haissinsky, Addision	1964	Nuclear Chemistry and its applications	Wesley, New York.
3.	K. Bagavathi Sundari	2006	Applied Chemistry	MJP Publishers, Chennai
4.	P. C. Jain, M. Jain	2003	Engineering Chemistry	Dhanpat Rai & Sons, Delhi

Pedagogy

E-content, Lecture, Power point presentation, Seminar, Assignment, Quiz, Group Discussion, Video/ Animation.

Course Designer

- ❖ **Dr.Pungayee Alias Amirtham**, Assistant Professor and Head, Department of Chemistry.
- ❖ **Dr. K.Uma Sivakami** , Assistant Professor, Department of Chemistry .

MAJOR BASED ELECTIVE-II
BASICS OF NANOSCIENCE AND NANOTECHNOLOGY
2019-2020 ONWARDS

Semester-VI	BASICS OF NANOSCIENCE AND NANOTECHNOLOGY	Hours/Week-6	
Major Based Elective - II		Credit-5	
Course Code-19UCH6MBE2B		Internal 25	External 75

Objectives

- To know the synthetic methods of nanomaterials.
- To understand the characterization of nanomaterials.
- To understand carbon based nanomaterials.

Course Outcomes

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

CO	CO Statement	Knowledge Level
CO1	Recall the basic concepts macro, micro and nanoscale materials	K1
CO2	Explain the synthesis of nanomaterials	K1
CO3	Analyze the characterization techniques of nanomaterials	K2
CO4	Understand the nano catalyst and carbon based nanomaterials.	K2
CO5	Illustrate the applications of nanomaterials.	K3

Mapping with Programme Outcomes

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

S- Strong; M-Medium

SEMESTER-VI
BASICS OF NANOSCIENCE AND NANOTECHNOLOGY
2019-2020 ONWARDS

UNIT- I Fundamentals of Nano Science (18 Hrs)

Definition - nano – scale, materials, science - nano technology - scale of materials - natural and man-made - significance of nanoscale - optical, electrical, mechanical and magnetic properties – nanomaterials - different types of nanomaterial and structures - quantum wells – quantum wires – quantum dots – nanoclusters – nanocrystals – nanowires and nanotubes (preliminary level).

UNIT-II Synthesis of nanomaterials (18 Hrs)

Physical methods - laser ablation- chemical vapour deposition (CVD) - solvated metal atom dispersion (SMAD) - Chemical methods - microwave irradiation -sol-gel process - precipitation technology - synthesis using microorganisms - sonochemical synthesis - precipitation method - thermal decomposition of complex precursors.

UNIT –III Characterization techniques of nanomaterials (18 Hrs)

Principle and Instrumentation techniques - Atomic Force Microscopy (AFM) - Transmission Electron Microscopy (TEM) - Scanning Electron Microscopy (SEM) - Scanning ion conductance microscope - Scanning probe microscopes - Surface plasma spectroscopy.

UNIT –IV Carbon based nanomaterials (18 Hrs)

Structure and bonding in nano material – arm chair – zigzag – chiral patterns – theory of formation of different structures and growth process of CNT – single walled carbon nano tubes – multi walled carbon nano tubes – graphite – diamond – different types of carbon nano materials CNT, CNF, CNB - structure and properties.

UNIT-V Applications of nanomaterials (18 Hrs)

Molecular electronics – nano electronics – quantum electronic devices – CNT based transistor – field emission display – biological applications – cancer therapy - biosensor –

membrane-based water purification – nano painting – nano coating – nano materials for renewable energy – nano carbon in lithium batteries.

Text Books

S.No.	Author's Name	Year of Publication	Title of the Book	Publisher Name
1.	C. N. R. Rao, A. Muller and A. K. Cheetham	2004	The Chemistry of Nanomaterials: (Eds), Vol. 1 and 2	Wiley-VCH;Germany,
2.	T. Pradeep	2007	The Essentials in Understanding Nanoscience and Nanotechnology 1st Ed.,	Tata McGraw Hill, New York, 2007
3.	A.S. Edelstein and R.C. Cammearata,	1996.	Nanomaterials: Synthesis, Properties and Applications	Institute of Physics Publishing, Bristol and Philadelphia,
4.	N John Dinardo	2000	Nanoscale Charecterisation of surfaces and Interfaces	Weinheim Cambridge, Wiley.
5.	Geoffrey A. Ozin and Andre C. Arsenault	2005	A Chemical approach to nanomaterials	RSC publishing
6.	U.K. Hari Singh Nalwa	2002	Nanostructured Materials and Nanotechnology	Academic Press, New York
7.	Akhlesh Lakhtakia	2007	The Hand Book of Nano Technology, Nanometer Structure, Theory, Modeling and Simulations	Prentice-Hall of India (P) Ltd, New Delhi

Reference Books

S.No	Author's Name	Year of Publication	Title of the Book	Publishers Name
1.	G. Timp	1999	Nanotechnology	AIP press/Springer
2.	C.N.R. Rao, A. Muller and A.K. Cheetham	2004	The Chemistry of Nanomaterials.	Wiley-VCH Verlag GmbH&Co., Weinheim

3.	Kenneth J. Klabunde	2001	Nano scale Materials in Chemistry	Wiley-Interscience, New York
4.	Gabor L.Hornyak, Harry F. Tibbals, Joydeep Dutta and John J Moore	2006	Inroduction to Nanoscience and Nanotechnology	CRC Press, Taylor and Francis, New York.

Pedagogy

E-content, Lecture, Power point presentation, Seminar, Assignment, Quiz, Group Discussion, Video/ Animation.

Course Designers

- ❖ **Ms. P. Thamizhini**, Assistant Professor, Department of Chemistry
- ❖ **Dr. K. Uma Sivakami**, Assistant Professor, Department of Chemistry

MAJOR BASED ELECTIVE COURSE-III
POLYMER CHEMISTRY
2019-2020 ONWARDS

Semester-VI	POLYMER CHEMISTRY	Hours/Week-5	
Major Based Elective Course-III		Credit-5	
Course Code-19UCH6MBE3A		Internal 25	External 75

Objectives

- To know the chemistry of polymers.
- To study the concepts of polymerization and techniques
- To study the importance of polymers.

Course Outcomes

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

CO	CO Statement	Knowledge Level
CO1	Classify polymers and explain the configuration of polymers and properties like glass transition temperature and melting point of polymers	K2
CO2	Illustrate the preparation, properties and applications of polymers	K2
CO3	Outline the recent advances in polymer chemistry.	K3
CO4	Acquaint various polymer processing technologies and moulding techniques.	K4
CO5	Interpret the mechanism of polymerization	K5

Mapping with Programme Outcomes

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

S- Strong; M-Medium

SEMESTER-VI
POLYMER CHEMISTRY
2019-2020 ONWARDS

UNIT 1 Introduction to Polymers **(15 Hrs)**

Definition – monomer - polymer - polymerization – classification of polymers (based on sources and applications) - thermosetting and thermoplastics – Functionality - degree of polymerization. Types of polymerization reactions: Chain polymerization - free radical and ionic polymerization - step polymerization reactions - polyaddition - polycondensation - ring opening - group transfer polymerization - copolymerization. Tacticity in polymers: Isotactic, syndiotactic and atactic polymers.

UNIT II Properties and Reactions of Polymers **(15 Hrs)**

Properties - Glass transition temperature (T_g) -definition – factors affecting T_g . Relationship between T_g and molecular weight. Importance of T_g . Molecular weight of polymers: number average (M_n) - weight average (M_w) - sedimentation and viscosity average molecular weights. Reactions: Hydrolysis – hydrogenation – addition – substitutions – cross linking and cyclisations reaction. Polymer degradation- thermal, photo and oxidation degradation of polymers (basics only)

UNIT III Polymerization Techniques and Moulding Technique **(15 Hrs)**

Polymerization techniques: Bulk, solution, emulsion, melt condensation and interfacial polycondensation polymerization. Moulding techniques: Injection, compression, extrusion, rotational and calendaring.

UNIT IV Chemistry of Commercial Polymers **(15 Hrs)**

Preparation - properties and uses of the polymers: Polyethylene, polypropylene, polystyrene, PVC, teflon , polymethylmethacrylate, polycarbonate, polyurethanes, polyamides (Kevlar), phenol-formaldehyde, urea-formaldehyde resin, epoxy resins, rubber-styrene and neoprene rubbers.

UNIT V Advances in Polymers **(15 Hrs)**

Biopolymers: Biodegradable polymers - polymers in medical field - high temperature and fire-resistant polymers. Conducting polymers: Polyacetylene, poly (p-phenylene vinylene) and

polypyrrole. Adhesive and coatings, liquid crystalline polymers. Rubbers: Types of rubbers – vulcanization of rubbers. Environmental Hazards of plastics and recycling.

Text Books

S. No.	Author's Name	Year of Publication	Title of the Book	Publisher's Name
1.	Gowariker V.R., Viswanathan N.V. and Jayadev Sreedhar	1978	Polymer Science	Wiley Eastern Ltd., New Delhi
2.	Sharma, B.K	1989	Polymer Chemistry	Goel Publishing House, Meerut.
3.	Premamoy Ghosh	2011	Polymer Science and Technology	3 rd edition, Tata McGraw Hill Education Private Limited, New Delhi.
4.	George Odian	2004	Principles of Polymerization	4 th edition, John Wiley and Sons, New York.

Reference Books

S. No.	Author's Name	Year of Publication	Title of the Book	Publisher's Name
1.	Arora M.G., Singh M. and Yadav M.S.,	1989	Polymer Chemistry	2nd Revised edition, Anmol Publications Private Ltd., New Delhi,
2.	Billmeyer F.W	1984.	Text Book of Polymer Science	John Wiley and Sons, New York.
3.	Joel R. Fried	2014	Polymer Science and Technology	3 rd Edition, Pearson.

Pedagogy

E-content, Lecture, Power point presentation, Seminar, Assignment, Quiz, Group Discussion, Mini project, Video / Animation

Course Designers

- ❖ Ms. A. Sharmila, Assistant Professor, Department of Chemistry
- ❖ Ms. P.Thamizhini, Assistant Professor, Department of Chemistry

MAJOR BASED ELECTIVE -III
PHARMACEUTICAL CHEMISTRY
2019-2020 ONWARDS

Semester –VI	PHARMACEUTICAL CHEMISTRY	Hours/Week-5	
Major based Elective-III		Credit:5	
Course Code - 19UCH6MBE3B		Internal	External
		25	75

Objectives

1. To study the classification of drugs.
2. To know the importance and functioning of antibiotics.
3. To learn common diseases and their treatment.

Course Outcomes

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

CO	CO Statement	Knowledge Level
CO1	Explain the terminologies used in pharmacology	K2
CO2	Classify and compare different types of drug	K4
CO3	Describe the functions and mode of actions of drugs	K3
CO4	Explain the cause and symptom of common diseases	K2
CO5	Demonstrate the functions of medicine for common diseases	K2

Mapping with Programme Outcomes

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

S -Strong , M-Medium , L -Low

MAJOR BASED ELECTIVE -III
PHARMACEUTICAL CHEMISTRY
2019-2020 ONWARDS

UNIT - I Important Terminologies of drugs (15 Hrs)

Drugs – medication - definition of pharmacy, pharmacology pharmacophore, pharmacognosy, pharmacodynamics, pharmacopoeia, therapeutics - toxicology, chemotherapy – classification of drugs – Lethal dosage - LD50, ED50 - therapeutic index - drug administration routes – local, enema, external and parental.

UNIT - II Antibiotics (15 Hrs)

Antibiotics- -classification - broad and narrow spectrum - Therapeutical values of penicillin, tetracyclines, chloramphenicol and streptomycin. Penicillin, ampicillin - structure and mode of action only. Sulphonamides-mechanism and action of sulpha drugs preparation and uses of sulphadiazine, sulphapyridine

UNIT -III Analgesics, Antipyretics and Anesthetics drugs (15 Hrs)

Analgesics- -classification -narcotic analgesics- analgesic action- uses - structure activity of morphine, codeine. Non-narcotic analgesics – aspirin and paracetamol. Antipyretic analgesics-salicylic acid derivatives-methyl salicylate. Anesthetics - local anesthetics – procaine - General anesthetics - chloroform and halothane.

UNIT - IV Blood and Cardiovascular drugs (15 Hrs)

Composition of blood – blood grouping and matching – Rh factor – Buffers in blood – plasma protein function –clotting mechanism - Blood pressure – causes, control and treatment- antihypertension drugs - cardiovascular drugs – antiarrhythmic drugs cardiac glycosides, vasodilators (two example for each) – anticoagulants - antianginal agents – lipid lowering agents - sclerosing agents.

UNIT – V Common Diseases and Health Care (15 Hrs)

Common diseases – causes and treatment of insect borne diseases (Malaria and Filariasis), airborne diseases (Diphtheria, Whooping cough, Influenza, common cold, TB) and water borne diseases (Cholera, Typhoid and Dysentery). First aid to prevent bleeding and maintain breathing- causes and symptoms of food poisoning, botulism-mushroom poisoning-first aid -

ulcer treatment.

Text Books

S.No.	Authors Name	Year of Publication	Title of the Book	Publisher Name
1	Jayashree ghosh, S	2003	A textbook of pharmaceutical chemistry	Sultan and Chand & Co., New Delhi
2	Lakshmi. S	2004	Pharmaceutical Chemistry	Sultan Chand & Sons, New Delhi
3	Chatwal C.R	2015	Medicinal chemistry	Himalaya Publishing House, New Delhi
4	O'Neil, Maryadele J.	2006	The Merck index : an encyclopedia of chemicals, drugs, and biological	Whitehouse Station, NJ : Merck

Reference Books

S.No.	Authors Name	Year of Publication	Title of the Book	Publisher Name
1.	Ashutosh kar	1992	Medicinal Chemistry	New Age International
2.	<u>William O. Foye</u>	2008	Principles of medicinal chemistry	Lippincott Williams and Wilkins
3.	Gareth Thoma	2003	Fundamentals of Medicinal Chemistry	Joh Wiley & Sons Ltd
4.	Kasture A. V. and Dr.Wadodkar S.G	2014	Pharmaceutical Chemistry	Nirali prakasan
5.	Sweetman, Sean C.	2005	Martindale: the complete drug reference	London: Pharmaceutical Press

Pedagogy

E-content, Lecture, Power Point Presentation, Seminar, Assignment, Quiz, Group discussion, Video/Animation.

Course Designers

Dr. V. Sangu, Assistant Professor, Department of Chemistry

Mrs.S. Jeevitha, Assistant Professor, Department of Chemistry

ANNEXURE - L



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
Nationally Accredited (III Cycle) with A Grade by NAAC
ISO 9001:2015 Certified
Annamalainagar, Trichy

PG & Research Department of Computer Science

MINUTES OF THE FIFTH MEETING OF THE BOS

DATE: 04.06.2021

TIME: 10.00 a.m.

MODE: Through Google Meet

Members Present:

- | | |
|--------------------------------|---------------------------------------|
| 1) Dr. V. SinthuJanitaPrakash | Chairperson, Professor &HoD |
| 2) Prof.S. Nickolas | UniversityNominee |
| 3) Dr. K.S.JeenMarseline | Subject Expert, OtherUniversity |
| 4) Dr.S.Sukumaran | Subject Expert, Otheruniversity |
| 5) Mr. LaxmiNarasimhanVaradhan | Placement Representative fromIndustry |
| 6) Ms.DisanthiniRetnaraj | Alumna,Member |
| 7) Ms.N.Girubagari | Member |
| 8) Dr.P.Rajeswari | Member |
| 9) Ms.A.SahayaJenitha | Member |
| 10) Ms.K.Pradeepa | Member |
| 11) Ms.D.Radhika | Member |
| 12) Dr.K.Reka | Member |
| 13) Ms.S.Udhayapriya | Member |
| 14) Ms.P.Muthulakshmi | Member |

15) Ms.K.Sangeetha	Member
16) Ms.R.RitaJenifer	Member
17) Ms.V.Kavitha	Member
18) Ms.R.Sangeetha	Member
19) Ms.S.Saranya	Member
20) Ms.N.Agalya	Member
21) Ms.G.Sujatha	Member
22) Ms.R.Ramya	Member

Action taken report of Fourth BoS held on 04.01.2021

The Fourth BoS Meeting was held online on 04.01.2021, headed by the chairperson and all the members (05 External members and 17 internal members) were present. The Resolution No.BoS/04/01 to Resolution No.BoS/04/04 in connection with the V Semester syllabus for UG and ratification in the III Semester of PG degree program for the batch 2019-2020 onwards were implemented.

Minutes of the Fifth Meeting of BoS held on 04.06.2021 at 10.00 a.m. through Online Mode

The following Resolutions were passed by the members of the BoS

Resolution No.BoS/05/01

Considered and approved the syllabus of Part III Core and Major Based Electives courses of B.Sc Computer Science (2019-2020 batch and onwards) for Sixth Semester and is recommended to the Academic Council, Cauvery College for Women(Autonomous), Trichy

- Prof S. Nickolas (University Nominee) suggested to refine the contents of the syllabus in the following courses
 - **Core Course VIII – Operating Systems(19UCS6CC8)**
 - **MBE II - Cloud Computing (19UCS6MBE2A)**

- Prof S. Sukumaran (Member from Outside University) suggested to make changes in the contents of the syllabus of the **Core Course IX Web Technology(19UCS6CC9)**
- Prof S. Nickolas (University Nominee) and Mr. LaxmiNarasimhanVaradhan (Placement representative from Industry) proposed to include the topics **Neural Network, Machine Learning and Deep Learning** in Unit V - **Major Based Elective II Artificial Intelligence(19UCS6MBE2C)**
- Prof S. Nickolas (University Nominee) suggested to change the title of **Major Based Elective III, Shell Programming Lab (19UCS6MBE3AP)** as **Operating Systems Lab** and also to change the contents of the Labexercise

The Board of Studies meeting was resolved and concluded by recommending the Curriculum and syllabus of UG Computer Science Courses to The Academic Council, Cauvery College for Women (Autonomous), Trichy-18

Dr .V. SinthuJanita Prakash

Prof .S. Nickolas

Dr. K.S. JeenMarseline

Dr. S. Sukumaran

Mr. LaxmiNarasimhanVaradan

Ms. DisanthiniRetnaraj

B.Sc Computer Science

(For the Candidates admitted from the Academic year 2019-2020 and onwards)

Semester : VI

Semester	Part	Course	Title	Course Code	Inst.Hrs/ week	Credits	Hrs	Exam Marks		Total
								In t.	Ex t.	
VI	III	Core Course – VIII(CC)	Operating Systems	19UCS6CC8	6	6	3	25	75	100
		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 Big data & IoT	19UCS6MBE2B						
			Artificial Intelligence	19UCS6MBE2C						
		Major Based Elective – III	Operating Systems 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



Prof. S. Nickolas
University Nominee
 Professor & Head
 Department of Computer Applications
 National Institute of Technology
 Trichy

Semester VI	Internal Marks: 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS6CC8	OPERATING SYSTEMS	CORE	90	6	-	6

Objective

- To provide the fundamental concepts in an Operating System
- To analyze Scheduling algorithms
- To analyze various memory management schemes
- To understand I/O management and File systems

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	State the basic concepts of operating system and its components	K1
CO2	Explain the concepts of Memory allocation Schemes	K2
CO3	Apply different process scheduling algorithms to minimize the waiting time	K3
CO4	Analyze the various file management techniques	K3
CO5	Classify the various types of Device	K3

Mapping with Programme Outcomes

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

S–Strong; M–Medium; L –Low

Syllabus

Unit I:

(12 HOURS)

Introduction to Operating System: Operating System-Operating System Software -A Brief History of Machine Hardware -Types of Operating Systems -Brief History of Operating System Development-Object-Oriented Design of Operating System

Unit II: (22 HOURS)

Memory Management: Early Systems: Single-User Contiguous Scheme -Fixed Partitions-Dynamic Partitions- Best-Fit versus First-Fit Allocation -Deallocation - Relocatable Dynamic Partitions. Virtual Memory: Paged Memory Allocation-Demand Paging-Page Replacement Policies and Concepts - Segmented Memory Allocation-Segmented/Demand Paged Memory Allocation

Unit III : (22 HOURS)

Processor Management: Overview-About Multi-Core Technologies-Job Scheduling Versus Process Scheduling-Process Scheduler-Process Scheduling Policies-Process Scheduling Algorithms - Interrupts-Deadlock-Seven Cases of Deadlock -Conditions for Deadlock-Modeling Deadlock-Strategies for Handling Deadlocks –Starvation

Unit IV: (20 HOURS)

Device Management: Types of Devices-Sequential Access Storage Media-Direct Access Storage Devices- Magnetic Disk Drive Access Times- Components of the I/O Subsystem- Communication among Devices-Management of I/O Requests

Unit V: (14 HOURS)

File Management: The File Manager -Interacting with the File Manager -File Organization - Physical Storage Allocation -Access Methods-Levels in a File Management System - Access Control Verification Module

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER / EDITION	YEAR OF PUBLICATION
1	Ann McIver McHoes, Ida M. Flynn	Understanding Operating Systems	Course Technology, Cengage Learning	2011

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER / EDITION	YEAR OF PUBLICATION
1	Achyut God bole , Atul Kahate	Operating Systems	McGraw Hill Publishing	2010
2	Abraham Silberschatz, Peter B. Galvin , Greg Gagne	Operating System Concepts	John Wiley & Sons, Inc.	2018

Web References

1. https://nptel.ac.in/content/storage2/courses/106108101/pdf/Lecture_Notes/Mod%201_LN.pdf
2. https://www.tutorialspoint.com/operating_system/
3. <https://www.studytonight.com/operating-system/deadlocks>
4. <http://faculty.salina.k-state.edu/tim/oss/Device/Device.html>
5. <https://medium.com/@princeabhishek410/understanding-file-management-system-in-operating-system>

Pedagogy

Chalk and talk, PPT, E-Content

Course Designer

Ms. K.Pradeepa

Semester VI	Internal Marks : 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS6CC9	WEB TECHNOLOGY	CORE	90	6	-	5

Objective:

- To learn the fundamentals of web designing
- To design and develop standard and interactive web pages
- To learn some popular web scripting languages

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Analyze and design a static webpage by applying HTML elements.	K3
CO2	Develop a dynamic webpage by the use of JavaScript and DHTML.	K3
CO3	Analyze and use appropriate Client-side or Server-side applications	K3
CO4	Understand any suitable real time web application	K2

Mapping with Programme Outcomes:

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

S– Strong; M–Medium; L – Low

Syllabus

UNIT I

(17 HOURS)

Introduction to HTML – Lists: Types of Lists – **Adding Graphics to HTML Documents:** Using the Border, Width and Height, Align and Alt Attribute – **Tables:** Using the Width and Border, Cellpadding, Cellspacing, Background-Color Property and Colspan, Rowspan Attribute – **Linking Documents:** Links – Images as Hyperlinks – **Frames:** Introduction to Frames

UNIT II

(19 HOURS)

Introduction to JavaScript: JavaScript in Web Pages –JavaScript – Writing JavaScript into HTML – Basic Programming techniques – Operators and Expressions in JavaScript – JavaScript Programming Constructs – Conditional Checking – Super Controlled – Endless Loops – Functions in JavaScript – User Defined Functions – Placing text in a Browser – Dialog Boxes – **The JavaScript Document Object Model:** Introduction – the JavaScript Assisted Style Sheets DOM – Understanding Objects in HTML – Browser Objects – The Web Page HTML Object Hierarchy – Handling Events

UNIT III**(14 HOURS)**

Forms Used by a Website: The Form Object – Other Built-in Objects in JavaScript – User Defined Objects – **Cookies:** What are Cookies – Setting a Cookie – **Dynamic HTML:** CSS – Class – Using the tag – External Style sheets – Using the <div></div> tag

UNIT IV**(18 HOURS)**

PHP : Getting Started – **The Basics of PHP:** Data types – Variables – Constants – Here Documents – Operators – Arrays – Conditional Statements – Iterations – **Functions:** User Defined Functions – Built – in Functions – Working with Date and Time – Performing Mathematical Operations – Working with string Functions.

UNIT V**(22 HOURS)**

Common Gateway Interface: Server-Browser Interaction – CGI Script Structure – The CGI.pm Module – Perl Variables – CGI Environment Variables – Processing Forms – Sending Mail – Validating the Form Data – Handling Checkboxes – Server Side Include – CGI Server Side and Client Side Applets – CGI Security Issues – **Servlets:** Advantages of Servlets over CGI – Installing Servlets – The Servlet Life Cycle – Servlet API – A simple Servlet – Handling HTTP GET Requests and POST Requests – **Java Server Pages:** Advantages of JSP – Developing First JSP – Components of JSP – Reading Request Information – Retrieving the Data Posted from a HTML file to a JSP File – JSP Sessions

Text Books:

S.NO	AUTHOR	TITLE	PUBLISHER / EDITION	YEAR OF PUBLICATION
1	Ivan Bayross	Web Enabled Commercial Application Development Using HTML, JavaScript, DHTML and PHP (for Unit I- IV)	BPB Publications, 4 th Revised Edition	2015
2	N.P.Gopalan and J.Akilandeswari	Web Technology – A Developer's Perspective (for Unit V)	Prentice Hall of India Private Ltd. 2 nd Revised Edition	2014

Reference Books:

S.NO	AUTHOR	TITLE	PUBLISHER / EDITION	YEAR OF PUBLICATION
1	Robert W.Sebesta	Programming with World Wide Web	Pearson Education, 4 th Edition	2011
2	Paul Deitel, Harvey Deitel& Abbey Deitel	Internet & World Wide Web	Pearson Education 5 th Edition	2019
3	Jeffrey C.Jackson	Web Technologies :A Computer Science Perspective	Pearson Education	2015

Web References:

1. https://www.tutorialspoint.com/web_developers_guide/web_basic_concepts.htm
2. <https://www.geeksforgeeks.org/web-technology/>
3. <https://www.halvorsen.blog/documents/programming/web/web.php>

Pedagogy:

Chalk and talk, PPT, Discussion, Assignment, Demo, Quiz, Seminar

Course Designer:

Ms.R.Sangeetha

Semester VI	Internal Marks : 40			External Marks:60		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS6CC6P	WEB TECHNOLOGY LAB	CORE	90	-	6	3

Objective:

- To design interactive web pages using Scripting languages
- To learn server side programming using servlets and JSP

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Identify the basic tags used in HTML document	K1
CO2	Able to write HTML, CSS codes.	K3
CO3	Demonstrate JavaScript and related technologies	K3
CO4	Create dynamic web pages using JSP	K6

Mapping with Programme Outcomes:

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

S–Strong; M–Medium; L –Low

Lab Exercises:

1. Write a HTML code to display the biodata on a web page.
2. Develop static web pages of an online book store using HTML.
3. Design a Style Sheet using Link, Table, Box & List
4. Write a Java script program to converting uppercase to lowercase.
5. Write a Java script to validate the following fields in a registration page.
 - a. Name(should contain alphabet and the length should not be exceed 8 characters)
 - b. Password(should not be less than 6 characters. It contains atleast 1 upper case letter, numeric, and special character)
 - c. Email (Should not contain invalid address)
6. Write a PHP program to store current date-time in a COOKIE and display the "Last visited on" date-time on the web page upon reopening of the same page.
7. Write a PHP program to calculate electricity bill.
8. Write a simple JSP program to print the current date and time
9. Create a web application using JSP with following specifications
 - a) It should take name and age from an HTML page.
 - b) If the age is less than 18, it should send a page with “Hello<name>, you are not eligible to vote” message, where <name>should be replaced with the entered name. Otherwise it should send “welcome, you are eligible to vote” message.

Web References:

1. <https://www.halvorsen.blog/documents/programming/web/web.php>
2. <https://websitesetup.org/website-coding-html-css/>
3. <https://www.geeksforgeeks.org/web-technology/>
4. <https://www.csestack.org/html-program-examples-output/>
5. <https://www.javatpoint.com/php-programs>
6. <https://www.programiz.com/javascript/examples>
7. <https://personal.ntu.edu.sg/ehchua/programming/java/JSPByExample.html>

Pedagogy:

Power Point Presentations, E-Content

Course Designer:

Ms.R.Sangeetha

Semester VI	Internal Marks: 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS6MBE2A	CLOUD COMPUTING	MBE	90	6	-	5

Objective:

- To give students an insight into the basics of Cloud Computing
- To provide the students basic architecture of Cloud Computing and virtualization
- To inculcate the Cloud Computing Technologies

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Classify the concepts of Cloud deployment Models	K2
CO2	Apply the Virtualization Technologies	K3
CO3	Examine basic terminologies in service oriented architecture and cloud security	K4
CO4	Elucidate the applications of Cloud Computing	K4
CO5	Expose the concept of Cloud Computing Technologies, Platforms and Services	K4

Mapping with Programme Outcomes:

COs	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	S	S	M	S
CO3	S	S	M	S
CO4	S	S	M	S
CO5	S	S	S	S

S– Strong; M–Medium; L – Low

Syllabus:

UNIT – I:

(16 HOURS)

Foundation of Cloud Computing: Objectives – Introduction – Fundamentals – Cloud Computing characteristics – Advantages and Disadvantages – Comparison. Cloud services and Deployment Models: Cloud Deployment models – Cloud Service models – Cloud Infrastructure Mechanism.

UNIT – II:

(20 HOURS)

Cloud Computing Architecture: Cloud Computing Architecture Design Principles – Cloud Computing Life Cycle – Cloud Computing Reference Architecture – Load Balancing Approach – Mobile Cloud computing. Virtualization Technology: Understanding Virtualization – Adopting Virtualization – Techniques of Virtualization – XEN – KVM – VMware – Virtual Box – Citrix – Types – Virtualization in cloud.

UNIT – III:**(18 HOURS)**

Service Oriented Architecture: Foundation – Web Services and SOA – Communication – Components – Infrastructure – Need of SOA – BPM. Cloud Security: Cloud Security – Cloud CIA Security Model – Architecture – Cloud Legal Issues - Data Security in Cloud – Cloud Risk Management Framework – Risk Management process for Cloud consumers.

UNIT – IV:**(18 HOURS)**

Threats in Cloud – Security techniques for threat protection – Components of SLA – Types of SLA. Cloud Computing Applications: Introduction – GAE – Google Apps – Google Cloud Data store – Dropbox Cloud – Apple iCloud – Microsoft windows Azure Cloud – Amazon Web Services.

UNIT – V:**(18 HOURS)**

Cloud Computing Technologies, Platforms and Services: MPI – Dryad – Eucalyptus – Open Nebula – OpenStack – Nimbus -Hadoop and Cloud. Adoption of Cloud Computing : Factors – Existing area applications – Case studies.

Text Book:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER / EDITION	YEAR OF PUBLICATION
1	Kamal Kant Hiran, RuchiDoshi, Dr. Fagbola Temitayo& Mehul Mahrishi	Cloud Computing	BPB Publication	2019

Reference Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER / EDITION	YEAR OF PUBLICATION
1	Ricardo Puttini, Thomas Erl, and Zaigham Mahmood	Cloud Computing: Concepts, Technology & Architecture	Prentice Hall	2013
2	Judith S. Hurwitz, Daniel Kirsch	Cloud Computing For Dummies	Wiley	2020

Web References:

1. https://www.tutorialspoint.com/cloud_computing/cloud_computing_tutorial.pdf
2. https://resources.sei.cmu.edu/asset_files/Presentation/2010_017_001_23337.pdf
3. <https://www.geeksforgeeks.org/service-oriented-architecture/>
4. <https://www.javatpoint.com/what-is-cloud-security>
5. <https://www.simplilearn.com/cloud-computing-tutorial-video>

Pedagogy:

Power point Presentations

Course Designer:

Ms.P. Muthulakshmi

Semester VI	Internal Marks : 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS6MBE2B	FUNDAMENTALS OF BIG DATA & IOT	MBE	90	6	-	5

Objective

- To provide a strong foundation about basic concepts of Big Data
- To understand the components of Hadoop framework, HDFS and MapReduce
- To inculcate Big Data analytics tools
- To understand the application areas of IoT and its levels
- To understand the building blocks of Internet of Things and characteristics.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the basic concepts of Big Data	K2
CO2	Analyze the Hadoop framework	K4
CO3	Elucidate the application areas of the Internet of Things	K3
CO4	Explore the building blocks of IoT	K4

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

Syllabus

Unit I

(15 HOURS)

Overview of Big Data: Big Data –Defining Big Data – Big Data Types – Analytics – Industry Examples of Big Data – Big Data and Data Risk – Big Data Technologies –The Benefits of Big Data

Unit II

(21 HOURS)

Basics of Hadoop: Big Data and Hadoop – Hadoop Architecture – Main Components of Hadoop Framework – Analyzing Big Data with Hadoop –Advantages of Hadoop – Ten Big Hadoop Platforms. Hadoop Distributed File System: HDFS– Architecture of Apache Hadoop HDFS- Other File Systems – HDFS File Blocks – HDFS File Commands.

Unit III**(18 HOURS)**

MapReduce: Introduction to MapReduce– Working of MapReduce – Map operations – A MapReduce Program-Map Reduce User Interfaces. HBase and Cassandra: Introduction to HBase – Row Oriented vs. Column Oriented Data Stores – HDFS vs HBase - HBase Architecture – HBase Data Model – Introduction to Cassandra – Features of Cassandra- Cqlsh commands

Unit IV**(18 HOURS)**

Introduction – Overview of Internet of Things –Characteristics of IoT- IoT Applications- Working and Implementation of IoT – Components of IoT- IoT Architecture and Levels

Unit V**(18 HOURS)**

IoT Ecosystem-Types of Networks – IoT Technologies and Protocols – Communication Protocols – Building Blocks of IoT – Functional Blocks of IoT

Text Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER / EDITION	YEAR OF PUBLICATION
1.	V.K.Jain	Big Data and Hadoop (for Unit I– III)	Khanna Book Publishing	2017
2.	Satish Jain, Shashi Singh	Internet of Things and its Applications : Made simple (for Unit IV – V)	BPB Publication	2020

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER / EDITION	YEAR OF PUBLICATION
1.	Bart Baesens	Analytics in a Big Data world	Wiley Big Data Series	2014
2.	Thomas Erl Wajid Khattak and Paul Buhler	Big Data Fundamentals: Concepts, Drivers & Techniques	Pearson	2016
3.	Arshdeep Bahga, Vijay Madiseti	Internet of Things A Hands-on Approach	University press	2014
4.	Peter Waher	Learning Internet of Things	Packt publishers	2015

Web References

1. https://www.google.co.in/books/edition/_/i6NODQAAQBAJ?hl=en&gbpv=1
2. <https://hadoop.apache.org/>
3. <https://www.tutorialspoint.com/cassandra/index.html>
4. <https://www.rfwireless-world.com/IoT/IoT-Architecture-Levels.html>
5. <https://iotbyhvm.ooo/physical-design-of-iot>

Pedagogy:

Chalk and talk, PPT, Discussion, e-Contents

Course Designers:

Ms.N.Girubagari and Dr.K.Reka

Semester VI	Internal Marks : 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS6MBE2C	ARTIFICIAL INTELLIGENCE	MBE	90	6	-	5

Objective:

- To understand the need of Artificial Intelligence
- To study the basic concepts on AI problems and techniques
- To apply the knowledge representation into a new situation
- To build an AI system for the small level house hold activities

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the AI problems	K2
CO2	Describe various AI techniques	K2
CO3	Apply basic AI algorithms for real time situations	K3
CO4	Explore the concepts of Knowledge Representations	K4

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

Syllabus:

Unit I

(16 HOURS)

Artificial Intelligence: The AI Problems – AI Technique – Criteria for Success. **Problems, Problem Spaces and Search:** Defining the problem as a State Space Search – Production System- Problem Characteristics.

Unit II

(20 HOURS)

Heuristic Search Techniques : Generate and Test- Hill Climbing – Best-First Search – OR Graph – A * Algorithm – Problem Reduction – AND-OR Graphs- AO* Algorithm- Constraint Satisfaction – Means-Ends Analysis.**Knowledge Representation Issues:** Representation and Mappings – Approaches to Knowledge Representations.

Unit III**(20 HOURS)**

Using Predicate Logic: Representing Simple facts in Logic – Representing Instance and ISA Relationships- Computable Functions and Predicates – Resolution.**Representing Knowledge Using Rules:** Procedural versus Declarative Knowledge – Logic Programming – Forward versus Backward Reasoning.

Unit IV**(16 HOURS)**

Symbolic Reasoning Under Uncertainty: Introduction to Nonmonotonic Reasoning – Logics for Nonmonotonic Reasoning- Implementation Issues – Augmenting a Problem Solver. **Statistical Reasoning:** Probability and Baye’s Theorem – Certainty Factors and Rule Based Systems – Bayesian Network.

Unit V**(18 HOURS)**

Machine Learning : Introduction – Data Analysis and Machine Learning- Fundamental approaches- Supervised Machine Learning – Reinforcement Machine Learning – Unsupervised Machine Learning – Semi-supervised Learning – Data modeling- Artificial Neural Network- **Applications of AI :** AI in ecommerce – AI in E-Tourism – AI in industry – AI in medicine

Case Study : Introduction to Artificial Neural Network and Deep Learning.

Text Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER / EDITION	YEAR OF PUBLICATION
1.	Elaine Rich, Kevin Knight, Shivashankar B Nair	Artificial Intelligence (for Unit I – IV)	Tata McGraw Hill, 3 rd edition	2017
2	Rajendra Akerkar	Introduction to Artificial Intelligence (for Unit V)	PHI Learning Pvt Ltd, 2 nd edition	2014

Reference Books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER / EDITION	YEAR OF PUBLICATION
1.	Eugene Charniak , Drew. McDermott	Introduction to Artificial Intelligence	Pearson Education	2006
2.	Stuart Russel, Peter Norvig	Artificial Intelligence : A Modern Approach	Pearson Education, 3rd edition	2010
3.	Dan W.Patterson	Introduction to Artificial Intelligence and Expert Systems	Pearson Education	2008
4.	Bernard Marr	Artificial Intelligence in Practice: How 50 Successful Companies Used AI and Machine Learning to Solve Problems	Wiley Publications	2019

Web References:

1. <http://aimaterials.blogspot.com/>
2. <http://zsi.tech.us.edu.pl/>
3. https://www.tutorialspoint.com/artificial_intelligence/
4. https://www.vssut.ac.in/lecture_notes/lecture1428643004.pdf

Pedagogy:

Chalk and talk, PPT, Discussion, ICT

Course Designer:

Ms.N.Girubagari

Semester: VI	Internal Marks: 40			External Marks: 60		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS6MBE3AP	OPERATING SYSTEMS LAB	MBE	75	-	5	5

Objective:

- To familiarize the students with Linux commands and shell programming
- To demonstrate the concepts of process scheduling, memory management, file systems and deadlock handling using C language in Linux environment

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the basic command with examples and shell programming	K2
CO2	Implement memory management schemes , page replacement schemes and file allocation	K3
CO3	Analyze the performance of process scheduling algorithms and seek strategies	K4
CO4	Simulate Bankers algorithm for deadlock avoidance	K5

Mapping with Programme Outcomes:

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

S–Strong; M–Medium; L –Low

Lab Exercises:

1. Basic Commands with Examples
2. Shell Programming
 - a) Simple Shell program
 - b) Conditional Statements
 - c) Testing and Loops
3. Memory Management Techniques
 - a) Memory allocation Techniques (First-fit,Best-fit,Worst-fit)
 - b) Page Replacement Algorithms (FIFO,LRU)
4. Process Scheduling Algorithms
 - a) FCFS

- b) SJF
 - c) Round Robin
 - d) Priority Scheduling
5. Simulate Bankers algorithm for the purpose of deadlock avoidance
 6. Device Handler Seek Strategies
 - a) FCFS
 - b) SSTF
 - c) SCAN
 7. File Allocation Strategies
 - a) Sequential
 - b) Indexed

Web References:

1. <https://ubuntu.com/tutorials/command-line-for-beginners#3-opening-a-terminal>
2. <https://educatech.in/execution-of-various-file-directory-handling-unix-linux-commands/>
3. <https://sites.google.com/site/uopops/pm>
4. <https://apgcem.edu.in/images/nirf%20mca/os-lab>

Pedagogy:

Demonstration and Practical sessions

Course Designer:

Dr.K.Reka

Semester VI	Internal Marks: 40			External Marks: 60		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS6MBE3BP	R PROGRAMMING LAB	MBE	75	-	5	5

Objective:

- To provide a basic knowledge to install and use R for simple programming tasks
- To familiarize with R libraries and packages
- To develop R Programs using Looping Constructs and R mathematical functions that can be used for data exploration

Course Outcome:

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

CO Number	CO Statement	Knowledge Level
CO1	Demonstrates data manipulation operations	K2
CO2	Develop programs using Loop constructs	K3
CO3	Use R for Descriptive statistics	K3
CO4	Apply the knowledge of R in data Analytics for real life applications	K3
CO5	Predict unknown values from known dataset	K6

Mapping with Programme Outcomes:

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

S- Strong; M- Medium; L-Low

Lab Exercises:

- Reading data from CSV & Excel files.
- Perform Vector Manipulation (add, subtract, multiply, divide, sort)
- Program to get the Fibonacci Series using Function
- Create a simple arithmetic calculator using decision making statements.
- Program to convert a List to Vector.
- Create two matrices and add, subtract, multiply and divide the matrices.
- Create a Data frame which contain details of 5 employees and display the details.
- Perform Left, Right and Full Outer join from given two data frames.
- Plot the histogram, bar chart and pie chart on sample data.
- Program for creating 3D plots.
- Perform the linear Regression to predict the weight of a person when his height is known.
- Create a scatterplot graph for the relational data set.

Web Reference

1. <https://cran.r-project.org/doc/manuals/r-release/R-intro.pdf>
2. <https://www.guru99.com/r-tutorial.html>
3. https://www.tutorialspoint.com/r/r_lists.htm
4. <https://www.w3resource.com/r-programming>

Pedagogy

Power Point Presentation, e-Content

Course Designer

Ms. R.Ramya

Semester VI	Internal Marks: 40			External Marks: 60		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS6MBE3CP	MINI PROJECT	MBE	75	-	5	5

Objective:

- To build problem solving ability and technical skills through the application of theoretical concepts for modeling the real world problems using latest technologies

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Apply the knowledge gained through various courses in solving a real life problem	K3
CO2	Demonstrate the different phases of software/system development life cycle	K2
CO3	Use time and resource management	K3
CO4	Develop programs accustomed to professional environment and/or style typical of a global IT industry	K3
CO5	Analyze different testing strategies for project evaluation	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
CO5	S	S	S	S

S- Strong; M- Medium; L-Low

Project Evaluation

Internal Assessment

There shall be four components that will be considered in assessing a project work

- Review I
- Review II
- Review III
- Continuous Performance

External Assessment

Dissertation/Project submitted will be evaluated based on the following components.

- Domain Knowledge
- Documentation
- Presentation
- Viva-voce



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
Nationally Accredited (III Cycle) with A Grade by NAAC
ISO 9001:2015 Certified
Annamalainagar, Trichy

PG & RESEARCH DEPARTMENT OF COMPUTER SCIENCE

MINUTES OF THE SIXTH MEETING OF BoS

DATE: 06.08 2021

VENUE: Google Meet

TIME: 02.30 PM

Members Present

- | | |
|------------------------------------|------------------------------------------|
| 1) Dr.V.Sujatha | Principal & Chairman of Academic Council |
| 2) Dr.V.Sinthu Janita Prakash | Chairperson, Professor & HoD |
| 3) Prof. S. Nickolas | University Nominee |
| 4) Dr. K.S. Jeen Marseline | Subject Expert, Other university |
| 5) Dr. S. Sukumaran | Subject Expert, Other University |
| 6) Ms. Disanthini Retnaraj | Alumna, Member |
| 7) Dr. D.I.George Amalarethinam | Subject Expert (Special Invitee) |
| 8) Dr. T.N.Ravi | Subject Expert(Special Invitee) |
| 9) Dr. E.George Dharma Prakash Raj | Subject Expert(Special Invitee) |
| 10) Mr.K.Phani Kumar | Subject Expert, TCS |
| 11) Mr. Stephen Moses Dhinakaran | Nominated BoS Member from TCS |
| 12) Ms.N.Girubagari | Member |
| 13) Dr.P.Rajeswari | Member |
| 14) Ms.A.Sahaya Jenitha | Member |
| 15) Ms.K.Pradeepa | Member |
| 16) Ms.D.Radhika | Member |
| 17) Dr.K.Reka | Member |
| 18) Ms.S.Udhayapriya | Member |
| 19) Ms.P.Muthulakshmi | Member |
| 20) Ms.K.Sangeetha | Member |
| 21) Ms.R.Rita Jenifer | Member |

22) Ms.V.Kavitha	Member
23) Ms.R.Sangeetha	Member
24) Ms.S.Saranya	Member
25) Ms.N.Agalya	Member
26) Ms.G.Sujatha	Member
27) Ms.R.Ramya	Member
28) Dr.M.Parveen	Special Invitee
29) Dr.J.Sangeetha	Special Invitee
30) Dr.A.Bhuvanewari	Special Invitee
31) Dr.S.Latha	Special Invitee
32) Ms.P.Tamilselvi	Special Invitee
33) Ms.S.Sugunadevi	Special Invitee
34) Dr.R.Merlin Packiam	Special Invitee
35) Ms.K.Akila	Special Invitee
36) Ms.Lakshana Arun	Special Invitee
37) Ms.R.Sridevi	Special Invitee
38) Ms.V.Yasodha	Special Invitee
39) Ms.A.Jabeen	Special Invitee
40) Ms.M.Elakkiya	Special Invitee

The leave of absence was granted to:

1) Mr.Laxmi Narasimhan Varadhan – (Placement Representative from Industry), Associate Director
Deloitte Touche Tohmatsu India Ltd, Chennai, Tamil Nadu 600017

Action taken report of Fifth BoS held on 04.06.2021

The Fifth BoS Meeting was held online on 04.06.2021, headed by the chairperson and all the members (05 External members and 17 internal members) were present. The Resolution No.BoS/05/01 in connection with the Part III Core and Major Based Electives courses for Sixth Semester of B.Sc Computer Science (2019-2020 batch and onwards) were confirmed and is forwarded to the Academic Council, Cauvery College for Women(Autonomous), Trichy

**Minutes of the Sixth Meeting of BoS held on 06.08.2021 at 02.30 p.m.
through Online Mode**

The following Resolutions were passed by the members of the BoS

RESOLUTION NO.BOS/06/01

Considered and approved the Programme Outcome and Programme Structure of TCS integrated Academic Interface Programme - **B.Sc Computer Science with Cognitive Systems** for 2021-2022 batch and onwards and is recommended to the Academic Council, Cauvery College for Women(Autonomous), Trichy

RESOLUTION NO.BOS/06/02

Considered and approved the Course Objectives, Course Outcomes and syllabi of Part III Core Courses of Semester I of **B.Sc Computer Science with Cognitive Systems** for 2021-2022 batch and onwards and is recommended to the Academic Council, Cauvery College for Women(Autonomous), Trichy

- In Semester I the Core Course I is **Operating System (Theory + Practical)** with 4 Hours for Theory and 2 Hours for Practical with a total credit of 5
- The instructional hour for Core Practical I - **Introduction to Worksheets** in Semester I has been reduced from 3 hours to 2 hours and the credit remains the same as 2
- As per the suggestions of **Prof. S. Nickolas**, University Nominee, Core Course II - **IT Cognition and Problem Solving** has been introduced in Semester I with 4 hours and 3 credits

➤



Dr.V. Sinthu Janita Prakash



Prof.S. Nickolas



Dr. S. Sukumaran



Dr K.S. Jeen Marseline



Ms. Disanthini Retnaraj

B.Sc Computer Science with Cognitive Systems
(For the Candidates admitted from the Academic year 2021-2022 and onwards)

Semester	Part	Course	Title	Course Code	Inst.H rs/	Credits	Exam Marks		Total		
							Hrs.	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)	Operating System (Theory + Practical)	21UCG1CC1	4+2	5	2	50*	50*	100	
			Core Practical - I (CP)	Introduction to Worksheets	21UCG1CC1P	2	2	3	40	60	100
			Core Course – II (CC)	IT Cognition and Problem Solving	21UCG1CC2	4	3	3	25	75	100
	IV	UGC Jeevan Kaushal Life Skills	First Allied I	Essential Mathematics	21UCG1AC1	4	3	3	25	75	100
			Universal Human Values	20UGVE	2	2	3	25	75	100	
TOTAL					30	21			700		
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 – III (CC)	Computer Networks (Theory + Practical)	21UCG2CC3	4+2	5	2	50*	50*	100	
			Core Course - IV(CC)	Information Technology Infrastructure Library - ITIL	21UCG2CC4	2	2	3	25	75	100
			First Allied II	Statistics	21UCG2AC2	4	3	3	25	75	100
	IV	Environmental Studies	First Allied III	Operations Research	21UCG2AC3	4	3	3	25	75	100
			Environmental Studies	21UGES	2	2	3	25	75	100	
TOTAL					30	21			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)	Reading and Writing for Effective Communication-I	19UE3	6	3	3	25	75	100	
	III	Core Course – V(CC)	Java Programming (Theory + Practical)	21UCG3CC5	4+2	5	2	50*	50*	100	
			Core Course– VI(CC)	Infrastructure Management (Theory + Practical)	21UCG3CC6	4+2	5	2	50*	50*	100
			Second Allied I	Digital Computer Fundamentals	21UCG3AC4	4	3	3	25	75	100
	IV	Non Major Elective I (For Other Department)	Office Automation Lab	21UCG3NME1P	2	2	3	40	60	100	
			Basic Tamil	19ULC3BT1				25	75		
Special Tamil			19ULC3ST1								
TOTAL				30	21				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)	Reading and Writing for Effective Communication-II	19UE4	6	3	3	25	75	100	
	III	Core Course – VII(CC)	Relational Database Management Systems	21UCG4CC7	5	4	3	25	75	100	
			Core Practical - II (CP)	Relational Database Management Systems Lab	21UCG4CC2P	3	2	3	40	60	100
		Second Allied II	Digital & Microprocessor Lab	21UCG4AC1P	3	3	3	40	60	100	
			Second Allied III	Microprocessor & Microcontrollers	21UCG4AC5	3	3	3	25	75	100
	IV	Non Major Elective II (For Other Department)	Multimedia Lab	21UCG4NME2P	2	2	3	40	60	100	
			Basic Tamil	19ULC4BT2				25	75		
			Special Tamil	19ULC4ST2							
		Skill Based Elective – I	Web Technologies Lab	21UCG4SBE1AP	2	2	3	40	60	100	
	Computer Hardware and Trouble Shooting Lab		21UCG4SBE1BP								
TOTAL				30	22				800		

V	III	Core Course – VIII(CC)	Data Structures & Algorithms	21UCG5CC8	5	5	3	25	75	100
		Core Course-IX(CC)	Introduction to digital Technologies (Theory + Practical)	21UCG5CC9	3+2	5	2	50*	50*	100
		Core Course – X(CC)	Client Relationship Management (Theory +Practical)	21UCG5CC10	3+2	5	2	50*	50*	100
		Core Course - XI(CC)	Cloud Computing (Theory +Practical)	21UCG5CC11	4+2	5	2	50*	50*	100
		Major Based Elective – I	Computer Organization & Architecture	21UCG5MBE1A						
	Process Management		21UCG5MBE1B	5	4	3	25	75	100	
	Computer Graphics		21UCG5MBE1C							
	IV	Skill based Elective –II	Data Structures Lab Using C	21UCG5SBE2AP	2	2	3	40	60	100
			Graphics Lab using OpenGL	21UCG5SBE2BP						
		UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100
TOTAL					30	28				700
VI	III	Core Course – XII(CC)	Software Engineering & Testing	21UCG6CC12	6	5	3	25	75	100
		Core Course – XIII(CC)	Python Programming (Theory + Practical)	21UCG6CC13	4+2	5	2	50*	50*	100
		Core Course – XIV(CC)	Open Source Technologies (Theory + Practical)	21UCG6CC14	4+2	5	2	50*	50*	100
		Major Based Elective – II	Artificial Intelligence & Machine Learning	21UCG6MBE2A	5	4	3	25	75	100
			Mobile Computing	21UCG6MBE2B						
			Data Mining & Warehousing	21UCG6MBE2C						
		Major Based Elective – III	Network Security	21UCG6MBE3A	4	4	3	25	75	100
			Human Computer Interaction	21UCG6MBE3B						
			Big Data & IoT	21UCG6MBE3C						
	IV	Skill Based Elective – III	Mobile Application Development Lab	21UCG6SBE3AP	2	2	3	40	60	100
			Software Testing Lab	21UCG6SBE3BP						
	V	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100
		Extension activity		19UGEA	0	1	0	-	-	0
TOTAL					30	27				700
					180	140				4200

Theory + Practical: ESE: 50 (Theory Exam) , CIA: 50* (Practical:40 + Theory :10)

S. Nicholas

Prof. S. Nicholas

University Nominee

Professor & Head, Department of Computer Applications

National Institute of Technology, Trichy

Semester I	Internal Marks: 50			External Marks:50		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
21UCG1CC1	OPERATING SYSTEM (THEORY+PRACTICAL)	CORE	90	4	2	5

Objective

- To recognize the concepts and principles of Windows operating system.
- To inculcate knowledge on Backup and recovery
- To learn how to install, configure, deploy, manage and maintain the operating system

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Ability to work in Windows 10 operating system, its tools and utilities.	K1
CO2	Understand the roles and features of windows server	K2
CO3	Analyze the basics of server management	K3
CO4	Monitor Windows servers	K3
CO5	Perform server backup and restoration	K4

Mapping with Programme Outcomes

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

S–Strong; M–Medium; L –Low

Syllabus

Theory:

UNIT – I (12 Hours)

Operating System overview and Windows: Introduction to Windows, Versions of Windows, GUI Components, Windows Features, Windows 10 Installation, User Management, Disk Management, Security, IP Configuration, File Permissions and Sharing, Backup & Recovery, Devices and Printers

UNIT –II (12 Hours)

Server Operating System: Introduction to Windows Server, Version of Windows Servers, Windows Roles and Features, Installation of Server OS, Installation of Roles and Features

UNIT –III (12 Hours)

Managing Windows Servers: Account Management, Group Management, Server Access Management, Network Configuration and Storage Management

UNIT –IV (12 Hours)

Monitoring Windows Servers: Task Manager, Performance Management, Event Log Management, Alerts and Reports

UNIT –V (12 Hours)

Backup and Recovery of Windows Servers: Overview of Backup, Types of Backup, Server Backup & Restoration, Basic Server Troubleshooting

Practical:

List of Exercises

1. Windows 10 OS
 - a. Windows 10 Installation
 - b. Creating Users
 - c. Configuring Disks
 - d. Exploring File Permissions
 - e. Backup & Recovery of Windows 10
2. Windows Server OS
 - a. Installation of Windows Server OS
 - b. Installation of different Roles and Features
3. Managing Windows Servers
 - a. Create Users and Groups
 - b. Explore Roles and Access
 - c. Explore Network Configuration
 - d. Explore Storage Management

4. Monitor Windows Servers
 - a. Exploring Task Manager
 - b. Exploring Performance Monitor
 - c. Exploring Event Log
 - d. Exploring Alerts and Reports

5. Backup & Recovering Windows Servers
 - a. Backup Windows Server
 - b. Restore Windows Server Backup

Software Essentials: OS – Windows/Linux

Suggested Readings

TCS Material

Web References

Theory:

1. https://www.tutorialspoint.com/windows10/windows10_overview.htm
2. <https://docs.microsoft.com/en-us/windows-server/administration/server-manager/install-or-uninstall-roles-role-services-or-features>
3. <https://docs.microsoft.com/en-us/windows-server/storage/disk-management/overview-of-disk-management>
4. <https://docs.microsoft.com/en-us/windows-server/troubleshoot/windows-server-troubleshooting>

Practical:

5. <https://www.youtube.com/watch?v=CraR01ya9ds>
6. https://it.hessercan.com/wp-content/uploads/2017/09/laboratory_01-2017.pdf
7. <https://docs.microsoft.com/en-us/windows/deployment/windows-10-poc>

Pedagogy

Chalk and talk, PPT, Demonstration, e-content

Course Designer

TCS

Semester I	Internal Marks: 40			External Marks:60		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
21UCG1CC1P	INTRODUCTION TO WORKSHEETS	CORE	30	-	2	2

Objective

- To perform basic calculations and formatting
- To inculcate the knowledge of Macros
- To create applications using VBA code

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Demonstrate the use of basic functions, LOOKUPS and formatting	K2
CO2	Build Applications using VBA code	K3
CO3	Ability to write Macros and implement data visualization	K3

Mapping with Programme Outcomes

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

S–Strong; M–Medium; L –Low

List of Exercises

EXCEL

1. Excel worksheet for Formatting, Math function and Text function
2. Excel worksheet for Graph Function
3. Excel worksheet for VLOOKUP, HLOOKUP and other LOOKUPS
4. Excel worksheet for Pivot

VBA

5. Unhide all worksheets at one Go
6. Hide All Worksheets except the Active Sheet
7. Protect and Unprotect All worksheets in a Workbook
8. Save each Worksheets as a separate PDF
9. Change the Letter Case of Selected Cells to Upper Case
10. Sort Data by Single and Multiple Columns
11. Highlight Blank Cells with VBA

Software Essentials: Microsoft office 2007

Web References

1. <https://www.excel-exercise.com/beginner/>
2. <https://trumpexcel.com/excel-macro-examples/>

Pedagogy

Power Point Presentation, Demonstration

Course Designer

TCS

Semester I	Internal Marks: 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
21UCG1CC2	IT COGNITION & PROBLEM SOLVING	CORE	60	4	-	3

Objective

- To enable the learners to understand the concepts of cognitive process
- To empower the learners with the skills required for virtual collaboration and cultural sensitivity

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Outline Cognitive Process	K1
CO2	Reproduce perceptual process	K1
CO3	Identify factors affecting memory	K2
CO4	Solve different types of problems	K3
CO5	Experiment different skills	K4

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4
CO1	L	M	L	M
CO2	L	M	L	M
CO3	L	M	L	M
CO4	L	M	L	M
CO5	L	M	L	M

S–Strong; M–Medium; L–Low

Syllabus

Unit I

(7 Hours)

Introduction to Cognition: Meaning, cognitive processes, Development of cognitive psychology

Unit II

(15 Hours)

Perceptual Processes; Attention: Divided attention, Selective Attention, Visual attention and Auditory attention. Consciousness: Varieties, Subliminal Perception. Visual Perception Perceptual Organizational Processes, Multisensory interaction and Integration – Synthesis, Comparing the senses, Perception and Action.

Unit III**(15 Hours)**

Memory- Working Memory: Factors affecting the capacity of working Memory. Long Term Memory: Encoding and Retrieval in Long Term Memory, Autobiographical Memory. Memory Strategies: Practice, Mnemonics using Imagery, Mnemonics using organization. Meta cognition :Meta memory, TOT, Meta comprehension.

Unit IV**(15 Hours)**

Problem Solving, Reasoning and Decision Making: VUCA World Problem Solving – Types of problems, Factors that influence Problem Solving, creativity, Reasoning – Inductive and Deductive Reasoning. Decision Making – Heuristics in decision making – representativeness, availability and Anchoring and adjustment. The framing effect, Overconfidence in decisions, The Hindsight Bias.

Unit V**(8 Hours)**

Future Skills: Critical thinking, Adaptive thinking, Cognitive Load Management, Design thinking, Virtual Collaboration and Cultural Sensitivity

Suggested Readings

1. Matlin M.W. (2003) 'Cognition' 5th Edition, Wiley Publication.
2. Riegler, B.R., Reigler, G.L. (2008), Cognitive Psychology – Applying the Science of Mind. 2nd Edition, Pearson Education.
3. Benjafield J G (2007). 'Cognition' 3rd Edition. Oxford University Press.
4. Goldstein B.E.(2008) 'Cognitive Psychology' 2nd Edition, Wadsworth

Web References

1. https://sjsu.edu/people/mark.vanselst/courses/p135/s1/Kellogg_c1_fall2013.pdf
2. <https://jvpartners.com/problem-solving-and-decision-making-in-a-vuca-environment/>
3. <https://plato.stanford.edu/entries/critical-thinking/>

Pedagogy

Chalk & Talk, PPT

Course Designer

TCS

ALLIED COURSE –I (AC)
ESSENTIAL MATHEMATICS
2021-2022 Onwards

Semester I	Internal Marks: 25			External Marks: 75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
21UCG1AC1	ESSENTIAL MATHEMATICS	ALLIED	60	4	-	3

Objective

- To inculcate the basics of Differentiation , Integration and their applications.
- To acquire the knowledge of solving problems using ordinary and partial differential equations.
- To understand the fundamental concepts in graph theory.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	State the basic concepts of graph theory.	K1
CO2	Explain the concepts of Matrices and its types.	K2
CO3	Compute characteristic equation of a matrix and its inverse by Cayley Hamilton theorem.	K3
CO4	Apply Differentiation to find the solutions of Ordinary and Partial Differentiation.	K3
CO5	Classify the various types of integrals.	K3
CO6	Solve different types of ordinary differential equation.	K3
CO7	Classify the characteristics of graph theory.	K3

Mapping with Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4
CO1	S	S	S	M
CO2	S	S	M	M
CO3	S	S	S	S
CO4	M	M	M	M
CO5	S	S	M	M
CO6	S	M	M	M
CO7	S	S	S	S

S–Strong;M–Medium; L-Low

Syllabus

UNIT I

(12 HOURS)

Matrices

Matrices – Special types of Matrices– Scalar Multiplication of a Matrix – Equality of Matrices – Addition of Matrices – Subtraction – Symmetric Matrix – Skew symmetric Matrix – Hermitian and Skew Hermitian Matrices Multiplication of Matrices – Inverse Matrix– Relation between adjoint and Inverse Matrices –Solution of Simultaneous equations –Rank of a Matrix– A system of m homogeneous linear equations in n unknowns – System of non-homogeneous linear equations – Linear Dependence and Independence of Vectors – Eigenvalues and Eigenvectors – Similar Matrices –Cayley-Hamilton's Theorem (proof not needed) –Simple applications only.

UNIT II

(12 HOURS)

Differentiation

Maxima & Minima – Concavity and Convexity, Points of inflexion-Partial differentiation Functions of function rule – Total Differential Coefficient – A Special case – Implicit Functions – Homogeneous functions –Euler's Theorem(proof not needed)–Simple problems only.

UNIT III

(12 HOURS)

Integration

Integration of Rational algebraic functions– Rule (a)– Rule (b) : Type i: $\int \frac{dx}{ax^2+bx+c}$,
Type ii: $\int \frac{(lx+m)dx}{ax^2+bx+c}$ – Integration of Irrational functions : Case (ii) Integration of the form
 $\int \frac{px+q}{\sqrt{ax^2+bx+c}}$ – Type $\int \frac{dx}{a+b\cos x}$ – Properties of definite integrals – Integration by parts.

UNIT IV

(12HOURS)

Differential Equations

Type A : Variables Separables – Type D : Linear equation.

Linear Differential Equation with constant co-efficients – Particular Integral – Special methods of finding P.I. : X be of the form (a) $e^{\alpha x}$ (b) $\cos \alpha x$ or $\sin \alpha x$, where α is a constant (c) x^m (a power of x), m being a positive integer (d) $e^{kx} f(x)$

UNIT V

(12HOURS)

Graph Theory

What is a Graph?– Application of Graphs – Finite and infinite graphs – Incidence and Degree – Isolated Vertex, Pendant Vertex, and Null Graph –Isomorphism–Sub graphs– A Puzzle With Multicolored Cubes – Walks, Paths, and Circuits –Connected Graphs, Disconnected Graphs, and Components – Euler graphs.

Text Books

S.No	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1	T.K. Manicavachagom Pillay, T.Natarajan, K.S.Ganapathy	Algebra, Volume II	S. Viswanathan (Printers & Publishers) Pvt.,Ltd.	Reprint 2015
2	S. Narayanan, T.K.Manicavachagom Pillay	Calculus, Volume I	S. Viswanathan (Printers & Publishers) Pvt., Ltd.	Reprint 2015
3	S. Narayanan, T.K.Manicavachagom Pillay	Calculus, Volume II	S. Viswanathan (Printers & Publishers) Pvt., Ltd.	2004
4	S. Narayanan, T.K.Manicavachagom Pillay	Calculus, Volume III	S. Viswanathan (Printers & Publishers) Pvt., Ltd.	Reprint 2015
5	Narsingh Deo	Graph Theory	Prentice Hall of India Private Limited	June 2003

Chapters and Sections

UNIT	TEXT BOOK	CHAPTER	SECTION
I	1	2	1 to 8, 10 to 16
II	2	5 8	1.1 to 1.5 & 2 1.1 to 1.6
III	3	1	7.1 to 7.3 8 (CASE II), 9, 11, 12
IV	4	1 2	2.1 and 2.4 1 to 4
V	5	1 2	1.1 to 1.5 2.1 to 2.6

Reference Books

S.No	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1	A.Singaravelu	Allied Mathematics	A.R.Publications	2003
2	P.R.Vittal	Allied Mathematics	Margham Publications, Chennai	2014
3	S.Arumugam and S.Ramachandran	Invitation to Graph Theory	SciTech Publications (India) PvtLtd., Chennai	2006

Pedagogy

Assignment, Seminar, Lecture, Quiz, Group discussion, Brain storming, e-content.

Youtube Links

1. <https://youtu.be/rowWM-MijXU>
2. https://youtu.be/Gxr3AT4NY_Q
3. <https://youtu.be/xlbbefbYLzg>
4. <https://youtu.be/s5KZw1EpBEo>

Course Designers

1. Dr. V. Geetha
2. Dr. S. Sasikala

SEM-I	Universal Human Values	Category	Course Code	Instructional Hrs	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 successful completion of this course, the students will able to

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

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 they 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 and Case studies

ANNEXURE - M

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

Nationally Accredited (III Cycle) with "A" Grade by NAAC

ISO 9001:2015 Certified

Annamalai Nagar, Trichy – 18.



DEPARTMENT OF COMPUTER APPLICATIONS

AUTONOMOUS SYLLABUS

BOARD OF STUDIES - 5

2021 - 2022



Cauvery College for Women (Autonomous)
Nationally Accredited (III Cycle) with “A”Grade by NAAC
ISO 9001 : 2015 Certified
Annamalai Nagar, Trichy -18.

MINUTES OF THE MEETING-Board of Studies :5

Department of Computer Applications

DATE: 28-05-2021

TIME: 10.00 AM through GOOGLE MEET

Members Present

- | | |
|-----------------------------|------------------------------------------------------------|
| 1) Dr.R. Merlin Packiam | Chairperson, Associate Professor & Head |
| 2) Dr. L. Ravi | Subject Expert, Other University |
| 3) Dr.K. Meenakshi Sundaram | Subject Expert, Other University |
| 4) Dr.J.G.R. Sathiaseelan | Subject Expert, Bharathidasan University |
| 5) Mr.Derrick Alex | Placement Representative from Industry
Corporate Sector |
| 6) Dr.A. Kangaialmmal | Alumna, Member |
| 7) Dr.H. Krishnaveni | Member |
| 8) Dr.R. Brendha | Member |
| 9) Ms.T. Julie Mary | Member |
| 10) Ms.A. Anandhavalli | Member |
| 11) Ms. LakshnaArun | Member |
| 12) Ms.R. Sridevi | Member |
| 13) Ms.K. Akila | Member |
| 14) Ms.V. Yasodha | Member |
| 15) Ms.V. Infine Sinduja | Member |
| 16) Ms.M. Ellakkiya | Member |
| 17) Ms.A. Jabeen | Member |
| 18) Dr.N. Sivapriya | Member |

Minutes of the Fifth BoS:

1. Resolution NO.BOS/05/01

The syllabus of the **Skill Based Elective-II** course in V semester BCA with a title “Practical - PC Packages (19UCA5SBE2AP)” and “Practical –Corel Draw (19UCA5SBE2BP)” for BCA (2019-2020) batch and onwards were ratified instead of theory papers.

2. Resolution NO.BOS/05/02

The curriculum and syllabus for BCA (2019-2020) batch and onwards were discussed and recommended.

- Core Course VIII (CC) – “Computer Networks (19UCA6CC8)” syllabus has been approved.
- Core Course IX (CC) – “Internet of Things (19UCA6CC9)” syllabus has been approved.

3. Resolution NO.BOS/05/03

The syllabus of **Major based Elective-II** course of VI semester BCA (2019-2020) batch and onwards were discussed and recommended.

- “Python Programming (19UCA6MBE2A)” syllabus has been approved.
- “R Programming for Data Analysis (19UCA6MBE2B)” syllabus has been approved.
- “Digital Marketing (19UCA6MBE2C)” syllabus has been approved.

The syllabus of **Major based Elective-III** course of VI semester BCA (2019-2020) batch and onwards were discussed and recommended.

- Practical- “Python Programming (19UCA6MBE3AP)” has been approved.
- Practical- “R Programming (19UCA6MBE3BP)” has been approved.
- Practical- “Dot Net Programming (19UCA6MBE3CP)” has been approved.

4. Resolution NO.BOS/05/04

The “Project Work (19UCA6PW)” for VI semester has been approved for BCA (2019-2020) batch and onwards.

5. Resolution NO.BOS/05/05

The Programme structure (I to VI semester) and syllabus of I Semester BCA for the batch 2021-2024 and onwards were discussed and approved.

- Core Course I (CC) – “Programming with C (21UCA1CC1)” syllabus has been modified and approved.
- Core Course I (CP) – “Practical I – Programming with C (21UCA1CC1P)” has been modified and approved.

6. Resolution NO.BOS/05/06

The chairman reported the members that the department conducted more than five meetings with the faculty members of department of Computer Applications, to discuss the contents of the syllabus to be framed by the department. The chairman appreciated the efforts of the members of BoS, for their valuable contribution in preparing the syllabus.

The Board of Studies meeting was resolved and concluded by recommending the curriculum and syllabus for V semester of UG Computer Applications, Programme structure (I to VI semester) and syllabus of I Semester BCA for the batch 2021-2024 of BCA to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
BACHELOR OF COMPUTER APPLICATIONS- PROGRAMME STRUCTURE
(For the Candidates admitted from the academic year 2019-2020 onwards)
SEMESTER V & VI

5	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	Cloud Computing	19UCA5MBE1A	5	5	3	25	75	100
	Introduction to Data Mining and Data Warehousing		19UCA5MBE1B							
	Artificial Intelligence		19UCA5MBE1C							
	IV	Skill Based Elective - II	Practical-PC Packages	19UCA5SBE2AP	2	2	3	40	60	100
			Practical-Corel Draw	19UCA5SBE2BP						
		Skill Based Elective - III	Practical-Mobile Applications Development	19UCA5SBE3AP	2	2	3	40	60	100
Practical-Multimedia Systems			19UCA5SBE3BP							
IV	UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100	
V	Extra Credit Course	Swayam Online Course	To be Fixed Later	As per UGC Recommendation						
Total					30	29				800
6	III	Core Course - VIII (CC)	Computer Networks	19UCA6CC8	6	5	3	25	75	100
		Core Course - IX (CC)	Internet of Things	19UCA6CC9	6	5	3	25	75	100
		Major Based Elective - II	Python Programming	19UCA6MBE2A	6	5	3	25	75	100
			R Programming for Data Analysis	19UCA6MBE2B						
			Digital Marketing	19UCA6MBE2C						
		Major Based Elective - III	Practical- Python Programming	19UCA6MBE3AP	5	5	3	40	60	100
			Practical- R Programming	19UCA6MBE3BP						
	Practical- Dot Net Programming		19UCA6MBE3CP							
	Project Work	Project Work	19UCA6PW	6	4	-	-	-	100	
	V	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100
Extension Activity			19UGEA	0	1	0	-	-	-	
Total					30	26				600
Total					180	140				4100

SYLLABUS OF SBE II

SKILL BASED ELECTIVE – II

PRACTICAL - PC Packages

Semester: V

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA5SBE2AP	Practical-PC Packages	SBE-II	30	-	2	2

PREAMBLE:

- To understand concepts of PC Package Programming.

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Creating documents using template in MS – word	K1
CO2	Design a worksheet in MS- Excel	K2
CO3	Demonstrate usage of slides in MS - PowerPoint	K3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	S	S
CO2	S	S	M	M
CO3	M	M	S	S
CO4	M	M	M	L

S-Strong; M-Medium; L-Low

LIST OF PRACTICALS

MS – WORD

1. Text Manipulation – Change the font type and style, alignment of text and underline the text
2. Prepare a document with Bullets, Footers and Headers
3. Prepare a document in newspaper format
4. Table – Creation, insertion, deletion (Columns and rows)
 - a. Create a Mark Sheet using table and find out total of all marks for each student
5. Picture insertion and alignment: - Prepare a Greeting Card
6. Creation of documents using templates
 - a. Prepare a letter using any template
 - b. Prepare a Biodata using any kind of templates
7. Mail Merge: - Prepare Convocation invitation to be sent to specific addresses in the data source.

MS EXCEL

8. MS-Excel-Introduction: - Worksheet & Work book preparation
 - a. Entering, Editing and Deleting Text, Numbers, Dates
 - b. Moving and Copying data
 - c. Inserting, Deleting and Hiding Rows & Columns
 - d. Inserting, Deleting, Moving and Copying Sheets
 - e. Merging of cells
9. Implement built-in functions such as date, date & time, Text functions
10. Data sorting – Ascending and Descending (both numbers and alphabets)
11. Prepare worksheet
 - a. For Mark list of a class with a chart (any type)
 - b. For electricity bill
12. Implement Data filtering in the mark list
13. Implement the concept of conditional formatting and freeze panes.

MS POWER POINT

14. MS-PowerPoint: - Inserting clip and pictures

Create a slide show presentation for a seminar chooses your own topics.

 - a. Enter the text in outline view
 - b. Create non-bulleted and bulleted body text
 - c. Apply the appropriate text attributes
15. Presentation using wizards -Usage of design templates: - Creation of a slide show presentation using different presentation template and different transition effect for each slide. Use different text attributes in each slide.

COURSE DESIGNER

Ms,T. Julie Mary, Assistant Professor, Department of Computer Applications.

SKILL BASED ELECTIVE - II

PRACTICAL –COREL DRAW

Semester: V

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA5SBE2BP	Practical-Corel Draw	SBE	30	-	2	2

PREAMBLE

- To make students familiar about CorelDraw Tools for designing a webpage

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Define usage of Corel Draw X7	K1
CO2	Describe formatting tools in CorelDraw	K2
CO3	Creating effective document	K3
CO4	Demonstrating all options in shapes tool	K3
CO5	Developing a sample webpage	K3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	S	S
CO2	S	S	M	M
CO3	M	M	S	S
CO4	M	M	M	L

S-Strong; M-Medium; L-Low

LIST OF PRACTICALS

Download & Install Corel Draw X7

1. Creating new document, adding new pages and resizing the documents using simple tools in Corel Draw X7.
2. Design a page with shapes and colours using tools in toolbox
3. Formatting & decorating text shapes using Smear tool.
4. Import an image and alter it by applying crop tool
5. Create a document with all the options in Draw tool.
6. Design a Brochure design using Artistic tool & text tool
7. Demonstrate Shadow/Contour/Blend in shapes & text.
8. Create a Poster using Transparency tool & text tool.

COURSE DESIGNER

Ms. M.Ellakkiya, Assistant Professor, Department of Computer Applications.

VI SEMESTER SYLLABUS

CORE COURSE VIII– (CC)

COMPUTER NETWORKS

Semester: VI

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA6CC8	Computer Networks	Core	90	6	-	5

PREAMBLE:

- To understand the design and organization of computer networks

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Describe the design and issues of the layers	K1
CO2	State the concepts of physical layer and data link layer	K1
CO3	Explain the various routing algorithms	K2
CO4	Demonstrate the protocols of transport layers	K2
CO5	Explain the function of application layer	K2

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	S
CO2	S	L	S	S
CO3	M	S	S	S
CO4	S	S	S	L
CO5	S	S	S	M

S – Strong; M – Medium; L – Low

SYLLABUS:

UNIT I : Introduction to Network Layers and Reference Models (18 HOURS)

Introduction – Uses of Computer Networks – Network Hardware – Network Software: Protocol Hierarchies – Design Issues for the Layers – Connection Oriented and Connectionless Services – Service Primitives **Reference models:** The OSI Reference Model – TCP/IP Reference Model.

UNIT II : Physical layer and Data link layer (18 HOURS)

The Physical Layer: Guided Transmission Media – Public Switched Telephone Network – Structure of Telephone System – Trunks and Multiplexing – Switching - **The Data link Layer:** Data link layer Design Issues – Error Detection and Correction – Stop and Wait Protocol - Sliding Window Protocol.

UNIT III : Network Layer and Routing Algorithms (18 HOURS)

The Network Layer: The Network Layer Design Issues – **Routing Algorithms:** The Optimality Principle – Shortest Path Routing – Flooding – Distance Vector Routing – Link State Routing – Hierarchical Routing – Broadcast Routing – Congestion Control Algorithms: General Principles of Congestion Control – Congestion Prevention Policies.

UNIT IV : Transport layer and Protocols (18 HOURS)

The Transport Layer: The Transport Service – Elements of Transport Protocols – **Internet Transport Protocols:** Introduction to UDP – RPC – TCP: TCP Service Model – TCP Protocol – TCP Segment Header.

UNIT V : Application Layer (18 HOURS)

The Application Layer: The DNS Name Space – E-mail: Architecture and Services – Message Formats.

TEXT:

1. Andrew S. Tanenbaum, “Computer Networks”, Pearson Prentice Hall, Fourth Edition, 2019.

REFERENCES:

1. Behrouz A. Forouzan, “Data Communications and Networking”, Tata McGraw-Hill, Fifth Edition, 2017.
2. William Stallings, “Data and Computer Communication”, PHI, Fifth Edition, 2008.

WEB REFERENCES:

1. <https://www.geeksforgeeks.org/layers-of-osi-model/>
2. <https://www.geeksforgeeks.org/classification-of-routing-algorithms/>
3. https://www.tutorialspoint.com/communication_technologies/

COURSE DESIGNER

Ms.A. Jabeen, Assistant Professor, Department of Computer Applications.

CORE COURSE IX– (CC)

INTERNET OF THINGS

Semester: VI

CourseCode	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA6CC9	Internet of Things	Core	90	6	-	5

PREAMBLE

- To understand the concepts of Internet of Things and technologies involved in the connected devices

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Explain IoT enabling Technologies.	K2
CO2	Analyze applications of IoT in real time scenario	K4
CO3	Design a portable IoT using Raspberry pi	K5
CO4	Expalin Data Analytics for IoT.	K2
CO5	Illustrate Tools in IoT	K3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	M
CO2	M	S	M	M
CO3	S	M	S	S
CO4	S	S	S	S
CO5	S	S	S	S

S – Strong; M – Medium; L – Low

SYLLABUS

UNIT I: Internet of Things & Design Principles

(18 HOURS)

Internet of Things an Overview: Internet of Things-IoT conceptual framework-IoT architectural view-Technology behind IoT-Sources of IoT –M2M communication-Examples of IoT. **Design Principles for connected devices:** Introduction –IoT/M2M Systems layers & designs standardisation-communication technologies-data enrichment, data consolidation & device management at gateway-ease of designing and affordability.

UNIT II : Design & Web Connectivity Principles

(18 HOURS)

Design Principles For Web Connectivity: Introduction – Web Communication Protocol for Connected Devices-Message Communication Protocol for Connected Devices-Web Connectivity for Connected Devices Network Using Gateway, SOAP,REST,HTTP Restful & Websockets .**Internet Connectivity Principles:** Introduction-Internet Connectivity-Internet Based Communication-IP Addressing in the IoT-Media Access Control-Application Layer Protocols:HTTP,HTTPS-FTP-Telnet and Others.

UNIT III: Data Acquiring and Data Collection

(18 HOURS)

Data Acquiring, Organizing, Processing and Analytics: Introduction-Data Acquiring and Storage-Organizing the Data-Transactions ,Business Process, Integrations & Enterprise Distance-Analytics-Knowledge Acquiring, Managing and Storing Processors .**Data Collection ,Storage & Computing Using Cloud Platform:** Introduction-Cloud Computing Paradigm for Data Collection ,Storage and Computing-Everything as a Service and Cloud Service Models-IoT Cloud based Services Using the Xively, Nimbits and Other Platforms.

UNIT IV: Sensors and Embedded Devices

(18 HOURS)

Sensors, Participatory Sensing, RFIDs and Wireless Sensor Networks: Introduction-Sensor Technology-Participating Sensing, Industrial IoT and Automotive IoT-Actuators-Sensor Data Communication Protocols-Radio Frequency Identification Technology-Wireless Sensor Network Technology. **Prototyping the Embedded Devices for IoT and M2M:** Introduction-Embedded Computing Basics –Embedded Platforms for Prototyping-Things always connected to the Internet/Cloud.

UNIT V: IoT Security

(18 HOURS)

IoT Privacy, Security and Vulnerabilities Solutions:Introduction-Vulnerabilities,Security Requirements and Threat Analysis-Use Cases And Misuse Cases-IoT Security Tomography and Layered Attacker Models – Identity Management and Establishment ,Access Control and Secured Message Communication –Security Models, Profiles and Protocols for IoT.

TEXT:

Raj Kamal, “Internet of Things Architecture and Design Principles”, McGraw Hill Education (India) Private Limited, 2017.

REFERENCES:

1. David Hanes, Gonzalo Salgueiro, Patrick Grossette, Robert Barton, Jerome Henry, “IoT Fundamentals, Networking Technologies, Protocols and Use cases for Internet of Things”, Cisco Press, 2017.
2. Olivier Hersent, David Boswarthick, Omar Elloumi, “The Internet of Things –Key applications and Protocols”, Wiley, 2012.

WEB REFERENCES:

1. <https://www.tutorialspoint.com/>
2. <https://www.guru99.com/>
3. <https://www.pythonforbeginners.com/>

COURSE DESIGNER

Ms. Lakshna Arun, Assistant Professor, Department of Computer Applications.

MAJOR BASED ELECTIVE- II
PYTHON PROGRAMMING

Semester: VI

Course Code	Course Title	Category	Learning Hours	Theory Hours/Week	Practical Hours/Week	Credit
19UCA6MBE2A	Python Programming	MBE II	90	6	-	5

PREAMBLE

- To understand concepts of Python programming language.

COURSE OUTCOME :

- 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	Apply 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: Basics of Python Programming

(18 HOURS)

Introduction: Python Character Set-Token-Python Core Data Type- The print() Function- Assigning value to a variable-Multiple Assignments- Writing Simple Programs in Python- The input() Function- The eval() Function- Formatting Number and Strings- Python Inbuilt Functions

UNIT II: Operators , Expressions, Decision and Loop Control Statements

(18 HOURS)

Introduction: Operators and Expressions- Arithmetic Operators- Operator Precedence and Associativity-Bitwise Operator- Introduction: Boolean Operators- Using Numbers with Boolean Operators- Using String with Boolean Operators- Boolean Expressions and Relational Operators- Decision Making Statements- Conditional Expressions-Introduction: While Loop-The range() Function-The For Loop-Nested Loops-The break Statement-The continue Statement

UNIT III: Functions, Strings and Lists

(18 HOURS)

Introduction: Syntax and Basics of a Function-Use of a Function-Parameters and Arguments in a Function-The Local and Global Scope of a Variable-The return Statement-Recursive Functions-The Lambda Function-Introduction-The str class-Basic Inbuilt Python Functions for String-The index[] Operator-Traversing String with for and while Loop-Immutable Strings-String Operations- Introduction: Creating Lists-Accessing the Elements of a List-Negative List Indices-List Slicing-List Slicing with Step Size-Python Inbuilt Functions for Lists- The List Operator-List Methods- List and Strings- Splitting a String in List-Passing List to a Function-Returning List from a Function

UNIT IV: List Processing, Object-Oriented Programming

(18 HOURS)

Introduction: Searching Techniques-Introduction to Sorting-Introduction: Defining Classes-The Self-parameter and Adding Methods to a Class-Display Class Attributes and Methods-Special Class Attributes-Accessibility-The init-Method-Passing an Object as Parameter to a Method- -del()- Class Membership Tests- Method Overloading in Python-Operator Overloading-Inheritance-Types of Inheritance-Inheritance in Detail-Subclass Accessing Attributes of Parent Class-Multilevel Inheritance and Multiple Inheritance in Detail- Using super()-Method Overriding

UNIT V: Tuples, Sets, Dictionaries, Graphics Programming, File handling

(18 HOURS)

Introduction to Tuples- Sets- Dictionaries-Introduction-Getting Started with the Turtle Module - Moving Turtle to Any Location - The color, bgcolor, circle and Speed Method of

Turtle-Drawing with Colors-Drawing Basic Shapes using Iterations-Changing Color Dynamically
Using List-Turtles to Create Bar Charts- Introduction- Need of File Handling-Text Input and Output-
The seek() Function- Binary Files

TEXT:

Ashok Namdev Kamthane, Amit Ashok Kamthane, “Programming and Problem Solving with Python” ,Mc Graw Hill Education, 2018.

REFERENCES:

1. Jeeva Jose and P. Sojan Lal, “Introduction to Computing and Problem Solving with Python”, Khanna Book Publishing Co. (P) Ltd., 2016.
2. Ch. Satyanarayana, M Radhika Mani & B N Jagadesh, “Python Programming”, Universities Press, 2018.

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

Ms.K.Akila, Assistant Professor, Department of Computer Applications.

MAJOR BASED ELECTIVE – II

R PROGRAMMING FOR DATA ANALYSIS

Semester: VI

Course Code	Course Title	Category	Learning Hours	Theory Hours/Week	Practical Hours/Week	Credit
19UCA6MBE2B	R Programming for Data Analysis	MBE – II	90	6	-	5

PREAMBLE:

- To impart knowledge in fundamentals of R using Data Analysis.

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Recognize Data Analytics Lifecycle	K1
CO2	State Data types and its Values	K1
CO3	Classify Operations and Testing Conditions	K2
CO4	Discuss Functions and Matrices	K2
CO5	Operate Data Frames and Plots	K3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	M
CO2	S	S	M	M
CO3	M	M	S	S
CO4	M	M	M	L
CO5	M	M	L	L

S-Strong; M-Medium; L-Low

SYLLABUS

UNIT I: Introduction to Data Analytics and R

(18 HOURS)

Data Analytics Lifecycle Overview – Discovery – Data Preparation – Model Planning – Model Building – Communication Results – Operationalize. Understanding R – Installing R – Installing Rstudio – Exploring Rstudio – Setting preferences – Creating an R script - Storing a single value – Adding comments – Recognizing data types – Storing multiple values – Storing mixed data types – Plotting stored values – Controlling objects.

UNIT II: Performing Operation and Testing Conditions

(18 HOURS)

Doing arithmetic – Making comparisons – Assessing logic – Operating on elements – Comparing elements – Recognizing precedence – Manipulating elements – Seeking truth – Branching alternatives – Chaining branches – Switching branches – Looping while true – Performing for loops – Breaking from loops.

UNIT III: Employing Functions and Building Matrices

(18 HOURS)

Doing mathematics – Manipulating strings – Producing sequences – Generating random numbers – Distributing patterns – Extracting statistics – Creating functions – Providing defaults – Building matrix – Transposing data – Binding vectors – Naming rows and columns – Plotting matrices – Adding labels – Extracting matrix subsets – Maintaining dimensions.

UNIT IV: Constructing data frames and Producing quick plots

(18 HOURS)

Constructing a data frame – Importing data sets – Examining data frames – Addressing frame data – Extracting frame subsets Changing frame columns – Filtering data frames – Merging data frames – Adjusting factors – Installing packages – Scattering points – Smoothing lines – Portraying stature – Depicting groups – Adding labels – Drawing columns – Understanding histograms – Producing histograms – Understanding box plots – Producing box plots.

UNIT V: Storytelling with data and Plotting perfection

(18 HOURS)

Presenting data – Considering aesthetics – Using geometries – Showing statistics – Illustrating facets – Controlling coordinates – Designing themes – Loading the data – Retaining objects – Overriding labels – Adding a theme – Restoring the workspace – Comparing boxes – Identifying extremes – Limiting focus – Displaying facets – Exporting graphics – Presenting analyses.

TEXT:

1. EMC Education Services, “Data Science and Big Data Analytics”, John Wiley & Sons, Inc, 2015.
2. Mike McGrath, “R for Data Analysis in easy steps”, In Easy Steps, 2018.

REFERENCES:

1. Dr. Mark Gardener, “Beginning R the Statistical Programming Language”, John Wiley & Sons, Inc, 2012.
2. Jafed P.Lander, “R for Every One”, Pearson Education, 2015.

WEB REFERENCES:

1. <https://www.r-project.org/about.html>
2. <https://www.datacamp.com/community/tutorials/r-or-python-for-data-analysis>
3. https://lgatto.github.io/2017_11_09_Rcourse_Jena/index.html

COURSE DESIGNER

Ms. V. Infine Sinduja, Assistant Professor, Department of Computer Applications.

MAJOR BASED ELECTIVE – II (MBE)

DIGITAL MARKETING

Semester: VI

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA6MBE2C	Digital Marketing	MBE-II	90	6	-	5

PREAMBLE:

- To facilitate the students to develop an overall understanding of digital marketing and online platforms and increase their job opportunities

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Explain the basic concept of Digital Marketing	K1
CO2	Discuss the concepts of Display Advertising	K2
CO3	Discuss the Search Engine Advertising	K2
CO4	Utilize the Social Media Platforms	K3
CO5	Illustrate the Search Engine Optimization	k3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	M
CO2	S	S	M	M
CO3	M	M	M	M
CO4	M	M	M	M
CO5	M	M	M	M

S- Strong; M- Medium; L- Low

SYLLABUS

UNIT I: Introduction to Digital Marketing (18 HOURS)

Introduction- Digital Marketing- Internet Users - Digital Marketing Strategy - Digital Advertising Market in India - Skills Required in Digital Marketing - Digital Marketing Plan.

UNIT II: Display Advertising (18 HOURS)

Introduction - Concept of Display Advertising - Types of Display Ads - Buying Models - Display Plan - Targeting - Programmatic Digital Advertising - Analytics Tools - YouTube Advertising.

UNIT III: Search Engine Advertising (18 HOURS)

Introduction -Search Advertising - Ad placement - AdRanks - Creating the First Ad Campaign - Enhance Your Ad Campaign - Performance Reports.

UNIT IV: Social Media Marketing (18 HOURS)

Introduction - Social Media Marketing Strategies - Facebook Marketing: Facebook for Business - Anatomy of an Ad Campaign - Adverts -Facebook Insights.

UNIT V: Search Engine Optimization (18 HOURS)

Search Engine- Concept of Search Engine Optimization (SEO) - SEO Phases - On Page Optimization - Off Page Optimisation - Social Media Reach.

TEXT:

Seema Gupta," Digital Marketing", McGraw Hill Education (India) Private Limited, 2018.

REFERENCES:

1. Puneet Bhatia," Fundamentals of Digital Marketing", Pearson Publication, 2018.
2. Nitin C Kamat & Chinmay Nitin Kamat," Digital Social Media", Himalaya Publishing House, 2018.

WEB REFERENCES:

1. www.digitalmarketer.com
2. www.learn.digital.withgoogle.com

COURSE DESIGNER

Ms. R. Sridevi, Assistant Professor, Department of Computer Applications.

MAJOR BASED ELECTIVE- III
PRACTICAL - PYTHON PROGRAMMING

Semester: VI

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA6MBE3AP	Practical - Python Programming	MBE III	75	-	5	5

PREAMBLE:

- To impart the practical training on Python programming

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Understand and apply the basic concepts of Python	K1
CO2	Demonstrate the basic concepts of OOPS	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. Types of Operators
2. Numbers
3. Strings
4. List & Dictionaries
5. Tuples & Set
6. Flow Control
7. Functions
8. Modules and Packages
9. File Handling
10. Exception Handling

COURSE DESIGNER

Ms. K. Akila, Assistant Professor, Department of Computer Applications.

MAJOR BASED ELECTIVE - III

PRACTICAL - R PROGRAMMING

Semester: VI

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA6MBE 3BP	Practical-R Programming	MBE-III	75	-	5	5

PREAMBLE

- To impart practical training on R Programming

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Define usage of R & R studio	K1
CO2	Describe objects & vectors	K2
CO3	Create data frames and matrix	K3
CO4	Manipulate data frames and matrices using functions	K3
CO5	Demonstrate data visualization	K3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	S	S
CO2	S	S	M	M
CO3	M	M	S	S
CO4	M	M	M	L
CO5	M	M	L	L

S-Strong; M-Medium; L-Low

LIST OF PRACTICALS

9. Create R program to take input from the user (name and age) and display the values. Also print the version of R installation.
10. Get the details of the objects in memory using R.
11. Create three vectors such as numeric data, character data and logical data. Display the content of the vectors and their type.
12. Create a simple bar plot of five subjects marks of a student.
13. Create data frames which contain details of 5 employees and display summary of the data.
14. Create an array of two 3x3 matrices for two given vectors.
15. Extract 3rd and 5th rows with 1st and 3rd columns from a given data frame.
16. Generate inner, outer, left, right join (merge) from given two data frames.
17. Demonstrate use of histogram.
18. Demonstrate box plot function.

COURSE DESIGNER

Ms. V. Infine Sinduja, Assistant Professor, Department of Computer Applications.

MAJOR BASED ELECTIVE – III (MBE)

PRACTICAL - DOT NET PROGRAMMING

Semester: VI

Course Code	Course Title	Category	Learning Hours	Theory Hours/Week	Practical Hours/Week	Credit
19UCA6MBE3CP	Practical- Dot Net Programming	MBE-III	75	-	5	5

PREAMBLE:

- To impart practical training on Dot Net Programming.

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Design a web form using server and standard controls	K3
CO2	Implement form validation in Dot Net	K3
CO3	Connect and manipulate the database with the Dot Net	K3
CO4	Develop a web application by their own	K5

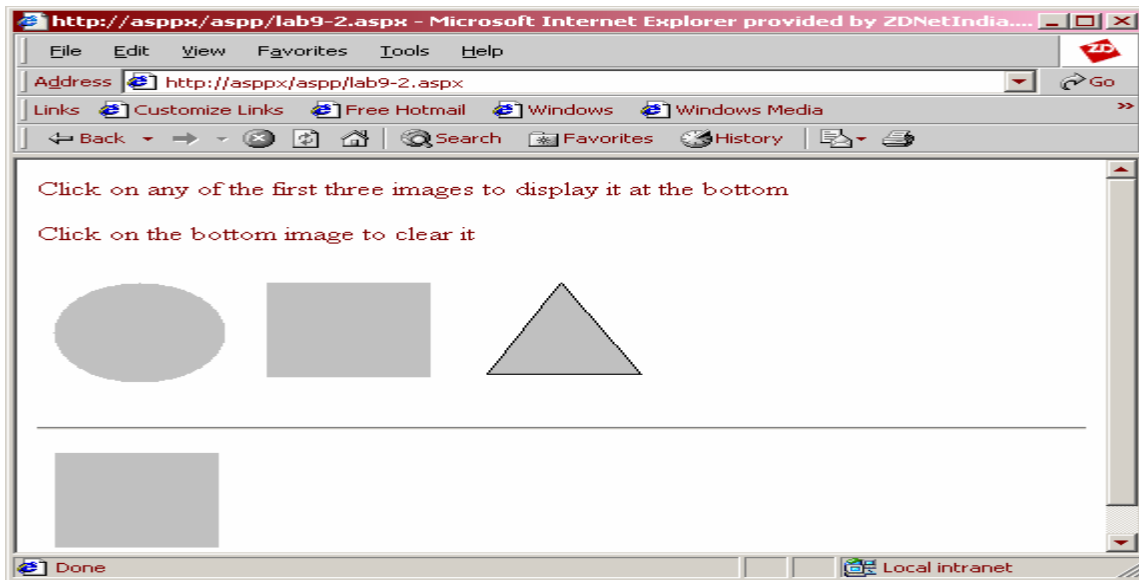
MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	S	M
CO2	S	S	M	M
CO3	S	S	M	L
CO4	S	S	M	L

S-Strong; M-Medium; L-Low

LIST OF PRACTICALS

1. Write a program using Dot Net framework with C# to display three images in a line. When any one of the images is clicked, it must be displayed below. On clicking the displayed image it must be cleared. The screen must look as in the figure given below:



2. Use Dot Net framework with VB.Net to do the following exercises:
 - a) Design ASP.Net web form using HTML Server Controls to enter job seeker's details
 - b) Create an ASP.Net web form using Web controls to fill E-Mail registration form
 - c) Validate the E-Mail registration form using the validation controls such as Required Field validator, Regular expression validator, Compare validator and Range validator
 - d) Write an ASP.Net application to retrieve form data and display it the client browser in a table format.
 - e) Create a web application using ADO.Net that uses details view which performs basic data manipulations (Insertion, Updation and Deletion) in MS- Access database.
 - f) Create an application using Details view control to perform the basic data manipulations in SQL server database.
 - g) Create an application using Grid view control to access information from a table in SQL server.

- h) Create an application using Data list control to access information from table in SQL server and display the result in neat format.
- i) Create a College portal which must include basic database operations such as Insertion, Deletion, Modification, Selection and Searching.

COURSE DESIGNER:

Dr. H. Krishnaveni, Associate Professor, Department of Computer Applications.

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
BACHELOR OF COMPUTER APPLICATIONS- PROGRAMME STRUCTURE
(For the Candidates admitted from the academic year 2021-2022 onwards)

Semester	Part	Course	Title	Course Code	Inst. Hours/Week	Credit	Exam Hours	Marks		Total
								Internal	External	
1	I	Language Course-I (LC)-Tamil / Other Languages (Hindi/Sanskrit/French)	Ikkaalailakkiyam	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	21UCA1CC1	6	6	3	25	75	100
		Core Course - I (CP)	Practical I -Programming with C	21UCA1CC1P	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	-	-	-	-	-
	IV	UGC Jeevan Kaushal Life Skills	Universal Human Values	20UGVE	2	2	3	25	75	100
Total					30	20				600
2	I	Language Course-II (LC)-Tamil/Other Languages (Hindi/Sanskrit/French)	IdaikkaalailakkiyamumPuthinamum	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	21UCA2CC2	6	6	3	25	75	100
		Core Course - II (CP)	Practical II -Data Structures Using C	21UCA2CC2P	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
	IV	Environmental Studies	Environmental Studies	19UGES	2	2	3	25	75	100
V	Extra Credit Course	Swayam Online Course	To be Fixed Later	As per UGC Recommendation						
Total					30	21				700

Semester	Part	Course	Title	Course Code	Inst. Hours/Week	Credit	Exam Hours	Marks		Total
								Internal	External	
3	I	Language Course - III (LC)-Tamil / Other Languages (Hindi/Sanskrit/French)	KaappiyamumNaadakamum	19ULT3	6	3	3	25	75	100
			Medieval, Modern Poetry & History of Hindi Literature-3	19ULH3						
			Prose, Textual ,Grammar and Vakyarachana	19ULS3						
			Communication in French-III	19ULF3						
	II	English Language Course - III(ELC)	Reading and Writing for Effective Communication-I	19UE3	6	3	3	25	75	100
	III	Core Course - III (CC)	Database Management Systems	21UCA3CC3	6	6	3	25	75	100
		Core Course - III (CP)	Practical III – DBMS	21UCA3CC3P	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						
	V	Extra Credit Course	Swayam Online Course	To be Fixed Later	As per UGC Recommendation					
Total					30	22				700
4	I	Language Course-IV (LC)-Tamil /Other Languages ((Hindi/Sanskrit/French)	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	English Language Course - IV(ELC)	Reading and Writing for Effective Communication-II	19UE4	6	3	3	25	75	100
	III	Core Course - IV (CC)	Programming with Java	21UCA4CC4	6	6	3	25	75	100
		Core Course - IV (CP)	Practical IV -Programming with Java	21UCA4CC4P	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	21UCA4NME2P	2	2	3	40	60	100
			Basic Tamil II	19ULC4BT2				25	75	
			Special Tamil II	19ULC4ST2						
		Skill Based Elective – I	Animation Practicals	21UCA4SBE1AP	2	2	3	40	60	100
	HTML5 Practicals		21UCA4SBE1BP							
V	Extra Credit Course	Swayam Online Course	To be Fixed Later	As per UGC Recommendation						
Total					30	21				700

Semester	Part	Course	Title	Course Code	Inst. Hours/	Credit	Exam Hours	Marks		Total
								Internal	External	
5	III	Core Course - V (CC)	Software Engineering	21UCA5CC5	5	5	3	25	75	100
		Core Course - V (CP)	Practical-V-Dot Net Programming	21UCA5CC5P	4	3	3	40	60	100
		Core Course - VI (CC)	Operating Systems	21UCA5CC6	5	5	3	25	75	100
		Major Based Elective – I	A. Cloud Computing	21UCA5MBE1A	5	5	3	25	75	100
			B. Programming with PHP	21UCA5MBE1B						
			C. Data Mining	21UCA5MBE1C						
		Major Based Elective – II	A. Practical-MATLAB	21UCA5MBE2AP	5	5	3	40	60	100
			B. Practical-PHP Programming	21UCA5MBE2BP						
			C. Practical-R Programming	21UCA5MBE2CP						
	IV	Skill Based Elective – II	Practical-PC Packages	21UCA5SBE2AP	2	2	3	40	60	100
			Practical-Corel Draw	21UCA5SBE2BP						
		Skill Based Elective – III	Practical-Mobile Applications Development	21UCA5SBE3AP	2	2	3	40	60	100
			Practical-Multimedia Systems	21UCA5SBE3BP						
		UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100
	V	Extra Credit Course	Swayam Online Course	To be Fixed Later	As per UGC Recommendations					
Total					30	29				800
6	III	Core Course - VIII (CC)	Computer Networks	21UCA6CC8	6	6	3	25	75	100
		Core Course - IX (CC)	Python Programming	21UCA6CC9	6	5	3	25	75	100
		Core Course - VI (CP)	Practical VI –Python Programming	21UCA6CC6P	5	4	3	40	60	100
		Major Based Elective – III	Introduction to IOT	21UCA6MBE3A	6	5	3	25	75	100
			Web Technologies	21UCA6MBE3B						
			Introduction to Big Data	21UCA6MBE3C						
		Major Based Elective – IV	Project based on Current Technology	21UCA6MBE4APW	6	5	3	40	60	100
			Project on Web Development	21UCA6MBE4BPW						
			Project on Data Management	21UCA6MBE4CPW						
	IV	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100
V	Extension Activity		19UGEA		1					
Total					30	27				600
Total					180	140				4100

Final Year Specialization : A. Recent Trends B. Digital Technology C. Data Management

**CORE COURSE – I (CC)
PROGRAMMING WITH C**

Semester: I

Course Code	Course Title	Category	Learning Hours	Theory Hours/Week	Practical Hours/Week	Credit
21UCA1CC1	Programming with C	Core	90	6	-	6

PREAMBLE

- To understand the concepts of C and to develop the programming skill in C programming

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Explain the program structure, programming rules, C tokens and syntax.	K2
CO2	Apply decision making and looping statements in C Program.	K3
CO3	Utilize the concept of arrays and functions.	K3
CO4	Identify the role of structure, union and pointers.	K3
CO5	Make use of the file operations.	K3

MAPPING WITH PROGRAMMESPECIFIC OUTCOMES

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	M
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

SYLLABUS

UNIT I: BASIC CONCEPTS

(18 HOURS)

Overview of C: Constants, Variables, and Data Types: Introduction - Identifiers – Constants – Variables - Data Types – Declaration of Variables –Assigning Values to Variables-Defining Symbolic Constant. **Operators and Expressions:** Arithmetic, Relational, Logical, Assignment, Conditional, Bit Wise, Special, Increment and Decrement Operators - Arithmetic Expressions - Evaluation of Expressions–Precedence of Arithmetic Operators-Operator Precedence & Associativity.

UNIT II: INPUT AND OUTPUT OPERATIONS AND BRANCHING

(18 HOURS)

Managing Input and Output Operations:Reading and Writing a Character -Formatted Input and Output. **Decision Making and Branching:** Decision MakingwithIf Statement, Simple If Statement, If... Else Statement, Nested If... Else Statement, The Else if Ladder, Switch,The ?: operator – The GoToInstruction.

UNIT III: LOOPING AND ARRAYS

(18 HOURS)

Decision Making and Looping:Introduction – While, Do, For Statements –Jumps in Loops.**Arrays:** One-Dimensional - Two Dimensional - Multidimensional Arrays. **CharacterArrays and Strings:** Declaring and Initializing String Variables - Reading Strings from Terminal - Writing Strings to Screen - String-Handling Functions.

UNIT IV: FUNCTIONS AND STRUCTURES

(18 HOURS)

User-Defined Functions:Need for User -Defined Functions –A Multi-Function Program-Elements of User-Defined Functions-Definition of Functions –Return values and Their Types-Function Calls-Function DeclarationCategory of Functions –Nesting of Functions - Recursion - Storage Class-The Scope and Lifetime of Variables in Functions.**Structure and Unions:** Defining a Structure –Declaring Structure Variables - Accessing Structure Members- Initialization - Comparison of Structure Variables- Unions.

UNIT V: POINTERS AND FILES

(18 HOURS)

Pointers: Understanding pointers - Accessing the Address of a Variable - Declaring and Initializing Pointers - Accessing a VariableThrough its Pointers – Chain of Pointers -Pointer Expressions. **File Management in C:** Defining and Opening a File –Closing a file - I/O Operations on Files.

TEXT:

E. Balagurusamy, "Programming in ANSI C", TMH Publishing Pvt., Ltd., 7th Edition, 2017.

REFERENCES:

1. Yashavant Kanetkar, "Let Us C", BPB Publications, New Delhi, 16th Edition, 2020.
2. Byron S. Gottfried, "Programming with C", McGraw Hill Education, 2nd Edition, 2008.

WEB REFERENCES:

1. www.learn-c.org
2. www.cprogramming.com
3. www.zentut.com/c-tutorial

COURSE DESIGNER

Dr. R. Brendha, Associate Professor, Department of Computer Applications

CORE COURSE – I (CP)
PRACTICAL I -PROGRAMMING WITH C

Semester : I

Course Code	Course Title	Category	Learning Hours	Theory Hours/Week	Practical Hours/Week	Credit
21UCA1CC1P	Practical I - Programming with C	Core	45	-	3	2

PREAMBLE:

- To recognize the knowledge on basic concepts of C Programming

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Relate looping structure with arrays.	K1
CO2	Demonstrate the concept of basic C operators and functions.	K2
CO3	Utilize the concepts of structures, union ,pointers and file.	K3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	M	M	M	M
CO2	M	M	M	M
CO3	S	S	S	M

S – Strong; M – Medium; L - Low

LIST OF PRACTICALS

1. Formulae Conversion

- 1.1 Simple Interest
- 1.2 Fahrenheit to Celsius
- 1.3 Days into Years and Weeks

2. Selection Structure

- 2.1. Simple If
- 2.2. If-else
- 2.3. Else-if Ladder
- 2.4. Ternary Operator
- 2.5. Switch

3. Iterative Structure

- 3.1. For
- 3.2. While
- 3.3. Do – While

4. Arrays

- 4.1. One Dimensional Array
- 4.2. Two Dimensional Array

5. Functions

- 5.1. With Recursion
- 5.2. Without Recursion
- 5.3. String Functions

6. Structures

7. Unions

8. Pointers

9. File

COURSE DESIGNER

Dr. R. Brenda, Associate Professor, Department of Computer Applications.

ANNEXURE - N

**Cauvery College for Women (AUTONOMOUS)
Nationally Re-accredited (III Cycle) with “A” Grade
(CGPA 3.41 out of 4) by NAAC
Annamalai Nagar, Trichy -18.**



MINUTES OF THE MEETING

Virtual Board of Studies –Department of Information Technology

DATE : 04 JUNE 2021

MEDIUM: Google Meet

TIME : 10.00 AM

Members Present

- | | |
|----------------------------|-------------------------------------------------------------|
| 1) Dr. M. Parveen | Chairperson, Professor & HoD |
| 2) Dr. T. Kokilavani | University Nominee, Bharathidasan University |
| 3) Dr. V. Bhuvaneshwari | Subject Expert, Other university |
| 4) Dr. S. Vidya | Subject Expert, Other university |
| 5) Mr. I. Johnson | Placement Representative from Industry/
Corporate Sector |
| 6) Ms. D. Jeevitha | Alumna, Member |
| 7) Dr. A. R. Jasmine Begum | Member |
| 8) Dr. J. Sangeetha | Member |
| 9) Dr. M. Anandhi | Member |
| 10) Dr. A. Bhuvaneshwari | Member |
| 11) Dr. S. Latha | Member |
| 12) Mrs. S. Sugunadevi | Member |
| 13) Mrs. P. Tamilselvi | Member |
| 14) Mrs. M. Thangam | Member |

Action taken report of Third BoS held on 08.01.2021

The Resolution No.BoS/04/01 to Resolution No. BoS/04/05 in connection with the outcome based Programme structure and syllabus for the semester V of UG degree programme for the batch 2019-2020 onwards were implemented.

The Agenda for the meeting was as follows:

1. ITEM NO.BOS/05/01

To approve the syllabus of B.Sc Information Technology (2019-20) and recommend the same to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

2. ITEM NO.BOS/05/02

To approve the syllabus for Core courses designed and recommend the syllabus to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

3. ITEM NO.BOS/05/03

To approve the syllabus for Major based electives designed for B.Sc Information Technology (2019-20) and recommend the syllabus to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

4. ITEM NO.BOS/05/04

To discuss the Program Outcome, Course Objectives and Course Outcomes for the proposed curriculum.

5. ITEM NO.BOS/05/05

To Appreciate the Board of Studies Members who contributed their suggestions to approve syllabus.

MINUTES OF THE FIFTH BOS:

The following Resolutions were passed by the BoS members

- i) Syllabus and Skeleton of UG (B.Sc IT) 2019-2020 has been approved

RESOLUTION NO.BOS/05/01

The Curriculum and Syllabus for B.Sc Information Technology were discussed and the following changes were recommended

- Core Course IX Practicals - Suggested to include scenario presentation and specify the controls like validation control explicitly
- Based on the above suggestion Syllabus of Core Course IX Practicals has been modified

RESOLUTION NO.BOS/05/02

The Syllabus for Major Based Elective was discussed and the following changes were recommended.

- Major Based Elective II A- Suggested that Frameworks to be considered and Reference books to be updated
- Major Based Elective II B- Recommended that title to be changed and need to revise the contents and also textbooks to be considered
- Based on the above suggestion, title and textbook of the Major Based Elective II B and Reference book of Major Based Elective II A has been modified

RESOLUTION NO.BOS/05/03

The Programme Outcome/Course Objectives/Course Outcome was found to be compatible with the syllabus.


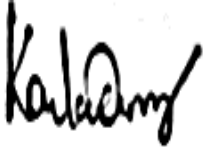
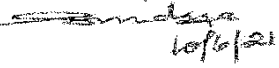


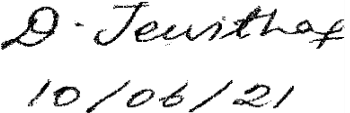
RESOLUTION NO.BOS/05/04

The Chairman reported to the Members that the Department conducted regular meetings with the faculty members of Information Technology to discuss the contents of the syllabus to be framed by the Department. The Chairman appreciated the efforts of the members of Board of Studies, for their valuable contributions and suggestions in preparing the syllabus.

The following Resolutions were passed by the board

- Course structure of B.Sc. IT programme and the syllabus was approved with effect from 2019-2020

The Board of Studies meeting was resolved and concluded by recommending the Curriculum and syllabus of UG Information Technology to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

S.NO	NAME AND DESIGNATION	SIGNATURE
1.	CHAIRPERSON Dr. M. Parveen, Professor & Head, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	
2.	UNIVERSITY NOMINEE Dr. T. Kokilavani, Assistant Professor, Department of Computer Science, St. Joseph's College, Trichy.	
3.	SUBJECT EXPERT Dr. S. Vidya, Associate Professor, Department of Computer Science, Fatima College, Madurai.	
4.	SUBJECT EXPERT Dr. V. Bhuvanewari, Associate Professor, Department of Computer Science, Bharathiyar University, Coimbatore.	
5.	INDUSTRIAL REPRESENTATIVE Mr. I. Johnson, Managing Director, Shalom Info Tech, Trichy	
6.	MEMBER ALUMNA Ms. D. Jeevitha, Technical Lead, Wipro Technologies, Chennai.	



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ISO Certified 2009:2015

Annamalai Nagar, Trichy -18.

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			Total
							Hours	Int	Ext	
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-PHP and MYSQL Web Development	19UIT6MBE2A	6	5	3	25	75	100
			II.B-C# Programming	19UIT6MBE2B						
			II.C-Artificial Intelligence	19UIT6MBE2C						
		Major Based Elective III	III. A-PHP and MYSQL Web Development Lab	19UIT6MBE3AP	6	6	3	40	60	100
			III. B-.Net with C# Lab	19UIT6MBE3BP						
			Development lab III.C. Mini Project	19UIT6MBE3CPW						
	V	Extension Activity	Extension Activity	19UGEA	0	1	0			
		Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100
Total					30	29				600

[Handwritten Signature]
10/10/20

Dr.S.Vidya
Associate Professor
 Dept.of computer Science
 Fatima College, Madurai

[Handwritten Signature]
 Signature of Chair Person

Dr. M. PARVEEN, M.C.A.,M.Phil.,Ph.D.,
 Head, Department of I.T,
 Cauvery College for Women,
 Trichy - 620 018.

[Handwritten Signature]
 Signature of Dean

DEAN OF SCIENCE
CAUVERY COLLEGE FOR W
(AUTONOMOUS)
ANNAMALAI NAGAR
TIRUCHIRAPPALLI - 620 0
TAMIL NADU

SEMESTER – VI	CORE -VIII OPERATING SYSTEM	Hours/Week-6	
CORE – VIII		Credits - 6	
Course Code- 19UIT6CC8		Internal-25	External-75

OBJECTIVE

To inculcate the knowledge about fundamentals of operating system, scheduling mechanism of processor, memory management, resource allocation methods and Unix commands.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Discuss the role of operating system	K1
CO2	Compare various algorithms and comment about the performance of various algorithms used for process management and CPU scheduling.	K3
CO3	Apply various concepts related to deadlock to solve problems related with resource allocation.	K3
CO4	Analyze the role of process synchronization towards increasing throughput of the system.	K3
CO5	Utilize the Unix commands pertaining with process, File and I/O Management.	K3

Mapping with Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4
CO1	S	S	S	M
CO2	S	S	S	M
CO3	S	S	S	S
CO4	S	S	S	S
CO5	S	S	S	S

SYLLABUS

Unit I

(18

Hrs)

Introduction to operating system: Introduction – Objectives and Functions – Different Views of an OS – Types of OS – Comparison between different Operating system – Operating system Structures. **Process Management:** Introduction – Process Concept – Operations on Process – Co-Operation Processes – Inter process Communication

Unit II

(18 Hrs)

Threads: Introduction – Thread Concept –Multithreading Models – Thread Issues. **CPU Scheduling:** Introduction – Scheduling Concepts – Scheduling Algorithm – Multiprocessor scheduling – Real time Scheduling – Algorithm Evaluation – Thread Scheduling

Unit III

(18 Hrs)

Process Synchronization: Introduction – Principles of Concurrency – Precedence graph – Critical regions –Semaphores. **Dead Lock:** Introduction – System Model – Deadlock Characterization – Method for Handling dead lock – Deadlock Prevention – Deadlock avoidance – Deadlock detection – Deadlock Recovery

Unit IV

(18 Hrs)

Memory Management: Introduction – Contiguous memory allocation – Noncontiguous memory allocation – swapping – overlays. **Virtual Memory:** Introduction – Demand paging - Process creation – Page Replacement – Allocation of frames – Thrashing – Demand Segmentation – Cache memory organization. **Mass Storage:** Introduction – Disk structure- Disk scheduling

Unit V

(18 Hrs)

File System: Introduction – Files Basic concept – Directories – File system Mounting – Record blocking- File sharing – Protection. **Case study:** Linux

TEXT BOOK

S.NO	AUTHORS	TITLE	PUBLISHERS/EDITION	YEAR
1.	Rohit Khurana	Operating Systems, 2 nd Edition	Vikas Publishing House Ltd.	2014

REFERENCE BOOKS

S.NO	AUTHORS	TITLE	PUBLISHERS/EDITION	YEAR
1.	Andrew S.Tanenebaum S.Woodhull	Operating Systems and Design Implementation	Pearson Education 3 rd Edition	2011
2.	Abraham Silberschatz, Peter Baer Galvin, Greg Gagne	Operating System Concepts	John Wiley & Sons, 8 th Edition	2010

Book Link

https://books.google.co.in/books?id=MZJDDAAAQBAJ&printsec=frontcover&source=gb_s_summary_r&cad=0#v=onepage&q&f=false

SEMESTER – VI	MOBILE APPLICATION DEVELOPMENT	Hours/Week-6	
CORE – IX		Credits - 6	
Course Code-19UIT6CC9		Internal-25	External-75

OBJECTIVE

This course explores the knowledge over Mobile Application Development with its framework, layouts, intents and database connectivity.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1.	Choose the development framework and the need for mobile applications	K1
CO2.	Demonstrate the activity and intent usage	K2
CO3.	Design applications with intents and broadcast receivers.	K3
CO4.	Compile an application with database connectivity	K3
CO5.	Develop real time applications to improvise user experience	K3

Mapping with Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4
CO1	S	M	S	M
CO2	S	M	M	M
CO3	S	M	M	S
CO4	S	S	S	S
CO5	S	S	S	S

SYLLABUS

UNIT I: INTRODUCTION

(18 Hrs)

Android: An Open Platform for Mobile Development– Android Applications - Android SDK Features-Introducing the development framework – Developing for Android – What you need to begin - Creating Your First Android Application – Types of Android Application- Android Development Tools - What makes an Android Application? - Introducing the Application Manifest File- Using the Manifest Editor- Externalizing Resources- Android Application Lifecycle – Introducing the Android Application Class – Android Activities.

UNIT II: BUILDING USER INTERFACES (18 Hrs)

Fundamental Android UI Design- Android User Interface Fundamentals- Introducing Layouts- Introducing Fragments, Creating New Views- Introducing Adapters.

UNIT III: INTENTS AND BROADCAST RECEIVERS (18 Hrs)

Introducing Intents- Creating Intent Filters and Broadcast Receivers- Using Internet Resources.

UNIT IV: FILES, PREFERENCES, DATABASES AND CONTENT PROVIDERS(18 Hrs)

Creating, saving and retrieving the shared preferences - Introducing the preference framework and the activity - Preferences - Creating, Saving and Retrieving Shared Preferences – Working with the file systems - Introducing Android Databases- Introducing SQLite- Content Values and Cursors- Working with SQLite Databases- Creating Content Providers- Using Content Providers

UNIT V: EXPANDING THE USER EXPERIENCE (18 Hrs)

Working in the background - Creating and Using Menus and Action Bar Action Items – Playing Audio and Video - Monetizing, Promoting, and Distributing Applications

TEXT BOOK:

S.NO	AUTHORS	TITLE	PUBLISHERS/EDITION	YEAR
1.	Reto Meier	Professional Android Application Development	Wiley	2012

Reference Books:

<http://developer.android.com/develop/index.html>

S.NO	AUTHORS	TITLE	PUBLISHERS/EDITION	YEAR
1.	Charlie Collins, Michael Galpin and Matthias Kappler	Android in Practice	DreamTech	2012

SEMESTER – VI	MOBILE APPLICATION USING ANDROID	Hours/Week-5	
CORE – IX Practical		Credits - 4	
Course Code- 19UIT6CC9P		Internal-25	External-75

COURSE OBJECTIVE

This course enables the students to develop the mobile application software as per the need of android market.

COURSE OUTCOMES

CO Number	CO Statement	Knowledge Level
CO1	Design the layout with various controls	K1
CO2	Exploring the User Interface	K2
CO3	Implementing interactivity through application	K3
CO4	Compile an application to access database	K3
CO5	Experiencing with background services	K3

Mapping with Programme Outcome

COs/POs	PO1	PO2	PO3	PO4
CO1	S	M	M	S
CO2	S	M	M	M
CO3	S	M	S	S
CO4	S	S	S	S
CO5	S	S	S	S

SYLLABUS

1. Hello world Application.
2. Create a screen that has input boxes for User Name, Password, Address, Gender(radio buttons for male and female), Age (numeric), Date of Birth (Date Picket), State (Spinner) and a Submit button. (use any layout)
3. Prepare basic arithmetic calculator with input boxes and buttons to do addition, subtraction, multiplication and division.
4. Write an android program to switch from one activity to another using Intent.
5. Implement an application that writes data into an SD card
6. Implement an application that creates an alert upon receiving a message
7. Audio, Video Application
8. Create an application with One-Time, Repeating Alarms and Long Running Background Task as Service
9. Prepare a menu card using Menu
10. Create an application to store contact information such as name, mobile number, organization etc., using SQLite database

Semester - VI	PHP AND MYSQL WEB DEVELOPMENT	Hours/Week-6	
MBE – II		Credits - 5	
Course Code - 19UIT6MBE2A		Internal - 25	External - 75

COURSE OBJECTIVES

- To understand the fundamentals of HTML and CSS
- To develop web pages using JavaScript
- To develop web pages with PHP and MYSQL connectivity
- To learn about the fundamentals of Laravel

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Introduce the basic concepts of HTML5	K1
CO2	Introducing JavaScript and developing programs in HTML with CSS	K1
CO3	Write and execute programs with JavaScript Event Handlers	K2
CO4	Illustrating the concepts of PHP for designing a webpage	K3
CO5	Applying knowledge in handling databases with PHP and introduction to Laravel Framework	K4

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

(17 Hrs)

Building Web pages with HTML: Using HTML5 – Basic tags & Global Attributes – Setting Paragraph Styles – Applying Character Styles – Displaying Special Characters – Working with Images and Image Maps – Adding Hyperlinks and Bookmarks – Defining Forms – Creating Tables – New HTML5 Tags – Understanding Deprecated HTML Tags

UNIT II (17 Hrs)
Styling with CSS and Introducing JavaScript: Creating CSS – CSS Properties and Values – Characteristics of JavaScript – Introduction – Parts of JavaScript – Control Structures

UNIT III (19 Hrs)
Adding Dynamic Elements with JavaScript: Introducing Event Handlers – Working with the Window Event Handlers – Using the Mouse and Keyboard Event Handlers – Reviewing Forms in HTML – Using JavaScript in Forms – Validating a Form

UNIT IV (19 Hrs)
Fundamentals of PHP: Introduction – Types of Information, Variables and Constants, Operators, Statements and Expressions, Functions – Control Structures – PHP File and Directory Management – Cookies, Session variables and Server variables – PHP Arrays

UNIT V (18 Hrs)
PHP and MYSQL: Building and Handling Forms in PHP – User Authentication – Implementing MYSQL Command statements – Using a MYSQL Database with PHP – Introduction to Laravel – Features and History of Laravel – Application structure – Basic Routing and its Parameters – Named Routes

TEXT BOOKS

S.NO	AUTHOR	TITLE	PUBLISHER/ EDITION	YEAR OF PUBLICATION
1.	Marty Matthews	PHP and MYSQL Web Development: A Beginner's Guide	McGraw Hill Education	2015
2.	Tam Sel	Laravel for Beginners	Kindle Edition	2020

REFERENCE BOOKS

S.NO	AUTHOR	TITLE	PUBLISHER/ EDITION	YEAR OF PUBLICATION
1.	Joel Murach, Ray Harris	PHP and MYSQL	2 nd Edition, Mike Murach & Associates, Inc.	2014
2.	Martin Bean	Laravel 5 Essentials	PACKT Publishing Ltd	2015

WEB LINKS

1. <https://www.w3schools.in/laravel-tutorial>
2. <https://www.tutorialspoint.com/laravel/index.htm>

Semester - VI	PHP AND MYSQL WEB DEVELOPMENT LAB	Hours/Week-6	
MBE – III		Credits - 6	
Course Code - 19UIT6MBE3AP		Internal-40	External-60

COURSE OBJECTIVES

To understand the basics of web development and enable the students to learn and write programs in PHP environment implementing the basics of MYSQL along with the knowledge of Laravel Framework, HTML5, CSS and JavaScript

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Develop webpages using HTML5 and CSS	K1
CO2	Create simple programs and apply EventHandlers in JavaScript using HTML	K2
CO3	Implement programs using MYSQL with PHP	K3

MAPPING WITH PROGRAMME OUTCOMES

COs/POs	PO1	PO2	PO3	PO4
CO1	S	M	M	M
CO2	S	M	M	S
CO3	S	S	S	S

PROGRAMS

1. HTML & CSS

- Create a webpage to show block level and text level elements
- Develop a webpage to show all the Color, Text, Background and Font elements
- Create a webpage with frames that appends the concept of images, tables, hyperlinks and lists
- Create a presentation style for your webpage using inline, internal and external CSS

2. JavaScript

- Simple programs to read input and display output using prompt, alert and control structures
- Programs that demonstrates the use of Event Handlers (WindowEvent, MouseEvent, OnclickEvent)

3. PHP and MYSQL

- Simple programs in PHP
- PHP program to add data selected from a webpage using HTML
- Program to upload a file and its contents
- Program to create a directory and read its contents
- Program to create a database and to insert a table with data
- Program to perform manipulations in the data stored in MYSQL table

4. Create a User Registration form and using these credentials create a Login form using Laravel Framework?

SEMESTER - VI	C# PROGRAMMING	Hours/Week-6	
Major Based Elective II		Credits-5	
Course Code 19UIT6MBE2B		Internal-25	External-75

OBJECTIVES

- To understand C# language constructs, syntax and semantics.
- To provide the keen knowledge of C# language and enable the students to write interactive program.
- To provide complete understanding of Object-Oriented concepts and database connectivity of C#

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1.	Knowledge of the structure and model of the programming language C #	K1
CO2.	Understand use of C# basics, Objects and Types, Inheritance	K2
CO3.	Develop, implement and creating Applications with C#	K3
CO4.	Compile an application with database connectivity	K3
CO5.	Design and execute Web-based real time applications to improvise user experience	K3

Mapping with Programme Outcomes

COs\POs	PO1	PO2	PO3	PO4
CO1	S	M	S	M
CO2	S	M	M	M
CO3	S	M	M	S
CO4	S	S	S	S
CO5	S	S	S	S

SYLLABUS

UNIT I: (15 Hrs)

Overview: The relationship of C# to .NET- Compiling and running code that targets .NET- Data typing-Error handling with exceptions-.NET Framework Classes-Creating .NET Applications using C#-Fundamental C#-Variables-Constants-Predefined Data types-Flow control- The main () method-Console I/O.

UNIT II: (15 Hrs)

Object and Types: Creating and using classes-Classes and structs- Partial classes-**Inheritance:** Types of Inheritance-Implementing Inheritance-Access modifiers-Interface-**Arrays and Tuples:** Simple arrays-Multidimensional arrays- Jagged arrays-Array class-Arrays as parameters-Enumerations-Tuples.

UNIT III: (15 Hrs)

Operators and Casts: Operators in C# - Data Conversion between primitive data types- Conversion of value type to reference and reference type to value-Operator overloading- Adding casting operators to custom types-**Delegates and Events:** Declaring and using Delegates-Events

UNIT IV: (15 Hrs)

Strings and Regular expressions: Building Strings-Formatting Expressions-Using Regular Expressions-**Windows service:** Windows Service Architecture- Installation program- Troubleshooting Windows Service

UNIT V: (15 Hrs)

ADO.NET Entity Framework: Mapping-Entity Classes-Object contexts- Relationships- Querying Data-Updates- **ASP.NET Web Forms**-Server side controls- Master pages- Site Navigation-Validating user input- Data access-Security-**ASP.NET Web API**-Creating services-.Net Clients-Using Odata

TEXT BOOK

S.NO	AUTHORS	TITLE	PUBLICATION	YEAR
1	Christian Nagel, Jay Glynn, Morgan Skinner	Professional C# 5.0 and .NET 4.5.1	Wiley	2014

REFERENCE BOOKS

S.NO	AUTHORS	TITLE	PUBLICATION	YEAR
1	Ian Griffiths	Programming C# 5.0	O'Reilly	2012
2	John Paul Mueller, Bill Sempf	C# 7.0 All-in-One For Dummies	Wiley	2017

SEMESTER - VI	.NET WITH C# LAB	Hours/Week-6	
Major Based Elective III		Credits-6	
Course Code 19UIT6MBE3BP		Internal-40	External-60

OBJECTIVES

- Write and execute C# programs in .NET platform.
- Create, compile and run object-oriented C# programs using Visual Studio
- Design and Implement database connectivity using ADO.NET in window based application and Web-based applications

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1.	Exhibit the knowledge of program execution and Debugging Of C#	K1
CO2.	Develop programs using Object-Oriented concepts of C#	K2
CO3.	Design Window-based applications with database connectivity	K3
CO4.	Compile an application to demonstrate web services	K3
CO5.	Apply the complete knowledge of C# to develop Web-based real time applications using webserver controls	K3

Mapping with Programme Outcomes

COs\POs	PO1	PO2	PO3	PO4
CO1	S	M	S	M
CO2	S	M	M	M
CO3	S	M	M	S
CO4	S	S	S	M
CO5	S	S	S	S

SYLLABUS

1. Programs using Control statements
2. Handling arrays
3. String Manipulations
4. Demonstrate Inheritance and polymorphism
5. Apply Interface
6. Operator overloading
7. Exception handling
8. Creation of windows application with database connection
9. Creation of Web services
10. Design a Web-based application
11. Create Student record using ASP.NET MVC Entity framework

SEMESTER - VI	II.C.ARTIFICIAL INTELLIGENCE	Hours/Week-6	
Major Based Elective II		Credits - 6	
Course Code 19UIT6MBE2C		Internal-25	External-75

COURSE OBJECTIVE:

- Discuss the issues and techniques involved in the creation of intelligent systems.
- To analyze the various knowledge representation schemes, Reasoning and Learning techniques of AI.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Create an appropriate state space searching techniques to maximize the performance	K1
CO2	Compute first-order propositional and predicate logic to represent knowledge	K2
CO3	Analyze the problem solving methods involved in uncertain information using probabilistic techniques.	K3
CO4	Apply planning algorithms to find optimal solutions	K3
CO5	Explain the steps involved in Natural language processing	K3

Mapping with Programme Outcomes

COs\POs	P1	P2	PO3	P4
CO1	M	M	M	M
CO2	S	M	M	S
CO3	M	S	S	S
CO4	S	S	S	S
CO5	S	S	S	S

SYLLABUS:

UNIT I

(18 Hours)

Intelligent Agents: Intelligent agents, structure of agents

Introduction & Problem Solving: AI problems, AI Technique, Defining problem as a State-Space Search, Production Systems, Problem Characteristics.

Heuristic Search Techniques: Generate-and-test, Hill Climbing, Best-First Search, Problem Reduction, Constraint Satisfaction.

UNIT II**(18 Hours)**

Game Playing: Overview, Min-Max search Procedure, Adding Alpha-beta Cutoffs, Additional Refinements, Iterative Deepening.

Using Predicate Logic: Representing simple facts in logic, Representing Instance and ISA Relationships, Computable Functions , propositional calculus and predicates, Resolution.

UNIT III**(18 Hours)**

Uncertainty and Reasoning Techniques: Non monotonic reasoning, Logics for Non monotonic reasoning, Implementation issues.

Statistical reasoning: Probability and Bayes theorem, Certainty factors and Rule-based systems, Bayesian Networks, Dempster - Shafer Theory.

UNIT IV**(18 Hours)**

Learning: What is Learning, Rote learning, Learning by taking advice, learning in problem? solving, learning from examples: Induction.

Expert System: Representing and Using Domain Knowledge, Expert systems shells, Explanation, Knowledge Acquisition.

UNIT V**(18 Hours)**

Natural Language Processing: Introduction, Syntactic Processing, Semantic Analysis, Statistical NLP, Spell Checking.

PROLOG-The Natural Language of AI: Prolog facts and rules, variables, control structures, arithmetic operators, matching in Prolog, backtracking.

TEXT BOOKS:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS	YEAR OF PUBLICATION
1.	Elaine rich, Kevin Knight, Shivashankar B Nair	Artificial Intelligence	Tata McGraw Hill publication 3 rd Edition	2017
2.	Russell Norvig	Artificial Intelligence- Modern Approach	Pearson,3 rd edition	2009

REFERENCES BOOKS:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS/EDITION	YEAR OF PUBLICATION
1.	Saroj Kaushik	Artificial Intelligence	Cengage Learning India	2012
2.	Mishra R.B	An Approach to Knowledge Base Management	Prentice Hall of India	2010

SEMESTER – VI	Development Lab III.C.MINI PROJECT	Hours/Week-6	
Major Based Elective – III		Credits - 6	
Course Code- 19UIT6MBE3CPW		Internal-40	External-60

OBJECTIVE

Course Objectives

1. To understand and select the task based on their core skills.
2. To get the knowledge about analytical and logical skill for solving the selected task.
3. To get confidence for implementing the task and solving the real time problems.

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

- Identify and formulate the problem
- Analyze the problem and collect necessary data.
- Design and develop the project using appropriate software by applying the programming skills.
- Implement, evaluate and generate reports

There shall be six components that will be considered in assessing a project work with weightage as indicated. Based on the 6 components internal mark can be awarded

- Submission of the assigned tasks during Periodical review
- Individual involvement, teamwork and adoption of industry work culture
- Quality of project documentation (Precision, stylistics etc)
- Accomplishment of project deliverables
- Effective technical presentation of project work
- Viva-Voce

External Assessment

Dissertation/Project submitted at the end of third year shall be valued by two examiners appointed by the Controller for the conduct of practical exam. The board of examiners shall award 60 marks based on the following components.

- Achievement of project deliverables
- Effective technical presentation of project work
- Project Viva

ANNEXURE - O

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

**NATIONALLY ACCREDITED (III CYCLE) WITH “A” GRADE BY NAAC
ISO 9001: 2015 certified**

TIRUCHIRAPPALLI-620018



**SYLLABUS
FOR
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

- Enable students to acquire expertise in the use and application of various methods used in microbiology.
- Provide learning opportunity to be reflective about their role as a researcher.
- Handle and independently work on lab protocols involving molecular techniques.
- Awareness of ethical issues in Microbiology research and career options.
- Production of substantial original research of significance and quality sufficient for publications.

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TIRUCHIRAPPALLI – 620018



PG AND RESEARCH DEPARTMENT OF MICROBIOLOGY

MINUTES OF THE VIRTUAL BOARD OF STUDIES MEETING IN THE PG AND RESEARCH DEPARTMENT OF MICROBIOLOGY CONDUCTED ON 28.05.2021 AT 10.30 A.M.

The following members attended the meeting:

- | | |
|----------------------------|------------------------------------------------|
| 1) Dr. B. Thamilmaraiselvi | Chairperson, Professor & HOD |
| 2) Dr. A. Veera Ravi | Subject Expert, Alagappa University |
| 3) Dr. A. Panneerselvam | Member, Bharathidasan University |
| 4) Dr. N. Thajuddin | Special Invitee, Bharathidasan University |
| 5) Dr. R. Senthil Kumar | Member, Placement Representative from Industry |
| 6) Ms. S. Priyadharshni | Member, Alumna |
| 7) Dr. N. Pushpa | Member, Associate Professor |
| 8) Dr. S. Jeyabharathi | Member, Assistant Professor |
| 9) Ms. N. Jeenathunisa | Member, Assistant Professor |
| 10) Ms. K. Sangeetha | Member, Assistant Professor |
| 11) Ms. S. Sathya | Member, Assistant Professor |
| 12) Ms. N. Sathammai Priya | Member, Assistant Professor |
| 13) Dr. R. Nithyatharani | Member, Assistant Professor |
| 14) Dr. P.F. Steffi | Member, Assistant Professor |
| 15) Dr. S. Jenny | Member, Assistant Professor |
| 16) Dr. E. Priya | Member, Assistant Professor |
| 17) Dr. V. Aruna | Member, Assistant Professor |
| 18) Dr. P. Bhuvaneshwari | Member, Assistant Professor |

The leave of absence was granted to Dr. A. Panneerselvam

The Agenda for the meeting was as follows:

1. **ITEM NO.BOS/04/01**

To consider and approve Environmental Studies revised syllabus in II semester for all the Under Graduate Programmes (2021 - 2022 batch and onwards) and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

2. **ITEM NO.BOS/04/02**

Ratification to change the syllabus of Skilled Based Elective Courses II and III of V semester converted into Skill Based Elective Practicals for B.Sc., Microbiology (2019 -2020 batch and onwards) and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

3. **ITEM NO.BOS/04/03**

Ratification to change the Course title of Elective course III Recent trends in Microbiology (19PMB3EC3A) to Microbiology for Competitive Examination with course code 20PMB3EC3A in semester III for M.Sc., Microbiology (2020-21 batch and onwards) and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

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

Appreciation of Board of Studies Members who contributed to prepare syllabus.

5. **ITEM NO.BOS/04/05**

Any other item with the permission of Chair.

Dr. B. Thamilmalaiselvi, Professor & HOD, Chairperson of the meeting welcomed the members and introduced them.

RESOLUTION NO.BOS/04/01

To consider and approve Environmental Studies revised syllabus in II semester for all the Under Graduate Programmes (2021 - 2022 batch and onwards) and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

Dr. B.Thamilmalaiselvi, Professor & HOD, Chairperson briefed the members about the Environmental Studies revised syllabus in II semester for all the Under Graduate Programmes (2021 - 2022 batch and onwards).

Resolved the syllabus of Environmental Studies be approved and recommended to Academic Council, Cauvery College for Women (Autonomous), Trichy-18 for further action”

RESOLUTION NO.BOS/04/02

Ratification to change the syllabus of Skilled Based Elective Courses II – Biofertilizer Technology (19UMB5SBE2A) and Solid Waste Management (19UMB5SBE2B) of V Semester changed into Skill Based Elective Practical as Biofertilizer Technology Practical (19UMB5SBE2AP) and Solid Waste Management Practical (19UMB5SBE2BP).

Skill Based Elective Course III Medical Laboratory Technology (19UMB5SBE3A) and Basics of Intellectual Property Rights (19UMB5SBE3B) changed into Medical Laboratory Technology Practical (19UMB5SBE3AP) and Vermitechnology Practical (19UMB5SBE3BP) of B.Sc., Microbiology (2019 - 2020 batch and onwards) and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

Dr. B.Thamilmaraiselvi, Professor & HOD, Chairperson briefed the members about the syllabus of Skilled Based Elective Courses II – Biofertilizer Technology (19UMB5SBE2A) and Solid Waste Management (19UMB5SBE2B) of V Semester changed into Skill Based Elective Practical as Biofertilizer Technology Practical (19UMB5SBE2AP) and Solid Waste Management Practical (19UMB5SBE2BP).

Skill Based Elective Course III Medical Laboratory Technology (19UMB5SBE3A) and Basics of Intellectual Property Rights (19UMB5SBE3B) changed into Medical Laboratory Technology Practical (19UMB5SBE3AP) and Vermitechnology Practical (19UMB5SBE3BP) of B.Sc., Microbiology (2019 - 2020 batch and onwards).

“Ratified the syllabus of SBE Courses of B.Sc., Microbiology be approved and recommended to Academic Council, Cauvery College for Women (Autonomous), Trichy-18 for further action”

RESOLUTION NO.BOS/04/03

Ratification to change the Course title for Elective Course III Recent trends in Microbiology to Microbiology for Competitive Examination with course code 20PMB3EC3A in semester III for M.Sc., Microbiology (2020- 2021 batch and onwards) and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

Dr. B.Thamilmaraiselvi, Professor & HOD, Chairperson briefed the members about the change of title of the Elective course III, Microbiology for Competitive Examination with course code 20PMB3EC3A in semester III for M.Sc., Microbiology (2020-21 batch and onwards) and is included in the M.Sc., Microbiology course structure.

The discussion was held among the members and it was resolved as under:

“Resolved that the ratification to be approved and recommended to Academic Council, Cauvery College for Women (Autonomous), Trichy-18, for further action”

RESOLUTION NO.BOS/04/04

Appreciation of Board of Studies members who contributed to prepare syllabus.

The Chairperson reported the members about the efforts of all the members of Board of Studies to prepare the syllabus for the VI Semester of B.Sc., Microbiology for the academic year 2021-2022.

It was resolved as under:

“Resolved that the Appreciation of Board of Studies members who contributed to prepare the syllabus be noted”

RESOLUTION NO.BOS/04/05

There being no other matter, the meeting was concluded with a vote of thanks given by Dr. B. Thamilmalaiselvi, Professor & HOD, Chairperson.

Sd/-

**Dr. B. Thamilmalaiselvi,
Chairperson, Professor & Head,
PG Department of Microbiology,
Cauvery College for Women (Autonomous),
Tiruchirappalli-18.**

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

TIRUCHIRAPPALLI-620018

B.Sc., MICROBIOLOGY COURSE STRUCTURE

(For the candidates admitted from academic year 2019-2020 onwards)

SEM.	PART	COURSE	COURSE TITLE	COURSE CODE	INST. HOURS /WEEK	CREDIT	EXAM HOURS	MARKS		TOTAL
								INT.	EXT.	
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	19UMB5MBE1A	5	5	3	25	75	100
	(B) Organic Farming		19UMB5MBE1B							
	IV	Skill Based Elective Practical – II	(A) Biofertilizer Technology Practical	19UMB5SBE2AP	2	2	3	40	60	100
			(B) Solid Waste Management Practical	19UMB5SBE2BP						
		Skill Based Elective Practical – III	(A) Medical laboratory Technology Practical	19UMB5SBE3AP	2	2	3	40	60	100
			(B) Vermitechnology Practical	19UMB5SBE3BP						
UGC Jeevan Kaushal Life Skills		Professional Skills	19UGPS	2	2	3	25	75	100	
V	Extra Credit Course	Swayam Online Course	To be Fixed Later	As per UGC Recommendations						
TOTAL					30	29	-	-	-	800

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

TIRUCHIRAPPALLI-620018

B.Sc., MICROBIOLOGY COURSE STRUCTURE

(For the candidates admitted from academic year 2019-2020 onwards)

SEM.	PART	COURSE	COURSE TITLE	COURSE CODE	INST. HOURS /WEEK	CREDIT	EXAM HOURS	MARKS		TOTAL
								INT.	EXT.	
VI	III	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
		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

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS) TIRUCHIRAPPALLI-620018**M.Sc., Microbiology Course Structure under CBCS****(For the candidates admitted from the academic year 2020-2021 onwards)**

Sem.	Course	Course Title	Course Code	Inst./ Hours /Week	Credit	Exam Hours	Marks		Total
							Int.	Ext.	
III	Core Course – VII (CC)	Industrial Microbiology	19PMB3CC7	6	5	3	25	75	100
	Core Course – VIII (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) Microbiology for Competitive Examination	20PMB3EC3A	5	5	3	-	100	100
		(B) Food Adulteration	19PMB3EC3B						
		(C) Biomedical Laboratory Technology	19PMB3EC3C	5	5	3	25	75	
	Elective Course – IV (EC)	(A) Recombinant DNA Technology	19PMB3EC4A						100
(B) Microbes in Solid Waste Management		19PMB3EC4B	5	5	3	25	75		
(C) Microbial Nanotechnology		19PMB3EC4C							
Extra Credit Course	Swayam Online Course	To be fixed later	As per UGC Recommendation						
			TOTAL	30	24	-	-	-	500

ENVIRONMENTAL STUDIES

Semester II	Internal Marks :25	External Marks: 75				
Course Code	Course Title	Category	L	T	P	Credits
21UGES	Environmental Studies	Part IV	30	2	-	2

PREAMBLE

To train the students to get awareness about total environment and its related problems and to make them to participate in the improvement and protection of the environment.

Course Outcome

CO Number	CO Statement	Knowledge Level
CO1	Outline the nature and scope of environmental studies	K2
CO2	Illustrate the various types of natural resources and its importance.	K2
CO3	Classification of various types of ecosystem with its structure and function.	K2
CO4	Develop an understanding of various types of pollution and biodiversity.	K3
CO5	List out the various types of social issues related with environment.	K4

ENVIRONMENTAL STUDIES

Unit: 1 Introduction to environmental studies, Definition, scope and importance.
Need for public awareness

Unit: 2 Natural Resources: Renewable and non-renewable resources:

a) Forest resources: use and over-exploitation, deforestation, case studies.

Timber Extraction, mining, dams and their effects on forests and tribal people.

- b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dam's benefits and problems.
- c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources.
- d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity.
- e) Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies.
- f) Land resources: Land as a resource, land degradation, man induced Landslides, soil erosion and desertification.
Role of an individual in conservation of natural resources.

Unit: 3 Ecosystems

- Concept, Structure and function of an ecosystem.
- Producers, consumers and decomposers
- Energy flow in the ecosystem and Ecological succession.
- Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystem:-
 - a. Forest ecosystem
 - b. Grassland ecosystem
 - c. Desert ecosystem
 - d. Aquatic ecosystems, (ponds, streams, lakes, rivers, oceans, estuaries)

Unit: 4 Biodiversity and Environmental Pollution

- Introduction, types and value of biodiversity
- India as a mega diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
- Definition, Causes, effects and control measures of :
 - a. Air Pollution
 - b. Water Pollution

- c. Soil Pollution
- d. Noise pollution
- e. Nuclear hazards

- Solid, liquid Management: Causes, effects and control measures of industrial wastes.
- E-Waste Management: Sources and Types of E-waste. Effect of E-waste on environment and human body. Disposal of E-waste, Advantages of Recycling E-waste.
- Role of an individual in prevention of pollution
- Disaster management: floods, earthquake, cyclone and landslides.

Unit: 5 Social Issues and the Environment

- Water conservation, rain water harvesting, watershed management.
- Climate change, global warming, acid rain, ozone layer depletion,
- Wasteland reclamation.
- Environment Protection Act
- Wildlife Protection Act.
- Forest Conservation Act.
- Population explosion – Family Welfare Programmes
- Human Rights - Value Education
- HIV/ AIDS - Women and Child Welfare
- Role of Information Technology in Environment and human health

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Core Course– VIII (CC)
INDUSTRIAL MICROBIOLOGY

Semester VI	Internal Marks : 25	External Marks : 75				
Course Code	Course Title	Category	L	T	P	Credit
19UMB6CC8	Industrial Microbiology	Core	90	6	-	6

Objective:

To inculcate the student knowledge about Industrial developments with respect to Microorganisms and find out the suitable technology for cultivating them under Industrial scale so as to develop them for employment in bioprocess industry. To learn the screening of industrial strains, fermenters, media, fermentation process and downstream process.

Course Outcome:

CO Number	CO Statement	Knowledge level
CO 1	List the History and Concept of Strain development	K1
CO 2	State the Fermentor and Fermentation media	K2
CO 3	Explain the Production and Purification Industrial Important Microbial Products	K2
CO 4	Describe the Production of Industrially valuable products.	K2
CO 5	Prepare the mass cultivation protocol for Pharmaceutical Products.	K3

Mapping with Programme Outcomes:

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	S	M	M	S
CO2	S	S	S	M	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

Syllabus:

UNIT I: 18 Hours

Introduction, Chronological development, Scope of Industrial Microbiology. Isolation and Identification of Industrially important microorganisms, major classes of products and processes. Isolation, Screening, preservation and improvement of industrially important Microbes. Development of inoculum for various fermentation processes. Strain improvements - Mutations, protoplast fusion and rDNA techniques for strain development.

UNIT II: 18 Hours

Fermentor design – Construction material for fermentors, Aeration and agitation in a fermentor, Temperature control in a fermentor, Foam control in fermenters. Types of fermentor and fermentation process - Batch, Fed batch and continuous.

UNIT III: 18 Hours

Solid and Submerged fermentation – Advantages & Disadvantages. Downstream processing –The recovery and purification of fermentations products (intracellular and extracellular), cell disruption, precipitation (Ammonium sulphate and Solvents), filtration, centrifugation, solvent recovery, chromatography (TLC), ultra filtration, drying, cell immobilizations and its applications.

UNIT IV: 18 Hours

Industrial media formulation strategies- economic means of providing energy- carbon, nitrogen, vitamin and mineral sources. Role of buffers, Prosthetic groups, Inducers, inhibitors and Antifoams. Computer applications in fermentation technology. Mass production of industrially important Products: Beer, Wine, Citric acid, Lactic acid and Lysine.

UNIT V: 18 Hours

Industrial production of pharmaceutically important Products: Amylase, Protease, Penicillin, tetracycline, Riboflavin, Cyanocobalamin, Steroids, Biopolymers, Recombinant vaccine (Hep B vaccine), Production of herbal drugs. Recycling and Safe disposal of industrial wastes by Trickling filter, Activated sludge and Oxidation ponds.

Text Books:

S.No	Author	Title	Publisher	Year of Publication
1.	Aydin Berenjian	Essentials in Fermentation technology	Springer	2020
2.	Hrudayanath Thatoi, Pradeep K. Das Mohapatra, Sonali Mohapatra and Keshab C. Mondal	Microbial Fermentation and Enzyme Technology	CRC Press	2020
3.	Casida LE	Industrial Microbiology	New Age International Private Limited	2019
4.	Stanbury P.F.A. Whitaker and S.J. Hall	Principles of fermentation techniques	Elsevier	2017
5.	Crueger W and Crueger A	Biotechnology: A Test Book of Industrial Microbiology	Medtech	2017
6.	Patel AH	Industrial Microbiology	Laxmi Publication	2011

Reference Books:

S.No	Author	Title	Publisher	Year of Publication
1.	Angelo Basile and Kamran Ghasemzadeh	Current Trends and Future Developments on (Bio-) Membranes:	Elsevier	2020
2.	T. A. Brown	Gene Cloning and DNA Analysis: An Introduction.	Wiley Blackwell., New Jersey	2020
3.	Michael L. Shuler and Fikret Kargi	Bioprocess Engineering: Basic Concepts	Pearson Education India	2015
4.	Agarwal AK and Pradeep Parihar	Industrial Microbiology	AGROBIOS	2012
5.	Doran	Bioprocess Engineering Principles	Elsevier	2012

6.	Richard H. Baltz, Arnold L. Demain and Julian E. Davies	Manual of Industrial Microbiology and Biotechnology	American Society for Microbiology	2010
7.	Prescott and Dunns	Industrial microbiology	CBS	2004

Web Links

1. <https://www.youtube.com/watch?v=emUoAVOBGec>
2. <https://www.youtube.com/watch?v=eXEpiarmYkY>
3. https://www.youtube.com/watch?v=Tdb0N_PMpEI
4. <https://www.youtube.com/watch?v=opfPTm3z0rE>
5. https://www.youtube.com/watch?v=YT34E_DJH24
6. <https://www.youtube.com/watch?v=Uut1cUs6GpA>
7. <https://www.youtube.com/watch?v=RUoAmns7NiQ>
8. https://www.youtube.com/watch?v=fL0CN_iyy1A
9. <https://www.youtube.com/watch?v=uOWS6q9HQGk>
10. https://www.youtube.com/watch?v=D8jfLf_bODs

Pedagogy

Power point presentation, Group Discussion, Seminar, Quiz, Assignment, Animations.

CORE COURSE-IX (CC)
FOOD MICROBIOLOGY

Semester VI	Internal Marks : 25	External Marks : 75				
Course Code	Course Title	Category	L	T	P	Credit
19UMB6CC9	Food Microbiology	Core	90	6	-	6

Preamble: To understand the interactions between food, microorganisms and their environment to ensure food safety, quality, and value. Students study methods to preserve foods and prevent them from spoiling the food production chain.

Course Outcome:

CO Number	CO Statement	Knowledge level
CO 1	List the types of nutrition	K1
CO 2	State the sources of contamination in food	K2
CO 3	Explain the spoilage and preservation of food products	K2
CO 4	Describe food borne diseases	K2
CO 5	Prepare the physical and chemical methods of food preservation	K3

Mapping with Programme Outcomes:

COs	PO1	PO2	PO3	PO4	PO5
CO1	M	S	M	M	S
CO2	S	S	S	M	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

Syllabus:

UNIT I: 18 Hours

Nutrition- Introduction and types of Nutrition- carbohydrates, proteins, vitamins, minerals & lipids. Nutrition for different ages – infants, adult, pregnant and lactating women, old age.

UNIT II: 18 Hours

Microorganisms in Food- bacteria, yeasts and molds. Types (chemical, physical and biological) and Sources of contamination (water, air, dust, equipment, sewage, insects, rodents, and employees)- Factors influencing microbial growth in food- Intrinsic factors: pH, water activity, oxidation reduction potential, nutrient content- Extrinsic factors: temperature, relative humidity, gaseous environments and processing operations.

UNIT III: 18 Hours

Contamination and spoilage of Food products- dairy products, cereals, Vegetables, Fruits, and meat. Fermented foods- Yogurt, cheese, bread, sauerkraut, pickles, beer- probiotics & prebiotics. Principles of food fermentation and the role of beneficial microbes.

UNIT IV: 18 Hours

Food borne diseases and food poisoning- *Staphylococcus*, *Clostridium*, *Escherichia coli* and *Salmonella* infections, Hepatitis, Amoebiasis. The role of microorganisms in food spoilage, pathogenic microorganisms, infection and intoxication, mycotoxin.

UNIT V: 18 Hours

Food preservations: principles- methods of preservations- Physical (drying, cooling, deep-freezing and heating) and chemical methods (Salting, sugaring and smoking), food sanitations. Microbiological quality standards of food. Government regulatory practices and policies. HACCP, ISI, Food safety- control of hazards.

Text Books:

S. No	Author	Title	Publisher	Year of Publication
1.	M. R Adams and M. O Moss	Food Microbiology	New Age International	2018
2.	R. C Dubey and D. K Maheshwari	A Textbook of Microbiology	S. Chand	2013
3.	G. Subbulakshmi and Shobha A Udipi	Food Processing and Preservation	New Age International	2006

4.	B. Srilakshmi	Food Science	New Age International	2018
5.	R.P Srivastava and Sanjeev Kumar	Fruit and Vegetable Preservation	CBS Publishers and distributors	2019

Reference Books:

S.No	Author	Title	Publisher	Year of Publication
1.	W.M Foster	Food Microbiology	CBS Publishers and distributors	2020
2.	Dr. M. Swaminathan	Handbook of Food and Nutrition	Bappco	2010
3.	William C Frazier and Dennis C Westhoff	Food Microbiology	Mc Graw Hill	2017
4.	James M Jay, Martin J. Loessner	Modern Food Microbiology	Springer	2005
5.	Bibek Ray, Arun Bhunia	Fundamentals of Food Microbiology	CRC Press	2014

Web Links

1. https://www.youtube.com/watch?v=kFvN_gZd2A4
2. <https://www.youtube.com/watch?v=3qV0cqhH3JA>
3. https://www.youtube.com/watch?v=T8_y24Wiugc
4. <https://www.youtube.com/watch?v=3gi2IU520KA>
5. <https://www.youtube.com/watch?v=SIz19L2YbgI>

Pedagogy

Power point presentation, Group Discussion, Seminar, Quiz, Assignments.

CORE PRACTICAL- IV (CP)
INDUSTRIAL & FOOD MICROBIOLOGY – PRACTICALS

Semester VI	Internal Marks : 40	External Marks : 60				
Course Code	Course Title	Category	L	T	P	Credit
19UMB6CC4P	Industrial & Food Microbiology- Practicals	Core Practical	90	-	6	5

Preamble: The main objective of this course is to understand the basic skills and production technologies applied in Industrial and Food Microbiology.

Course Outcome:

CO Number	CO Statement	Knowledge Level
CO1	Illustrate the immobilization of Yeast cell	K2
CO2	Describe about the Fermentation	K2
CO3	Organized view of industrially important products from microbes	K3
CO4	Critique knowledge about production of fermented foods	K4
CO5	Explain about the isolation of microbes from foods	K5

Mapping with Programme Outcome:

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

S- Strong, M- Medium, L - Low

SYLLABUS

INDUSTRIAL & FOOD MICROBIOLOGY - PRACTICALS

INDUSTRIAL MICROBIOLOGY

1. Immobilization of yeast cell using sodium alginate
2. Alcohol fermentation by *Saccharomyces cerevisiae*.
3. Estimation of alcohol using Potassium Di-chromate method.
4. Production of Citric acid from whey using *Aspergillus niger*
5. Production of antimicrobial substances from Lactic acid bacteria
6. Starch (Amylase), casein (Protease) and lipid (Lipase) hydrolyses tests

FOOD MICROBIOLOGY

1. Assessment of milk quality by methylene blue reduction test
2. Performance of phosphatase test for pasteurized milk.
3. Isolation and identification of bacteria from food by Standard Plate Count
4. Isolation and identification of Yeast from grapes.
5. Wet mount preparation of microbes in spoiled food- bread, tomato, grapes, potato.
6. Preparation of fermented food – Yoghurt, cheese and Wine
7. Industrial visit

REFERENCES

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Neelima Garg, K.L. Garg & K.G. Mukerji	Laboratory manual of Food Microbiology	Dream tech Press	2020
2.	S. Rajan & R. Selvi Christy	Experimental Procedures in Life Sciences	CBS publications	2018
3.	L. Arnold. Demain & Julian E. Davies	Manual of Industrial Microbiology and Biotechnology	ASM Press	2018
4.	Dr. Shalini Sehgal	Laboratory manual of Food Canners and Processors	Med tech Publishers	2018

5.	K.R.Aneja	Laboratory manual of Microbiology and Biotechnology	Med tech Publishers	2018
6.	Kulanthaivel S and. Janarthanan S.	Practical Manual on Fermentation Technology	I.K. International publishing	2012
7.	Ponmurugan P, Nithya R and Fredinose M	Experimental Procedure in Bioprocess Technology and Downstream Processing	Anjana Book House	2012

Web links:

1. https://en.wikipedia.org/wiki/Ethanol_fermentation
2. <https://www.biologydiscussion.com/acids/citric-acid/citric-acid-discovery-fermentation-and-recovery-microbiology/66045>
3. <https://www.dairyknowledge.in/content/alkaline-phosphatase-test-pasteurized-milk>
4. <https://en.wikipedia.org/wiki/Yogurt>
5. <https://en.wikipedia.org/wiki/Cheese>

Pedagogy

Power point presentation, Seminar, Assignment and Quiz.

MAJAR BASED ELECTIVE - II (A)
MICROBIAL BIOTECHNOLOGY

Semester VI	Internal Marks : 25	External Marks : 75				
Course Code	Course Title	Category	L	T	P	Credit
19UMB6MBE2A	Microbial Biotechnology	Major Based Elective	90	6	-	6

Preamble:

The students will be able to understand the biological processes undergoing in Industries and exploit the knowledge to improve the process.

Course Outcome:

CO Number	CO Statement	Knowledge level
CO1	Predict the primary and secondary screening of microbes.	K3
CO2	Determine the applications of microbes	K4
CO3	Critique knowledge about industrial production	K4
CO4	Outline views of bio control agents	K5
CO5	Expand about Process of Bioremediation	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: 18 hours

Biotechnology: Definition –Milestones in History - Scope of microbial biotechnology and its applications. Industrially important microorganisms- Bacteria (*Lactobacillus*, *Bacillus*), fungi (*Aspergillus*, *Penicillium*), *Actinomyces* (*Streptomyces*).

UNIT II: 18 hours

Microbial production of bio fertilizers (*Rhizobia*, *Azospirillum*, BGA, *Azolla*, *Frankia* and VAM). Microbial production of bio-control Agents (*Pseudomonas*, *Trichoderma viride*). Microbial production of bioplastics.

UNIT III: 18 hours

Single cell protein (algae and yeast). Micro algal technology - Industrial cultivation methods of *Spirulina* biotechnological potentials of *Spirulina* as: food and feed. Fuel (bio-diesel) production from microalgae, pharmaceutically valuable compounds from microalgae. Commercial production of bio-ethanol using lignocellulosic waste.

UNIT IV: 18 hours

Genetic engineering of plants: Features of Ti plasmid and Mechanism of DNA Transfer, Role of virulence gene, Use of Ti vectors, promoters, Genetic markers, Methods of nuclear transfer – Electroporation, Microinjection. Herbicide and insect resistance. Transgenic plants-BT Cotton. Production of human growth hormone-Insulin.

UNIT V: 18 hours

Introduction to the use of Efficient microbes in environmental applications, Bioremediation- Degradation of xenobiotics, bioaugmentation, Bioemulsifiers, biosurfactants, MEOR (Microbial enhanced oil recovery), Leaching of ores.

REFERENCES

Text Books

S.No	Authors Name	Title of the Books	Publishers Name	Year of Publication
1	Singh, J., Vyas, A., Wang, S., Prasad, R	Microbial Biotechnology: Basic Research and Applications	Springer	2020

2	Prakash Kumar Sarangi & Sonil Nanda	Biotechnology for Sustainable Energy and Products	I.K. International Publishing House Pvt. Ltd	2019
3	Jayanta Kumar Patra, Chethala N. Vishnuprasad, Giti shree Das	Microbial Biotechnology: Applications in Agriculture and Environment.	Springer	2017
4	Dr. Rita Singh and Dr. S.K. Ghosh	Industrial Biotechnology	Gvph- Publishers	2016
5	R C Dubey	Textbook of Biotechnology	S.Chand Publishing	2015

Reference Books

S.No	Authors Name	Title of the Books	Publishers Name	Year of Publication
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, Spring er;	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,	Oxford 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.

MAJOR BASED ELECTIVE – II (B)**FOOD ADULTERATION**

Semester VI	Internal Marks : 25	External Marks : 75				
Course Code	Course Title	Category	L	T	P	Credit
19UMB6MBE2B	Food Adulteration	Major Based Elective	90	6	-	6

Preamble: The course is designed to provide comprehensive knowledge to the students regarding food safety and standardization act and quality control of foods.

Course Outcome:

CO Number	CO Statement	Knowledge level
CO1	Define the basics of Food adulteration	K1
CO2	Recite the knowledge about Food Safety and Standards	K1
CO3	Critique knowledge about Standardization of Foods	K4
CO4	Generalize the basic idea of Food additives	K6
CO5	Expand the role of Quality control	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: 18 hours

Food adulteration – Introduction of food adulteration, definition. New adulterants in foods, Historical food legislation in India; Central food laboratory, Municipal laboratories, Export inspection council laboratory, Central grain analysis laboratory, standards of weights and measures act, solvent extracted oil, de-oiled meal and edible flour order, export and quality control, inspection act, other acts and orders.

UNIT –II: 18 hours

Food Safety and Standards Act 2006. vertical standards Vs horizontal standards .Food safety officer; powers, procedures, role of food analyst most important international laws; Codex alimentarius, FDA, USDA, FAO, HACCP, FSSAI and WHO. National and International regulatory bodies.

UNIT – III: 18 hours

Standardization of Foods; Definition, Standards of Quality, for cereals, starchy foods, spices and condiments, sweetening agents, meat and meat products, vinegar, sugar and confectionary, beverages-alcoholic and non-alcoholic , carbonated water, milk and milk products , oils and fats , canned foods , fruits and vegetables products.

UNIT – IV: 18 hours

Food additives – classification, nature and characteristics and use of additives in food such as antioxidants, chelating agents, coloring agents - algal colorants (natural & artificial), curing agents, emulsions, flavors and flavor enhancers, flour improvers, humectants and anti-caking agents, nutrient supplements, non-nutritive sweeteners, pH control agents, stabilizers and thickeners. Raising agents – types and their role in food processing.

UNIT-V: 18 hours

Consumer protection; role of voluntary agencies such as, Agmark, I.S.I. Quality control laboratories for companies ,private testing laboratories, Quality control laboratories of consumer co-operatives. Consumer education, consumer problems rights and responsibilities, Consumer protection act (COPRA 1986), tips for wise purchasing, redressal measures how to give complaints and proforma of complaints.

Text Books:

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Mousumi Sen	Food Chemistry: Role of Additives, Preservatives and Adulteration	John Wiley and Sons	2021
2.	Jonathan Rees	Food Adulteration and Food Fraud (Food Controversies)	Reaktion Books	2020
3.	Fredric Accum	A Treatise on Adulterations of Food, And Culinary Poisons	Lector House LLP	2019
4.	Rowland J. Atcherley	Adulteration of Foods	Wentworth Press	2019
5.	United States Congress	Adulteration of Food	Forgotten Books	2019

Reference Books

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Rosalee S. Hellberg Karen Everstine Steven A. Sklare	Food Fraud: A Global Threat with Public Health and Economic Consequences	Academic Press Inc.	2020
2.	James Bell	The Analysis and Adulteration of Foods	Forgotten Books	2019
3.	Harvey Washington Wiley	Foods and Food Adulterants, Vol. 4	Forgotten Books	2019
4.	John W. Spink	Food Fraud Prevention: Introduction, Implementation, and Management (Food Microbiology and Food Safety)	Springer	2019
5.	William Ernest Mason	Adulteration of Food Products	Forgotten Books	2018

Web links:

1. <https://www.sciencedirect.com/topics/food-science/food-adulteration>
2. <https://www.vedantu.com/biology/food-adulteration>
3. <https://www.publichealthnotes.com/food-adulteration-types-of-food-adulteration-and-mitigation-measures/>
4. https://en.wikipedia.org/wiki/Adulterated_food
5. <https://www.slideshare.net/SurajPanpatte1/different-methods-of-food-adulteration>

Pedagogy

Power point presentations, Group discussion, Seminar, Quiz, Assignment, Brain storming activity.

MAJOR BASED ELECTIVE- III (A)
RECOMBINANT DNA TECHNOLOGY

Semester VI	Internal Marks: 25	External Marks: 75				
Course Code	Course Title	Category	L	T	P	Credits
19UMB6MBE3A	Recombinant DNA Technology	Major Based Elective	75	5	-	5

Preamble: To acquaint the students to versatile tools and techniques employed in recombinant DNA technology. A sound knowledge on methodological repertoire allows students to innovatively apply these in basic and applied fields of biological research.

Course Outcome:

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

CO Number	CO Statement	Knowledge level
CO1	Understand the role of enzymes in rDNA technology	K2
CO2	Sketch the basic techniques of vectors and its biology	K3
CO3	Illustrate the gene cloning strategies in recombinant DNA	K4
CO4	Explain the importance of rDNA techniques	K5
CO5	Summarize the applications of recombinant technology	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: Introduction to rDNA Technology (18 hours)

History and recent developments in rDNA technology, Enzymes used in rDNA technology – Restriction enzymes: types and importance of Type II restriction enzymes, DNA Ligases, DNA polymerase, Ribonucleases, Reverse transcriptase, Alkaline phosphatase, T4 Polynucleotide kinase, Terminal deoxynucleotidyl transferase, Nucleases: S1Nuclease and DNase.

Unit II: Cloning Vectors (15 hours)

Cloning Vectors: properties and types. Plasmids – vectors for cloning in *E. coli*: pUC, pBR322 and pGEM3Z. Bacteriophage vectors: Lambda, M13, Phagemids and T7 promoter-based vector. Shuttle vectors: YACs, YEps, BACs. Animal viruses: SV40, Baculo and their use as vectors.

Unit III: Gene Cloning Strategies (12 hours)

Gene cloning strategies, Uses of adapters and linkers. Screening and selection of recombinant clones: Colony Hybridization techniques, lacZ complementation (Blue-white selection) and Immuno-screening. Construction of genomic DNA and cDNA libraries.

Unit IV: rDNA Techniques (18 hours)

Introduction to Gene sequencing methods: Sanger's termination, automated and next generation sequencing, Polymerase chain reaction and RT-PCR, DNA finger printing: RAPD and RFLP, Chromosome walking, Blotting techniques and Electrophoresis (Agarose Gel and SDS – PAGE). Brief introduction of CRISPR-Cas9 gene editing technology. Methods of gene transfer techniques in plants and animals: *Agrobacterium* mediated, electroporation and particle gun.

Unit V: Applications of rDNA (12 hours)

Transgenic animals - sheep and mice, Transgenic plant - BT brinjal, Molecular pharming, Brief introduction to Gene therapy, Corona vaccine and Human genome project. Merits and demerits of recombinant products. Hazards and safety regulations in r-DNA Technology.

Text Books

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	T. A. Brown	Gene Cloning and DNA Analysis. An Introduction. (8th Edition)	Blackwell Publications	2020
2.	Monika Jain	Recombinant DNA Techniques: A Text book	Narosa, India	2020
3.	Bernard R. Glick, Jack J. Pasternak and Cheryl L. Patten	Molecular Biotechnology: Principles and Applications of Recombinant DNA. (5th Edition)	ASM Press	2017
4.	Mukherjee, Siddhartha	The Gene: An Intimate History	Scribner Publication	2017
5.	S.B. Primrose and R.M. Twyman	Principles of Gene manipulation and Genomics. (7th Edition)	Blackwell Scientific Publications, India	2014

Reference Books

S.No.	Authors Name	Title of the book	Publishers Name	Year
1.	Daniel L.Hartl	Analysis of Genes and Genomes. (9 th Edition)	Jones & Bartlett Learning, US	2019
2.	Jocelyn E. Krebs, Elliott S. Goldstein and Stephen T. Kilpatrick	Lewin's genes XII	Jones and Bartlett Learning, US	2018
3.	Fridos Alam Khan	Biotechnology Fundamentals (2 nd Edition)	CRC Press	2017
4.	T.A. Brown	Gene Cloning and DNA analysis. (7th Edition)	Blackwell Publication	2016
5.	Chaudhuri, Keya	Recombinant DNA Technology	TERI, New Delhi	2015

Web links:

1. <https://physicscatalyst.com/biotechnology/recombinant-dna-technology.php>
2. <https://nptel.ac.in/content/storage2/courses/102103013/pdf/mod2.pdf>
3. <https://facultystaff.richmond.edu/~lrunyenj/bio554/lectnotes/chapter14.pdf>
4. http://www.bio.brandeis.edu/classes/heredity/Lecture%20Powerpoints/Chapter_13_1.pdf
5. <https://microbenotes.com/gene-cloning-requirements-principle-steps-applications/>

Pedagogy

Power point presentations, Group discussion, Seminar, Quiz, Assignment, Brain storming activity.

MAJOR BASED ELECTIVE–III (B)
BIOLOGICAL TECHNIQUES

Semester VI	Internal Marks :25	External Marks: 75				
Course Code	Course Title	Category	L	T	P	Credits
19UMB6MBE3B	Biological Techniques	Major Based Elective	75	5	-	5

Preamble: To educate the students with the basic principles of microbial techniques so as to develop their research aptitude and career prospects.

Course Outcome:

COs	CO Statement	Knowledge level
CO 1	Recall microscopic techniques.	K1
CO 2	Apply the spectroscopic, Spectrophotometric methods & analytical techniques.	K3
CO 3	Critique knowledge about chromatographic techniques.	K5
CO 4	Revise about electrophoresis & its applications.	K6
CO 5	Combine view of molecular techniques.	K6

Mapping with Programme Outcomes:

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

S- Strong; M-Medium; L-Low

Syllabus:

UNIT-I: MICROSCOPIC TECHNIQUES (15 Hours)

Basic principles, mechanisms and application of Bright Field, Dark field, Phase contrast, Polarization, Confocal laser scanning microscope, Fluorescence, Scanning Electron microscope & Transmission Electron Microscope (SEM & TEM) and Radio- frequency scanning tunneling microscopy, Atomic force microscopy. Preparation of microbial, animal and plant samples for microscopy.

UNIT-II: SPECTROSCOPY & SPECTROPHOTOMETRY (15 Hours)

Basic concepts and applications of Circular Dichroism (CD) and Optical Rotatory Dispersion (ORD), Fluorescence spectroscopy, UV/Visible spectrophotometry, Infrared spectroscopy, Fourier-transform infrared spectroscopy (FTIR), Nuclear Magnetic Resonance spectroscopy (NMR).

UNIT III- CHROMATOGRAPHIC TECHNIQUES (13 Hours)

Basic Principles and application of Bioautography, Thin-layer chromatography, Paper chromatography, Gel filtration chromatography, Ion- exchange chromatography, Affinity chromatography, Gas chromatography and High Performance Liquid chromatography.

UNIT IV- CENTRIFUGATION & ELECTROPHORESIS (15 Hours)

Basic principles and applications of Centrifuges - Preparative, analytical, high speed, low speed, ultracentrifuge, differential and density gradient.

Basic concepts and applications of Gel Electrophoresis- Agarose and acrylamide (native, denaturing and gradient), Isoelectric focusing, 2D Electrophoresis, Immunoelectrophoresis and Pulse field Electrophoresis.

UNIT V- RADIOGRAPHY & MOLECULAR TECHNIQUES (17 Hours)

Basic principles and application of Autoradiography. Liquid scintillation counting, phosphor imaging, Imatinib Resistance Mutation Analysis. Types of PCR- Real time PCR, Reverse Transcriptase PCR, Multiplex PCR, Nested PCR and In-situ PCR. Blotting (Southern, Western, Northern) Techniques, DNA Finger printing, RFLP, RAPD and AFLP application.

Text Books

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	RaoD M	Instrumental Methods of Analysis	CBS publishers and distributors pvt ltd	2020
2.	Gurdeep R. Chatwal	Instrumental Methods of Chemical Analysis	Himalaya publishing house	2019
3.	Bhawana Pandey M.H. Fulekar	Bioinstrumentation	Dreamtech Press	2019
4.	Gilbert H mitchell	Gel Electrophoresis: Types, Applications & Research	Nova Science Publishers	2017
5.	Jessica carol	Textbook of Analytical Biochemistry	Syrawood Publishing House	2016

Reference Books

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Ankita Jain, Haresh Kalasariya, Varsha Tailor, Nikunj B. Patel	Bioinstrumentation techniques-Basics and applications	Notion Press	2020
2.	Gakhar, Monika Miglani, Ashwani Kumar	Molecular Biology: A Laboratory Manual	Dreamtech Press	2019
3.	Almroth E. Wright	Principles of Microscopy: Being a Handbook to the Microscope	Forgotten Books	2018
4.	Andreas Hofmann and Samuel Clokie	Wilson and Walker's Principles and Techniques of Biochemistry and Molecular Biology	Cambridge University Press	2018
5.	Sanjay B Bari	Theory and Practice of Chromatographic Techniques	Pharma Med Press	2017

Web links:

1. http://physics.fe.uni-lj.si/students/predavanja/Microscopy_Kulkarni.pdf
2. <https://research.ipmu.jp/seminar/sysimg/seminar/574.pdf>
3. <http://www.keeler.ch.cam.ac.uk/lectures/Irvine/>
4. https://www.ccamp.res.in/sites/default/files/Basics%20of%20Chromatography_KR_C-CAMP.pdf
5. http://www.bdu.ac.in/schools/biotechnology-and-genetic-engineering/biomedical-science/docs/course_materials/Biotechniques/Electrophoresis.pdf
6. https://ehs.psu.edu/sites/ehs/files/lsc_theory_of_operation_part_1.pdf
7. <https://www.youtube.com/watch?v=kOCcmJ3nVQ4>

Pedagogy

Power point presentations, Group Discussion, Seminar, Quiz, Assignment, Brain Storming Activity.

SKILL BASED ELECTIVE PRACTICAL - II (A)
BIOFERTILIZER TECHNOLOGY-PRACTICAL

Semester V	Internal Marks: 40	External Marks: 60				
Course Code	Course Title	Category	L	T	P	Credits
19UMB5SBE2AP	Biofertilizer Technology- Practical	Skill Based Elective Practical	30	-	2	2

Preamble: The aim of the course is to make the student to know the importance of biofertilizers in agriculture and production technologies.

Course Outcome:

CO Number	CO Statement	Knowledge Level
CO1	Explain Biofertilizers and Production technology	K2
CO2	Illustrate Symbiotic Biofertilizers and study the mass cultivation methods	K2
CO3	Analyze Non- Symbiotic Biofertilizers and study the cultivation methods	K4
CO4	Create Knowledge about Phosphate solubilization and study the cultivation methods	K6
CO5	Expand view of Mycorrhizae and Bioinsecticides and study the cultivation methods	K6

Mapping with Programme Outcome

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:**BIOFERTILIZER TECHNOLOGY-PRACTICAL (30 Hours)**

1. Isolation and identification of *Rhizobium* from leguminous plant roots
2. Isolation and identification of *Azospirillum* and *Azotobacter*
3. Isolation, identification and cultivation of Cyanobacteria from paddy field soil and water.
4. Isolation and cultivation of *Anabaena* from *Azolla*.
5. Isolation, identification and cultivation of Phosphate solubilizing bacteria from soil.
6. Isolation and identification of VAM from onion roots.
7. Isolation and identification of bioinsecticides - *Bacillus thurengiensis* and *Verticillium* sps
8. Preparation of liquid based inoculums.

Text Books:

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Krishnendu Acharya, Surjit Sen & Manjula Rai	Biofertilizer and Biopesticide	Techno World	2019
2.	S. Rajan & R. Selvi Christy	Experimental Procedures in Life Sciences	CBS publications	2018
3.	Dr. Reeta Khosla	Biofertilizers and Biocontrol Agents for Organic Farming	Kojo Press	2017
4.	Dr. Hyma	Biofertilizers: Commercial Production Technology and Quality	Random publications	2017
5.	Mahendra K Rai	Hand book microbial biofertilizers. 9th edition.	The Haworth press, Inc.	2015
6.	Borkar S.G.	Microbes as Bio-fertilizers and their Production Technology	Woodhead Publishing India in Agriculture	2015

Reference Books:

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Rao B.N.S	Biofertilizers in Agriculture and Forestry	Oxford & IBH Publishing House	2019
2.	Sharma R.A.	Biofertilizer Technology	Agro tech Publishing Academy	2019
3.	Ameta O.P and Sharma U.S	Biopesticides for Sustainable Agriculture	Agro tech Publishing Academy	2018
4.	Somani .L	Biofertilizers: Commercial Production Technology and Quality control	Agro tech Publishing Academy	2018
5.	Bikas R. Pati Santi M. Mandal	Recent Trends in Biofertilizers	I K International Publishing House	2016

Web links:

1. https://agritech.tnau.ac.in/ta/org_farm/orgfarm_biofertilizers.html
2. https://agritech.tnau.ac.in/org_farm/orgfarm_biofertilizertechnology.html
3. <http://www.techno-preneur.net/technology/new-technologies/food-agro/vam-fungi.html>
4. http://14.139.187.9/ta/org_farm/orgfarm_faq's.html

Pedagogy

Power point presentation, Seminar, Assignment and Quiz.

SKILL BASED ELECTIVE PRACTICAL-II (B)
SOLID WASTE MANAGEMENT -PRACTICAL

Semester -V	Internal Marks - 40	External Marks - 60				
Course Code	Course Title	Category	L	P	T	Credits
19UMB5SBE2BP	Solid Waste Management - Practical	Skill Based Elective Practical	30	2	-	2

Preamble: To make the students conversant with the types, collection, transport, processing and disposal of municipal solid waste.

Course Outcome:

CO Number	CO Statement	Knowledge level
CO1	Explain the Sample collection methods	K2
CO2	understanding of the Physical characteristics of municipal solid wastes	K4
CO3	Determine the Chemical compounds of solid waste	K4
CO4	Discuss about the Processing techniques of solid waste	K6
CO5	Elaborate Mushroom Cultivation methods by using organic Solid wastes	K6

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

SOLID WASTE MANAGEMENT –PRACTICAL (30 Hours)

1. Visit and collect the sample from a local polluted site -Urban/Rural/Industrial/Agricultural.
2. Determination of physical parameters of solid waste. a) Temperature b) Colour c) pH
3. Determination of Nitrogen and phosphorus of solid waste.
4. Isolation and identification of Microorganisms from solid waste.
5. Physical and chemical treatment processes of solid waste (Saccharification, Gasification, Pyrolysis)
6. Biological treatment processes of solid waste by composting- Indore Method
7. *Pleurotus* mushroom production by using house hold solid waste
8. Button mushroom production by using Agro-solid waste

Text Books

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Maulin P. Shah, GauravSaxena and Vineet Kumar	Bioremediation for Environmental Sustainability	Elsevier Science	2020
2.	Tobias Richards and Mohammad J. Taherzadeh	Resource Recovery to Approach Zero Municipal Waste	CRC Press	2018
3.	Kumar S	Integrated Waste Management Volume II	Intech Publishers	2016
4.	AmmayappanSel vam, Rao Y. Surampalli, R. D. Tyagi and Jonathan W. C. Wong	Sustainable Solid Waste Management	American Society of Civil Engineers	2016
5.	M.N.V. Prasad	Bioremediation and Bioeconomy	Elsevier Science	2015

Weblinks:

1. https://en.wikipedia.org/wiki/Waste_management
2. <http://www.houstontx.gov/solidwaste/>
3. <https://www.unc.edu/courses/2009spring/.../SolidWasteIndiaReview2008.pdf>
4. <https://www.cyen.org/innovaeditor/assets/Solid%20waste%20management.pdf>

Pedagogy

Power point presentation, Seminar, Assignment and Quiz.

SKILL BASED ELECTIVE PRACTICAL – III (A)

MEDICAL LABORATORY TECHNOLOGY-PRACTICAL

Semester V	Internal Marks: 40	External Marks: 60				
Course Code	Course Title	Category	L	T	P	Credits
19UMB5SBE3AP	Medical Laboratory Technology – Practical	Skill Based Elective Practical	30	-	2	2

Preamble: Medical Laboratory Technology (MLT) is a Clinical laboratory science effectively and comprehensively meets the requirements of students to develop manpower for health sector by providing them the necessary knowledge and skill to ensure the quality services in health care sector. This is an innovative, need-based and relevant training program meant to create job opportunities and self-employment.

Course Outcome:

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

CO Number	CO Statement	Knowledge level
CO1	Understand the safety practice, anatomy and instrumentation in microbiological laboratory	K2
CO2	Describe the cleaning of glasswares and sterilization of media	K2
CO3	Analyses and estimation of clinical specimen	K4
CO4	Explain blood grouping and Rh typing	K5
CO5	Summarize the serological tests	K6

Mapping with Programme Outcomes:

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

S- Strong; M-Medium; L-Low

SYLLABUS: (30 hours)

1. Ethics of laboratory practice and general laboratory safety rules.
2. Study of body parts and bony landmarks on body surface (charts and models).
3. Principles and operations – Autoclave, Hot Air Oven, Incubators, Laminar Air Flow, Filtration, colony counter, Centrifuge, pH meter, Colorimeter and Spectrophotometer.
4. Cleaning of glasswares and sterilization techniques.
5. Preparation of culture media – solid, semi-solid and liquid.
6. Study on simple, differential, capsule and acid-fast staining.
7. Specimen collection: blood, urine, stool and swab (nose and throat).
8. Separation of serum and plasma.
9. Determination of blood cell count: RBC, WBC and differential leucocyte count.
10. Haemoglobin estimation – Sahli's acid hematin method.
11. Erythrocyte sedimentation rate – Westergren method.
12. Physical examination and Chemical examination of urine: Albumin, Creatinine, Urea, Bile salt (Hay's Test), Bile pigments (Fouchet's Test) and urobilinogen test.
13. Urine sugar determination by Benedict's method.
14. Blood grouping and Rh typing.
15. Serology – Widal test (slide and tube method), VDRL (RPR method), CRP, ASO, Beta-HCG in urine (pregnancy test).

References:

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Kanai L. Mukherjee and Anuradha Chakravarthy	Medical Laboratory Technology, Procedure Manual for Routine Diagnostic Tests	Mc Graw Hill, India	2017
2.	Harsh M.	Textbook of Pathology	Jaypee Publications	2017
3.	Solomon E.P.	Introduction to Human Anatomy and Physiology	Saunders	2016
4.	Vasudevan D.M., Sreekumari S. and Vidhyanathan K.	Textbook of Biochemistry for Medical students	Jaypee & Brothers Medical Publishers (P) Ltd.	2016

5.	Arora D.R and Arora B.B.	Textbook of Microbiology	CBS Publishers & Distributors	2016
6.	Nanda M.	Clinical Pathology Hematology and Blood Banking (For DMLT Students)	Jaypee Brothers Medical Publishers (P) Ltd.	2016
7.	Praful. B. Godkar	Text book of Medical Laboratory Technology	Bhalani Publications	2016
8.	Gary W.Procop and Elmer W.Koneman	Koneman's Color Atlas and Textbook of Diagnostic Microbiology	Wolters Kluwer Health	2016
9.	Sood Ramnik	Text book of Medical Laboratory Technology	Jaypee Publications	2015
10.	Baker F.J., Silvertan R.E. and Luckcock E.D.	An Introduction to Medical Laboratory Technology	Elsevier Science	2015

Web links:

1. <https://www.pdfdrive.com/medical-laboratory-technician-hematology-serology-blood-banking-and-immunohematology-e21321666.html>
2. <https://www.pdfdrive.com/medical-laboratory-technician-microbiology-afsc-90470-e17289142.html>
3. <https://www.pdfdrive.com/introduction-to-medical-laboratory-technician-e184576491.html>
4. <http://downloadinfook1.firebaseio.com/Medical-Laboratory-Technology-Kanai-Mukherjee-PDF-c3f0077fe.pdf>

Pedagogy:

Power point presentations, Group discussion, Seminar, Quiz, Assignment, Brain storming activity.

SKILL BASED ELECTIVE PRACTICAL-III (B)**VERMITECHNOLOGY- PRACTICAL**

Semester -V	Internal Marks - 40	External Marks - 60				
Course Code	Course Title	Category	L	P	T	Credits
19UMB5SBE3BP	Vermitechnology- Practical	Skill Based Elective Practical	30	2	-	2

Preamble: The aim of this course is to make the student to know the importance of Vermitechnology in decomposing food waste into nutrient-rich fertilizer.

Course Outcome:

CO Number	CO Statement	Knowledge Level
CO1	Explain Vermitechnology and Production technology	K2
CO2	Illustrate methods of composting in a limited space and describe the decomposing process	K2
CO3	Analyze and study the biodiversity of local earthworms	K4
CO4	Create and maintain the environment pollution free	K6
CO5	Expand view of using worms to convert decomposing food waste into nutrient-rich fertilizer	K6

Mapping with Programme Outcome

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:**VERMITECHNOLOGY –PRACTICAL (30 Hours)**

9. Key to identify different types of earthworms.
10. Field trip- Collection of native earthworms & their identification.
11. Study of systematic position, habits, habitat & external characters, comparison of morphology & life stages of *Eisenia fetida* & *Eudrilus eugeniae*.
12. Study of vermiculture, vermiwash & vermicompost equipments
13. Preparation of vermibeds, maintenance of vermicompost & climatic conditions.
14. Harvesting, packaging, transport and storage of Vermicompost and separation of life stages.
15. Study the effects of vermicompost & vermiwash on any two short duration crop plants.
16. Study the effects of sewage water on development of worms.

Text Books:

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Debnarayan Roy	A Handbook of Vermitechnology	LAP Lambert Academic Publishing	2018
2.	LakshmiPrabha and ShanmugaPriya	Vermitechnology	LAP Lambert Academic Publishing	2014
3.	ShwetaYadav, Vinay Kumar Singh	Vermitechnology: Rebuilding of Sustainable Rural Livelihoods (Global Agriculture Developments)	Nova Science Publishers Inc	2014
4.	Madhab Chandra Dash	Charles Darwin's Plough Tool for Vermitechnology	I K International Publishing House	2013
5.	A Mary Violet Christy	Vermitechnology	Mjp Publishers	2008

Weblinks:

1. <https://composting.ces.ncsu.edu/vermicomposting-2/>
2. <https://www.planetnatural.com/composting-101/indoor-composting/vermicomposting/>
3. <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/vermicomposting>
4. <https://foodprint.org/eating-sustainably/composting-and-food-waste/vermicomposting-101/>

Pedagogy:

Power point presentation, Seminar, Assignment and Quiz.

ELECTIVE COURSE- III
MICROBIOLOGY FOR COMPETITIVE EXAMINATION

Semester III	Internal Marks : nil	External Marks : 100				
Course Code	Course Title	Category	L	T	P	Credit
20PMB3EC3A	Microbiology for Competitive Examination	Elective	75	5	-	5

Preamble: This course provides a multidisciplinary forum for the discussion of all aspects of microbiology which helps to develop and impart knowledge for the students to appear in the competitive examination.

Course Outcome:

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

CO Number	CO Statement	Knowledge level
CO1	Explain the taxonomy principles and concepts	K5
CO2	Understanding the basics of inheritance Biology	K2
CO3	Extend the Knowledge about microbes in agriculture	K2
CO4	Understand the basic concepts of cell development and its impacts	K5
CO5	Expand the knowledge about Bio-nano-informatics	K6

Mapping with Programme Outcomes

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

S- Strong; M-Medium; L-Low

Syllabus

UNIT I: MICROBIAL TAXONOMY (15 Hours)

Taxonomy - Principles and methods, Concepts of species and hierarchical taxa. Levels of structural organization- Unicellular, colonial and multicellular forms; Taxa & Species concepts- Traditional, typological, evolutionary, biological, phylogenetic concepts. Phylogenetic (among species) versus Tokogenetic (within species) relationships. Taxonomic rank and names. Types of taxonomy- chemotaxonomy, numerical taxonomy and polyphasic taxonomy. Phylogenetic analysis and evolutionary relationship among taxa. Application in Taxonomy and phylogeny, Comparative genomics.

UNIT II: INHERITANCE BIOLOGY (15 Hours)

Mendelian principles, Concept of gene , Gene mapping, Human genetics - Pedigree analysis, lod score for linkage testing, karyotypes, genetic disorders. Polygenic inheritance, heritability and its measurements, QTL mapping. Structural and numerical alterations of chromosomes - Deletion, duplication, inversion, translocation, ploidy and their genetic implications. Recombination Homologous and non-homologous recombination including transposition

UNIT III: AGRICULTURAL MICROBIOLOGY (15 Hours)

Biogeochemical cycles -Nitrogen, Carbon, Phosphorous, Sulphur, Iron and their importance. Microbial association with plants-Phyllosphere, Rhizosphere, Mycorrhizae, Nitrogen fixing organism –symbiosis, asymbiosis, associate symbiosis – phosphate solubilizers. Application of biofertilizers in agriculture. Biology of nitrogen fixation – genes and regulations in Rhizobium. Bacterial,viral and fungal plant pathogens. Disadvantages of chemical pesticides. Microbial pesticides- types, mechanisms, advantages and limitations.

UNIT IV: DEVELOPMENTAL BIOLOGY (15 Hours)

Basic concepts of cell development, Gametogenesis, Spermatogenesis and Oogenesis in mammals, outline of experimental embryology, Morphogenesis and organogenesis in *Drosophila*. Metamorphosis, Regeneration and Human development

UNIT V: BIO-NANO-INFORMATICS (15 Hours)

Introduction to Bioinformatics-Applications of Bionanotechnology - Drug and gene delivery –protein mediated and nanoparticle mediated. Uses of nanoparticles in MRI, DNA and Protein Microarrays. Nanomedicines, Antibacterial activities of nanoparticles. Nanotechnology in agriculture. Toxicology in nanoparticles – Dosimetry. Nanotherapy for cancer treatment. Nanoscience in India – Nanoscience education abroad – Looking at ethics and society.

REFERENCES

1. Bauman Robert W. Microbiology with Diseases by Taxonomy. 4th edition. 2017.
2. Barnes Michael R. Bioinformatics for Geneticists, 2nd Edition. Wiley India. 2018.
3. Hartl, Daniel L. 9th edition . Genetics : analysis of genes and genomes. Burlington, Massachusetts : Jones & Bartlett Learning. 2019.
4. D. Peter Snustad and Michael J. Simmons. 7th edition. Principles of Genetics, Wiley Publisher. 2015
5. Fertilizer Use & Markets. United States Department of Agriculture. N.p. Last updated July 12, 2013.
6. Smith, Sally E., and David J. Read. Mycorrhizal Symbiosis. 3rd ed. N.p.: Academic, 2010. Print.
7. Gilbert, Scott's. 10th edition. Developmental biology. Sinauer Association, Inc., Publishers. 2014.
8. Chattopadhyay. S. 1st Edition. An Introduction to Developmental Biology, Books and Allied (P) Ltd, Kolkata. 2016.
9. Nanotechnology.M. A. Shah and K. A. Shah. Publisher: Wiley; Second edition. 2019.
10. Introduction to Nanoscience and Nanotechnology. Chattopadhyay K.K.. Publisher:Prentice Hall India Learning Private Limited. 2019.

WEB LINKS:

1. <https://doi.org/10.1111/j.1095-8312.1949.tb00525.x>.
2. https://www.discoverlife.org/png/taxonomic_principles.pdf
3. <https://lms.biotechnika.org/unit/unit-9-a-principles-methods-of-taxonomy/>
4. https://en.wikipedia.org/wiki/Agricultural_microbiology
5. http://agritech.tnau.ac.in/ta/org_farm/orgfarm_biofertilizers.html
6. <https://www.worldscientific.com/worldscibooks/10.1142/7364>
7. <http://www.imedpub.com/journal-nanoscience-nanotechnology-research/>
8. <https://benthamsience.com/journals/nanoscience-and-nanotechnology-asia/>

ANNEXURE - P

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



**DEPARTMENT OF BIOTECHNOLOGY
BOARD OF STUDIES**

**MINUTES OF THE VIRTUAL MEETING HELD ON THURSDAY,
27TH MAY, 2021 AT 3.00 PM
VIA GOOGLE MEET**

The following members attended the meeting:

1. Dr. A. Veera Ravi Subject Expert, Other University
2. Dr. K. Ruckmani Subject Expert, Other University
3. Dr. Umashankar Ponnusamy Industrial Expert
4. Ms. S. Solaipriya Member Alumna
5. Dr.H.Abirami Head & Chairperson
6. Dr. R. Rameshwari Assistant Professor & Member
7. Ms. P. Ilamathy Member
8. Ms. R. Nevetha Member
9. Dr. R. Uma Maheswari Member
10. Ms. P. Jenifer Member
11. Dr. S. Abinaya Member
12. Dr. G.Gomathi Member

The leave of absence was granted to Dr. R. Thirumurugan, University Nominee

The Agenda for the meeting was as follows:

1. ITEM NO. BoS/05/01

To consider and approve the ratification of Core practical V- Lab in Plant and Animal Biotechnology Paper, Skill Based Elective II-Basics of Nanotechnology revised to Lab in Bioinformatics Paper, and Skill Based Elective III-Nanotechnology in Healthcare revised to Lab in Plant tissue culture Paper in the Fifth semester syllabus for the Batch 2019-2020 and onwards of B.Sc., Biotechnology and recommend to Academic Council, Cauvery College for Women (Autonomous), and Trichy-18.

2. ITEM NO. BoS/05/02

To consider and approve Sixth semester Syllabus for B.Sc., Biotechnology (2019-2020) and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

MINUTES OF THE MEETING

Dr. R. Rameshwari welcomed the members for the Board of Studies (UG) meeting and introduced the members. Discussions based on the agenda were carried out.

The following Resolutions were passed by the BoS members.

Resolution No. BoS/05/01

Board of Studies members considered and approved the ratification of Core practical V- Lab in Plant and Animal Biotechnology Paper, Skill Based Elective II-Basics of Nanotechnology revised to Lab in Bioinformatics Paper, and Skill Based Elective III-Nanotechnology in Healthcare revised to Lab in Plant tissue culture Paper in the Fifth semester for the Batch 2019-2020 of B.Sc., Biotechnology and recommended to the Academic Council.

Resolution No. BoS/05/02

To consider and approve Sixth semester Syllabus for B.Sc., Biotechnology

Panel members suggested the following changes:

Dr. A. Veera Ravi suggested the following:

- In Lab in Plant tissue culture paper, hardening of tissue culture plants and acclimatization would be last experiment.

- Types of fermentors - Continuous, semi-continuous and fed batch fermentors could be included in Unit II of Microbial Biotechnology paper.
- In Unit IV of Microbial Biotechnology, treatment of effluent and its disposal could be removed and chromatographic techniques should be specified.
- In Unit V of Microbial Biotechnology course, Production of Antibiotics could be added.
- In Lab in Microbial Biotechnology paper, repetition of experiment could be avoided and Disc diffusion & Agar well diffusion Method should be mentioned in Bioassay techniques.
- In Unit I of Environmental Biotechnology paper, sewage treatment have to be included and pollution content could be elaborated.
- Cultivation of SCP-Spirulina could be added in IV Unit of Environmental Biotechnology Paper.
- In Stem Cell Biology Paper, storage techniques of stem cell and Stem cell bank could be included in Unit II
- Recommended to change the Industrial Biotechnology paper into Entrepreneur development or Nutritional development Paper.

Dr. K. Ruckmani suggested the following:

- Field visit could be included in Lab in Plant and Animal Biotechnology Paper.
- In Microbial Biotechnology paper, the title of Unit III-Types of Bioreactors and upstream processing should be changed.
- In Unit II of IPR, Bioethics and Biosafety Paper, National and International Patent filing procedure and prior art search should be included.
- History of GATTs and TRIPS Agreement should be moved from Unit II to Unit I in IPR, Bioethics and Biosafety Paper.
- In Unit I of IPR, Bioethics and Biosafety paper, specific Case studies should be given.
- ICMR Guidelines could be added in Unit V of IPR, Bioethics and Biosafety Paper.
- Solid waste management should be included in Unit II of the course Environmental Biotechnology.
- Recommended to change the Industrial Biotechnology paper into Entrepreneur development or Nutritional development Paper.

- In Drug delivery and development course, Unit I title could be changed as General Pharmacology. Drugs-chemical classification and pharmacological classification, pharmacodynamics, pharmacokinetics, Mechanism of action could be included in the content.
- In Unit IV of Drug delivery and development course, Drug delivery –different routes and mode of drug delivery have to be removed. CPCSEA & IAEC regulations of clinical trials and regulatory aspects have to be added.
- In Unit V of Drug delivery and development Paper, Novel drug delivery system – Liposomes, nanoemulsions & its applications and pharmacovigilance related content could be added.

Dr. Umashankar Ponnusamy suggested the following:

- For Microbial Biotechnology paper field visit to Industries should be made compulsory.
- Case studies should be specified and National and international IP rights should be added in Unit I of IPR, Bioethics and Biosafety course.
- Recent References could be given in IPR, Bioethics and Biosafety Paper
- Social responsibilities of Environmental protection and Monitoring should be included in Unit V of Environmental Biotechnology course.
- Applications of five different fields could be given in Industrial Biotechnology Paper.

Ms. S. Solai Priya suggested the following:

- Homology modeling experiment could be added in Lab in Bioinformatics Paper.
- In Unit V of Microbial Biotechnology Paper, SCP –Spirulina could be added.
- In Unit V of Environmental Biotechnology Paper, Mass Production of SCP could be included.

The Board of Studies meeting was resolved and concluded by recommending the syllabus of Sixth Semester of B.Sc., Biotechnology to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
DEPARTMENT OF BIOTECHNOLOGY
B.Sc., BIOTECHNOLOGY COURSE 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		
V	III	Core Course – V (CC)	Plant Biotechnology	19UBT5CC5	5	5	3	25	75	100	
		Core Course – VI (CC)	Animal Biotechnology	19UBT5CC6	5	5	3	25	75	100	
		Core Course – VII (CC)	Biostatistics	19UBT5CC7	5	5	3	25	75	100	
		Core Practical – V (CP)	Lab in Plant and Animal Biotechnology	19UBT5CC5P	4	4	3	40	60	100	
		Major Based Elective – I	A) Pharmacognosy	19UBT5MBE1A	5	5	3	25	75	100	
	B) Cancer Biology		19UBT5MBE1B								
	IV	Skill Based Elective – II	A)Molecular Diagnostics and Therapeutics	19UBT5SBE2A	2	2	3	25	75	100	
			B) Lab in Bioinformatics	19UBT5SBE2BP							
		Skill Based Elective – III	A)DNA Fingerprinting	19UBT5SBE3A	2	2	3	25	75	100	
			B) Lab in Plant Tissue Culture	19UBT5SBE3BP							
		UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100	
	V	Extra Credit Course	SWAYAM ONLINE COURSE	To be Fixed Later	-	-	As per UGC Recommendation				
	Total					30	30				800
	VI	III	Core Course – VIII (CC)	Microbial Biotechnology	19UBT6CC8	6	6	3	25	75	100
			Core Course – IX (CC)	IPR, Bioethics and Biosafety	19UBT6CC9	6	6	3	25	75	100
Core Practical – VI (CP)			Lab in Microbial Biotechnology	19UBT6CC6P	5	4	3	40	60	100	
Major Based Elective – II			A)Environmental Biotechnology	19UBT6MBE2A	6	6	3	25	75	100	
			B) Stem Cell Biology	19UBT6MBE2B							
Major Based Elective – III		A)Bioentrepreneurship	19UBT6MBE3A	6	6	3	25	75	100		
		B) Drug Discovery and Development	19UBT6MBE3B								
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	

CORE PRACTICAL – V
LAB IN PLANT AND ANIMAL BIOTECHNOLOGY
2019-2020 ONWARDS

Semester - V	LAB IN PLANT AND ANIMAL BIOTECHNOLOGY	Hours/Week - 4	
Core Practical V		Credits - 4	
Course Code - 19UBT5CC5P		Internal 40	External 60

Objectives

- ❖ To get trained in maintaining aseptic conditions in animal cell culture.
- ❖ To acquire hands-on training in formulation of specific media.
- ❖ To obtain skills pertaining to isolation procedures from plant and animal sources.
- ❖ To understand and learn the establishment of animal cell culture experiments.

Course Outcomes

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Establish and maintain aseptic conditions in tissue culture lab	K1
CO2	Demonstrate the method of DNA isolation from various sources and identification in agarose gel electrophoresis.	K2
CO3	Select & formulate media based on requirement of animal cell culture.	K3
CO4	Enumerate the cells using haemocytometer	K3
CO5	Utilize the skills and basic techniques in culturing cells using primary and secondary methods	K3

Mapping with Programme Outcomes

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

S-Strong, M-Medium, L-Low

CORE PRACTICAL – V
LAB IN PLANT AND ANIMAL BIOTECHNOLOGY
2019-2020 Onwards

1. Introduction to safety and aseptic maintenance of tissue culture laboratory.
2. Isolation of Plant genomic DNA.
3. Isolation of *Rhizobium* species from root nodules of legumes.
4. Isolation of protoplast from spinach leaves by mechanical and enzymatic methods.
5. Protoplast fusion by using polyethylene glycol.
6. Isolation of VAM fungi from *Canna indica*.
7. Isolation of genomic DNA from animal liver tissue.
8. Quantification of DNA by Spectrophotometric method.
9. Identification of stages during chick embryo development.
10. Assessment of cell viability by cell counting in Haemocytometer.
11. Preparation of animal tissue culture media.
12. Establishment of Primary cell culture *
13. Establishment of Secondary cell culture *
14. Cryopreservation and thawing of cells*
15. Visit to Animal Cell Culture Lab.

* Practical by demonstration only

Reference books:

S. No	Author	Title	Publisher	Year of Publication
1	R. Ian Freshney & Amanda Capes-Davis	Freshney's Culture of Animal Cells: A Manual of Basic Technique and Specialized Applications	Wiley - Blackwell	2021
2	Cornelia Kasper, Verena Charwat & Antonina Lavrentieva	Cell Culture Technology	Springer	2018
3	Supriya Dash & Swagat Kumar Das H N Thatoi	Practical Biotechnology: Principles and Protocols	I K International Publishing House	2017
4	Ralf Pörtner	Animal Cell Biotechnology: Methods and Protocols (3 rd Edition)	Humana Press	2016
5	R. Ian Freshney	Culture of Animal Cells: A Manual of Basic Technique and Specialized Applications, 7 th Edition	Wiley - Blackwell	2016

SKILL BASED ELECTIVE - II
LAB IN BIOINFORMATICS
2019-2020 ONWARDS

Semester - V	LAB IN BIOINFORMATICS	Hours/Week - 2	
Skill Based Elective – II		Credits - 2	
Course Code - 19UBT5SBE2BP		Internal 40	External 60

Objectives

- To learn and execute various molecular analysis using bioinformatics tools

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO 1	Demonstrate nucleotide analysis from various databases	K1
CO 2	Analyze the structure of novel proteins	K2
CO 3	Perform basic phylogenic analysis for species identification	K2
CO 4	Apply the sequencing skills in various molecular analysis	K3
CO 5	Identify and analyze any disorders in a genome sequence	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	M	M	S	S

S-Strong, M-Medium, L-Low

SKILL BASED ELECTIVE - II
LAB IN BIOINFORMATICS
2019-2020 ONWARDS

1. Retrieval of Nucleotide Sequence from GenBank, EMBL, DDBJ database.
2. Retrieval of Protein Sequences from PIR, Swissprot/ Uniprot database.
3. Protein Structure database –PDB.
4. Motif and domain analysis using HOMER Motif database.
5. Pairwise Sequence analysis using BLAST.
6. Multiple Sequence analysis using ClustalW.
7. Construction of Phylogenetic tree.
8. Molecular visualization using Rasmol.
9. Pathway search using KEGG database.
10. Retrieval of Disease/ disorder genome sequence from OMIM database.
11. Homology Modeling using SWISS – MODEL Workspace.

Reference books

S. No.	Author	Title	Publisher	Year of Publication
1.	Dr. Shashank Rana, Dr. Vartika Singh, Preeti Kashyap, Bhavya Sharma, Shilpi Tiwari	Bioinformatics Practical Manual	Manojvm Publishing House	2020
2.	Lloyd Wai Yee Low, Martti Tapani Tammi	Bioinformatics: A Practical Handbook Of Next Generation Sequencing And Its Applications	World Scientific Publishing Company	2017
3.	Noor Ahmad Shaik, Babajan Banaganapalli, Ramu Elango, Khalid Rehman Hakeem	Essentials of Bioinformatics, Understanding Bioinformatics: Genes to Proteins	Springer International Publishing	2019
4.	Mohammad Yaseen Sofi, Afshana Shafi, Khalid Z. Masoodi	Bioinformatics for Everyone	Elsevier Science	2021
5.	Kenta Nakai, Christian Schonbach	Encyclopedia of Bioinformatics and Computational Biology ABC of Bioinformatics	Elsevier Science	2018

**SKILL BASED ELECTIVE II
LAB IN PLANT TISSUE CULTURE
2019-2020 ONWARDS**

Semester - V	LAB IN PLANT TISSUE CULTURE	Hours/Week - 2	
Skill Based Elective II		Credits - 2	
Course Code - 19UBT5SBE3BP		Internal 40	External 60

Objectives

- To acquire hands-on training in maintaining aseptic conditions and formulation of specific media required for plant tissue culture.
- To get skilled in handling different explants for plant tissue culture experiments.
- To understand and learn the establishment of callus and propagation of plants.

Course Outcomes

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Design and maintain aseptic environment and formulate required media and stock solutions based on requirement.	K1
CO2	Demonstrate the methods of preparing callus and suspension cultures	K2
CO3	Handle and establish various explants and induce callus formation	K2
CO4	Isolate and culture protoplast from plant sources	K3
CO5	Analyse the callus propagated through tissue culture	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

S-Strong, M-Medium, L-Low

SKILL BASED ELECTIVE II
LAB IN PLANT TISSUE CULTURE
2019-2020 ONWARDS

1. Design and aseptic maintenance of plant tissue culture laboratory.
2. Formulation and sterilization of various plant tissue culture media.
3. Preparation of stock solutions – hormones and growth regulators.
4. Choice of explants and surface sterilization.
5. Preparation of callus and suspension culture
6. Protoplast culture.
7. Cytological study of calli cells.
8. Hardening of tissue culture plants and acclimatization

* Practical by demonstration only

Reference books:

S. No	Author	Title	Publisher	Year of Publication
1	Roberta H. Smith	Plant Tissue Culture: Techniques And Experiments, 3 rd Edition	Elsevier	2013
2	Mohammad Anis, Naseem Ahmad	Plant Tissue Culture: Propagation, Conservation and Crop Improvement	Springer	2016
3	M.K. Razdan	Introduction To Plant Tissue Culture 3 rd Edition	Oxford and IBH Publishing	2019
4	J. Reinert, M.M. Yeoman, P. MacDonald	Plant Cell and Tissue Culture: A Laboratory Manual	Springer	2012
5	Karl-Hermann Neumann, Ashwani Kumar, Jafargholi Imani	Plant Cell and Tissue Culture – A Tool in Biotechnology: Basics and Application	Springer	2020

**CORE COURSE VIII
MICROBIAL BIOTECHNOLOGY
2019-2020 ONWARDS**

Semester - VI	MICROBIAL BIOTECHNOLOGY	Hours/Week- 6	
Core Course - VIII		Credits - 6	
Course Code – 19UBT6CC8		Internal 25	External 75

Objectives

- To know the industrially important microbes and their metabolic pathways.
- To study the microbial fermentation processes and its types.
- To acquire knowledge about the types of bioreactors and recovery of fermentation product.
- To provide the knowledge about the industrially important products.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO 1	Demonstrate the isolation of industrially important microorganisms and their preservation	K1
CO 2	Outline a clear and concise idea about concepts and basic methods in fermentation process	K2
CO 3	Discuss the design and types of bioreactor and upstream processing	K3
CO 4	Illustrate the various methods of bioseparation	K4
CO 5	Obtain knowledge in applications of microbes in food processing and production	K5

Mapping with Programme outcomes

CO	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

S- Strong, M-Medium, L-Low

CORE COURSE VIII
MICROBIAL BIOTECHNOLOGY
2019-2020 Onwards

Unit I -Basic principles of Biochemical Engineering (16 Hours)

Introduction and historical developments in industrial microbiology, industrially important microbes and metabolic pathways- various microbial metabolites and their overproduction – Isolation and selection of industrially important microorganisms preservation and maintenance of microbial culture.

Unit II - Concepts of basic mode of fermentation processes (16 Hours)

Microbial substrates and media formulation; Components of microbial fermentation process; Types of fermentation processes- Solid state, static and submerged fermentation. Fermentation economics and fermentation media. Fermenter design - mechanically agitated, pneumatic and hydrodynamic fermenters. Design of laboratory bioreactor; Types of Bioreactor: Continuous, semi continuous and fed batch bioreactors; Continuous Stirred tank bioreactors, Bubble column bioreactors, Air lift bioreactors, Fluidized bed bioreactors, Packed bed bioreactors and Photobioreactors.

Unit III Upstream Processing (16 Hours)

Bioprocessing : Culture collections, Industrial strains and strain improvement: Natural recombination, conjugation, Mutagenesis, Genetic engineering of Microorganisms, Strain stability. Media formulation, sterilization, aeration and agitation. Large scale animal and plant cell cultivation and air sterilization. Measurement and control of bioprocess parameters, scale up and scale down process.

Unit IV Downstream processing (16 Hours)

Bioseparation - filtration, centrifugation, sedimentation, flocculation, microfiltration, sonication. Cell disruption – enzymatic lysis and liquid-liquid extraction. Purification by precipitation (ammonium sulfate, solvent), electrophoresis and crystallization. Extraction (solvent, aqueous two phase, super critical) and chromatographic techniques (Ion exchange chromatography, hydrophobic interaction chromatography, affinity chromatography and gel filtration chromatography. Reverse osmosis and ultra filtration. Drying, crystallization, storage and packaging.

Unit V Applications of Microbes in food processing and production (16 Hours)

Production of Microbial Biomass – Baker's Yeast, Mushroom; Production of antibiotic; Penicillin and Streptomycin - Production of fermented foods; Alcoholic beverages – wine, beer. Production of ethanol[#], citric acid, amino acids and vitamins- Microbial enzymes for food – Biopesticides and biofertilizers.

Text Books

S.No.	Author	Title of the book	Publishers	Year of publication
1	Joginder Singh, Ashish Vyas, Shanquanwang, Ram Prasad	Microbial Biotechnology: Basic Research and Applications	Springer Nature Singapore pvt.Ltd	2020
2	Jayanta Kumar Patra, Gitishree Das, Han-SeungShin	Microbial Biotechnology Application in Food and Pharmacology	Springer Nature Singapore pvt.Ltd	2018
3	Pradeep Kumar, Jayanta Kumar Patra, Pranjal Chandra	Advances in Microbial Biotechnology Current Trends and Future Prospects	Apple Academic Press	2019
4	Rita Kundu , Rajiv Narula	Advances in Plant and Microbial Biotechnology	Springer Nature Singapore pvt.Ltd	2019
5	Dr.R.C.Dubey	A Textbook of Biotechnology	Schand Publishing	5 th Revised Edition,2014

Reference Books

S.No.	Author	Title of the book	Publishers	Year of publication
1	Lee Yuan kun	Microbial Biotechnology Principles and Applications	e- Book	Third Edition,2019
2	Bernard R.Glick, Jack J.Pasternak	Molecular Biotechnology Principles and Applications of Recombinant DNA	Wiley Publication	2017
3	P.Singh	Recent Trends in Microbial Biotechnology	CBS Publication	2013
4	Debabrata Das, Soumya Pandit	Industrial Biotechnology	CRC Press	2021
5	Wim Soetaert, Erick J. Vandamme	Industrial Biotechnology: Sustainable Growth and Economic Success	Wiley VCH Publication	1 st Edition,2019

Pedogogy

- Lecture (Chalk and Talk – OHP, LCD)
- Quiz, Seminar, Assignment, Group Discussion
- Videos and Animations

Web links

- <https://www.z-lib.org>
- <https://www.pdfdirve.org>
- <https://www.dcu.ie>
- <https://www.edx.org>
- <https://unacademy.com>
- <https://www.sciencedirect.com>
- <https://khanacademy.org>

Course Designer

Dr.R.RAMESHWARI.

CORE COURSE – IX
IPR, BIOETHICS AND BIOSAFETY
2019 -2020 Onwards

Semester - VI	IPR, BIOETHICS AND BIOSAFETY	Hours/Week – 6	
Core Course - IX		Credits – 6	
Course Code – 19UBT6CC9		Internal 25	External 75

Objectives:

- To understand various aspects of IPR, biosafety regulations and bioethics concerns arising from the commercialization of biotech products.
- To give an idea about IPR, registration and its enforcement.
- To sensitize about the importance of Personnel Protective Equipment (PPE), general biosafety rules and different biosafety levels.

Course Outcomes

CO Number	CO Statement	Knowledge Level
CO 1	Define the fundamental aspects of Intellectual Property Rights for development and management of innovative projects in industries	K1
CO 2	Outline the current trends in IPR and Govt. steps in fostering IPR	K2
CO 3	Explain about the ethical issues involving biological material.	K3
CO 4	Utilize adequate knowledge in the use of genetically modified organisms and its effect on human health	K3
CO 5	Make use of critical thinking skills to analyze information and situations in order to respond and act ethically with regard to scientific research, practice, and technology.	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

S- Strong, M- Medium, L-Low

CORE COURSE – IX
IPR, BIOETHICS AND BIOSAFETY
2019 -2020 Onwards

UNIT I: Introduction to Intellectual Property and Types of IPs (18 Hours)

Introduction to IPR, Basic concepts and need for Intellectual Property, types-Patents, Trademarks, Trade Secrete, Copyright, Geographical Indications- History of GATT & TRIPS Agreement. – World Intellectual Property Rights Organization (WIPO). IP rights in India and abroad (USA & Europe) - few Case Studies-patent-Turmeric Patent, GI- Darjeeling Tea

UNIT II: Patent Filing Procedures and Agreements (18 Hours)

Patent- Elements of Patentability: Novelty, Non Obviousness (Inventive Steps), patentable and non-patentable – patenting life, Registration Procedure, Rights and Duties of Patentee, Assignment and licence, Patent infringement.

IPR Agreements and Treaties: Madrid Agreement; Hague Agreement; Budapest Treaty; PCT; Indian Patent Act 1970.

UNIT III: Biosafety (18 Hours)

Introduction, biosafety issues in biotechnology-historical background; Introduction to Biological Safety Cabinets; Primary Containment for Biohazards; #Biosafety Levels; Biosafety Levels of Specific Microorganisms; Recommended Biosafety Levels for Infectious Agents and Infected Animals.

UNIT IV: Biosafety Guidelines (18 Hours)

Biosafety guidelines and regulations (National and International) – operation of biosafety guidelines and regulations of Government of India; #Definition of GMOs & LMOs; Roles of Institutional Biosafety Committee, RCGM, GEAC etc. for GMO applications in food and agriculture; Environmental release of GMOs; Risk Analysis; Risk Assessment; Risk management and communication; Overview of National Regulations and relevant International Agreements including Cartagena Protocol.

UNIT V: Bioethics (18 Hours)

Introduction to ethics/bioethics – purpose and principles of bioethics, Bioethics in medical –human cloning, Biotechnology and ethics, Benefits and risks of genetic engineering – ethical aspects of genetic testing – ethical aspects relating to use of genetic information – genetic engineering and bio warfare; Ethical implications of cloning: Reproductive cloning ,

therapeutic cloning ; Ethical, legal and socioeconomic aspects of gene therapy, germ line, somatic, embryonic and adult stem cell research-GM crops and GMO's – biotechnology and biopiracy –ICMR Guidelines- Ethical implications of human genome project.

#- Self Study Topics

Text Books

S.No	Author	Title	Publisher	Year of Publication
1	Tom Koch	Ethics in Everyday Places	Esri Press	2017
2	Nithyananda, K V.	Intellectual Property Rights: Protection and Management	Cengage Learning India Private Limited	2019
3	Adarsh Ramanujan	Patent Law Cases and Materials: A Synthesis For India	Wolters Kluwer India Pvt. Ltd	2020
4	Andrew F. Roberts, Joerg Romeis, Karen Hokanson, Reynaldo Ariel Alvarez Morales	Biosafety of Genetically Modified Organisms, Volume II	Frontiers Media SA	2020
5	V. Scople Vinod	Managing Intellectual Property	Prentice Hall of India pvt Ltd	2012

Reference Books

S.No	Author	Title	Publisher	Year of Publication
1	Anil Kumar H S and B. Ramakrishna	Fundamentals of Intellectual Property Rights	Notion Press	2017
2	Dr. S.V. Damodar Reddy	Intellectual Property Rights -- Law and Practice	ASIA LAW HOUSE	2019
3	Dawn P. Wooley and Karen B. Byers	Biological Safety: Principles and Practices	ASM Press; 5th edition	2017
4	Ahuja, V K.	Law relating to Intellectual Property Rights	Lexis Nexis	2017
5	Ramakrishna B & Anil Kumar H.S	Fundamentals of Intellectual Property Rights: For Students, Industrialist and Patent Lawyers	Notion Press	2017

Pedagogy

- Lecture (Chalk and Talk) & Power Point Presentation
- Quiz, Seminar, Assignment & Group Discussion.
- Videos and Animations

Web links:

- <http://www.cbd.int/biosafety/backgrounds.html>
- <http://web.princeton.edu/sites/ehs/biosafety/biosafetypage/section>
- <http://www.cbd.int/biosafety/background.shtml>
- [http://web.princeton.edu/sites/ehs/biosafety/biosafetypage/section 3.html](http://web.princeton.edu/sites/ehs/biosafety/biosafetypage/section%203.html)
- <http://www.bdu.ac.in/cells/ipr/docs/ipr-eng-ebook.pdf>
- <https://www.wipo.int/about-ip/en/>

Course Designer**Ms. R. NEVETHA**

CORE PRACTICAL – VI
LAB IN MICROBIAL BIOTECHNOLOGY
2019-2020 ONWARDS

Semester - VI	LAB IN MICROBIAL BIOTECHNOLOGY	Hours/Week - 5	
Core Practical - VI		Credits - 4	
Course Code - 19UBT6CC6P		Internal 40	External 60

Objectives

- To equip the students with skills pertaining to immobilization and genetic engineering techniques.
- To acquire hands-on exposure to fermentation techniques.
- To get skilled in the production techniques of Single Cell Protein, Biofertilizer and Bio- Enzymes.

Course Outcomes

On the Successful completion of the course the student would be able to

CO Number	CO Statement	Knowledge Level
CO1	Enumerate the industrially important microorganisms.	K1
CO2	Demonstrate various types Fermentation methods.	K2
CO3	Handle and establish the techniques of Immobilization.	K2
CO4	Produce Single Cell Protein, Biofertilizer and Bio -Enzymes.	K3
CO5	Understand the skills and basic techniques of Antibiotic Sensitivity Test of Microorganisms.	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

S-Strong, M-Medium, L-Low

CORE PRACTICAL – VI
LAB IN MICROBIAL BIOTECHNOLOGY
2019-2020 ONWARDS

1. Isolation of industrially important microorganisms.
2. Isolation and of Lactic acid bacteria.
3. Immobilization of algal cells and enzymes by Sodium Alginate method.
4. Immobilization of algal cells and enzymes in agarose cubes.
5. Isolation of amylase producing organisms.
6. Wine production by yeast.
7. Pro - Mushroom Cultivation
8. Biofertilizer Production – Azolla and Vermicompost.
9. Production of Bio-Enzyme from Food waste.
10. Bioassay techniques for antibiotics - Test for Antibiotic sensitivity of microorganisms by Disc method & Agar well diffusion method
11. Physical Mutagenesis – UV method.
12. Visit to Distillery unit; alcohol production and pharmacological industries. Pasteur Institute (Field visit).

Reference Books

S. No	Author	Title	Publisher	Year of Publication
1	Aneja.K.R	Experiments in Microbiology, Plant Pathology, Tissue Culture and Microbial Biotechnology. 5 th Edition.	New Age International (P) Ltd, New Delhi, India.	2018
2	Fernanda Mozzi, Rahul.R.Raya, Graciela.M.Vignolo	Biotechnology of Lactic Acid Bacteria – Novel Applications. Second Edition.	Wiley – Blackwell, New Jersey, United States.	2015
3	Farshad Darvishi Harzevili, Hongzhang Chen	Microbial Biotechnology – Progress and Trends	Taylor & Francis/ Routledge, UK.	2014
4	Surajit Das, Hirak Ranjan Dash	Microbial Biotechnology – A Laboratory Manual for Bacterial System	Springer India.	2014
5	Singh.P	Recent Trends in Microbial Biotechnology.	CBS, Chennai, India.	2013
6	Thatoi .H.N, Mishra.B.B	Microbial Biotechnology - Methods and Applications.	Alpha Science	2012

			International, UK	
7	El-Mansi.E.M.T, Bryce.C.F.A, Dahhou. B, Sanchez.S, Demain.A.L, Allman.A.R.	Fermentation Microbiology and Biotechnology, Third Edition	Taylor & Francis, UK	2012

Web Links:

- <https://youtu.be/oormRweSf3E>
- <https://youtu.be/HqbVca1elak>
- <https://youtu.be/4nNQEO8ZQR0>
- <https://youtu.be/9u-UEqiUZtk>
- <https://youtu.be/sIWADw9vFNM>

Course Designer
Ms.P.ILAMATHY

**MAJOR BASED ELECTIVE-II
ENVIRONMENTAL BIOTECHNOLOGY
2019 -2020 Onwards**

Semester - VI	ENVIRONMENTAL BIOTECHNOLOGY	Hours/Week - 6	
Major Based Elective-II		Credits - 6	
Course Code- 19UBT6MBE2A		Internal 25	External 75

Objectives

- To know the basic concept and scope of environmental biotechnology
- To study the Applications of biotechnology in environmental monitoring.
- To analyse Bio sensors in environmental protection.
- To understand the achievements of biotechnology in Environmental Management.

Course Outcomes

CO Number	CO Statement	Knowledge Level
CO 1	Demonstrate the utilization of microbial processes in waste.	K1
CO 2	Describe the concept of pollution management.	K2
CO 3	Apply the Green manuring technology for crop production.	K3
CO 4	Apply the concepts of Biotechnology in Environmental Management.	K3
CO 5	Apply the practical skills for entrepreneurial development in biofertilizer production	K3

Mapping with Programme Outcomes

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

S- Strong, M- Medium, L-Low

**MAJOR BASED ELECTIVE-II
ENVIRONMENTAL BIOTECHNOLOGY
2019 -2020 Onwards**

Unit I - Introduction to Environmental Biotechnology (18 Hours)

Basic components of environment. Definition – concept and scope of ecosystem, abiotic and biotic components. Environmental pollution: Air - Types of Air Pollutants: Sources, Effects and control of Air pollution .Water pollution- Sources, Effects and control of Water pollution and Soil pollution- Sources, Effects and control of Water pollution. Liquid Waste management-Sewage water treatment- Process involved- Dilution, Mechanical treatments, Biological treatments, Chemical treatments.

Unit II - Role of Biotechnology in Waste management. (18 Hours)

Solid waste management. Classification of Solid waste management- Municipal Solid Waste and Hazardous Solid Waste.Nitrification and denitrification – microbial fundamentals and application. Aerobic processes: Activated sludge, oxidation ditches, trickling filters, towers, rotating discs, rotating drums, oxidation ponds. Anaerobic processes: Anaerobic digestion, anaerobic filters, up flow anaerobic sludge blanket reactor.

Unit III - Biodegradation and Bioremediation (18 Hours)

Principle and mechanism of biodegradation, Biodegradation of xenobiotic compounds (Lignin, Hydrocarbons, Detergents, Dyes and pesticides). Biodegradation of agro chemicals and other organic compounds – Biotransformation of xenobiotic compound ; Bioremediation – Principles - Bioscrubbers – Biomining of metals - Biopulping. Phytoremediation: Use of plants for removal of organic and metallic pollutants.

Unit IV - Biotechnology and value addition (18 Hours)

Biofertilizers- Different types of biofertilizer-Rhizobium, Azotobacter, Azospirillum, cyanobacteria-Azolla .Production of biofertilizers (Azolla): Criteria for strain selection, steps for preparing biofertilizers (Seed pelleting, inoculant carriers, quality standards for inoculants), Green manuring for crop production. Application of biofertilizers. Algal Biomass- Chlorella and Spirulina. Factors Affecting Biomass Production. Mass Production of Spirulina. Types of Spirulina Production - Semi-natural lake system and artificially built cultivation system-Clean water system and Waste water system. Uses of Spirulina - Single Cell Protein - **protein supplemented food, health food, therapeutic and natural Medicine, Cosmetics.**

Environmental monitoring: environmental impacts and their assessments using bioindicators, Biomarkers, biosensors and toxicity testing Air, water and soil sampling. Merits and demerits – Bio tools for environmental monitoring – Role of biotechnology in environmental protection. Various environmental standards: air, water and noise quality. Environment protection Act: environmental laws, policies, ethics. # Global Environmental Current Issues. #Social responsibilities of Environmental protection and Monitoring.

#-Self-Study Topic

Text Books

S.No	Author	Title	Publisher	Year of Publication
1	Pradipta Kumar Mohapatra	Textbook of Environmental Biotechnology	Dreamtech Press, Wiley India Pvt Ltd.	2020
2	Daniel Vallero	Environmental Biotechnology:A Biosystems Approach	Academic Press	2015
3	Pramod Kumar, Vipin Kumar and Pravin Kumar Sachan	Textbook of Environmental Biotechnology	WPI, India Pvt. Ltd	2018
4	Lakhveer Singh, Vipin Chandra Kalia	Waste Biomass Management - A Holistic Approach	Springer International Publishing	2017
5	Anonim	Environmental Biotechnology	I. K. International Pvt Ltd	2017

Reference Books

S.No	Author	Title	Publisher	Year of Publication
1	Jeyabalan Sangeetha	Environmental Biotechnology	CRC Press	2016
2	Roberto Adkins	Environmental Biotechnology	Scientific e-Resources	2019
3	Bruce E. Rittmann	Environmental Biotechnology Principles& Applications	McGraw-Hill Education	2020

4	Indhu Shekhar Thakur	Environmental Biotechnology Basic Concepts & Applications	I. K. International Pvt Ltd	2021
5	Dilip Kumar Markandey	Environmental Biotechnology	APH Publishing	2021

Pedagogy

- Lecture (Chalk and Talk) & Power Point Presentation
- Quiz, Seminar, Assignment & Group Discussion.
- Videos and Animations

Weblinks

- <https://www.digimat.in/nptel/courses/video/102105087/L01.html>
- www.hydrosilintl.com
- https://www.youtube.com/watch?v=qs_oO0Nqv8&t=26s
- <https://www.digimat.in/nptel/courses/video/102105088/L01.html>
- <https://www.youtube.com/watch?v=qOshPABx9D4m/watch?>
- <https://www.youtube.com/watch?v=giJWzLQc15s>
- https://www.youtube.com/watch?v=Tgiz4_i_2X4

Course Designer

Dr. R. UMA MAHESWARI

**MAJOR BASED ELECTIVE-II
STEM CELL BIOLOGY
2019 -2020 Onwards**

Semester - VI	STEM CELL BIOLOGY	Hours/Week - 6	
Major Based Elective – II		Credits - 6	
Course Code - 19UBT6MBE2B		Internal 25	External 75

Objectives

- To understand the basic concepts of Stem cell biology
- To afford the knowledge about stem cell epigenetics
- To provide an overview of potential clinical use of stem cells

Course Outcome

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

CO Number	CO statement	Knowledge level
CO1	Define the fundamental scientific principles of embryonic and adult stem cells.	K1
CO2	Explain the techniques involved in isolation, maintain and growth of stem cells.	K2
CO3	Outline the basic concepts in stem cell epigenetics.	K2
CO4	Make use of the potential benefits and clinical applications of stem cells	K3
CO5	Utilize the clinical significance and ethical issues pertaining to stem cell research	K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4
CO1	M	S	M	M
CO2	M	S	S	S
CO3	M	S	M	M
CO4	M	S	M	S
CO5	S	S	S	S

S-Strong, M-Medium, L-Low

**MAJOR BASED ELECTIVE II
STEM CELL BIOLOGY
2019-2020 Onwards**

Unit I: Introduction to Stem cells (15 Hours)

Stem cell – Introduction, History, Properties, Potency – Totipotent, Pluripotent, Multipotent, Oligopotent, Unipotent; Types – Embryonic & Adult Stem cells. Stem cell niche – Components & function. Cell cycle regulation in stem cells.

Unit II: Stem cell culture (20 Hours)

Isolation of Embryonic stem cell & Adult stem cell – Blastocyst from IVF, Umbilical Cord, Somatic Cell Nuclear Transfer, Bone marrow. Culture Media – Feeder cell layers, Serum and feeder free media, growth factors. Stem cell expansion & differentiation. Cryopreservation & storage techniques of stem cells. Stem cell bank.

Unit III: Stem cell epigenetics (20 Hours)

Epigenetic mechanisms in normal development - DNA Methylation, histone modifications & Micro-RNAs. Cell Reprogramming – Induction & Maintenance of pluripotency & differentiation of pluripotency into various cell lineages.

Unit IV: Application of Stem Cells (20 Hours)

Application of stem cells in disease management and treatment - Neurodegenerative diseases, autoimmune disease, ocular disease, spinal cord injury, cardiovascular disease, Cancer, diabetes, burns and skin ulcers, muscular dystrophy, cell replacement and gene therapy.

Unit V: Stem Cell Ethics (15 Hours)

Ethical and legal issues in stem cell research and therapy[#]. Regulatory Guidelines from ISSCR (International Society for Stem Cell Research), CLAA (Central Licensing Approving Authority); FDA (Food and Drug Administration), National Guidelines for Stem Cell Research (NGSCR) and NAC-SCRT (National Apex Committee for Stem Cell Research and Therapy).

- Self-Study Topic

Text books:

S. No	Author	Title	Publisher	Year of Publication
1	Gian Paolo Bagnara , Laura Bonisi & Francesco Alviano	Stem Cells	Societa Editrice Esculapio	2020
2	Gerd Klein & Patrick Wuchter	Stem Cell Mobilization – Methods and Protocols	Humana	2019
3	Jonathan M. W. Slack	The Science of Stem cells	Wiley Blackwell	2018
4	Jack Collins	Essentials of Stem cell biology	Foster Academics	2017
5	Rob Burgess	Stem Cells – A short course	Wiley Blackwell	2016

Reference books:

S. No	Author	Title	Publisher	Year of Publication
1	Mirna Perez-Moreno	Advances in Stem Cells and their Niches - Epidermal Stem Cell Niche Volume 3	Academic Press Inc	2019
2	Phuc Van Pham & Achim Rosemann	Stem Cells in Clinical Applications - Safety, Ethics and Regulations	Springer	2017
3	Ahmed El-Hashash	Developmental and stem cell biology in health and disease	Bentham Science	2017
4	Neil H Riordan P A	Stem Cell therapy – A Rising tide	Zaccheus Entertainment	2017
5	Tarik Regad, Thomas Sayers & Robert Rees	Principle of Stem cell Biology and cancer : Future Applications and Therapeutics	Wiley Blackwell	2015

Pedagogy

- Lecture (Chalk and Talk) & Power Point Presentation
- Quiz, Seminar, Assignment & Group Discussion.
- Videos and Animations

Web Links

- <https://www.creative-diagnostics.com/stem-cell-epigenetics.htm>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4020242/>
- <https://maplespub.com/article/OVERVIEW-OF-CURRENT-REGULATORY-PRACTICES-CHALLENGES-GUIDANCE-FOR-REGULATION-OF-STEM-CELLS-AND-STEM-CELL-DERIVED-PRODUCTS-IN-INDIA>
- https://stemcells.nih.gov/info/Regenerative_Medicine/2006Chapter1.htm
- <https://stemcells.nih.gov/info/2001report/chapter4.htm>

Course Designer:
Ms. P. Jenifer

MAJOR BASED ELECTIVE – III
BIOENTREPRENEURSHIP
2019 -2020 Onwards

Semester - VI	BIOENTREPRENEURSHIP	Hours/Week - 6	
Major Based Elective – III		Credits - 6	
Course Code – 19UBT6MBE3A		Internal 25	External 75

Objectives

- To motivate students towards bioentrepreneurship and skill development
- To understand the basic marketing strategies from lab to store
- To expose the students to various technology and their commercialization
- To gain technological and financial knowledge for related to biotechnology

Course Outcomes

On the Successful completion of the course the students would be able to

CO Number	CO Statement	Knowledge Level
CO 1	Understand the basic concepts in entrepreneurship and marketing strategies related to biotechnology	K1
CO 2	Demonstrate the composting process using various methods	K2
CO 3	Learn apiculture concepts and methods	K3
CO 4	Analyse the techniques and methods in mushroom cultivation	K3
CO 5	Implement an integrated farming system with multiple components	K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	M	M	S	S
CO3	M	S	S	M
CO4	S	S	M	S
CO5	S	S	S	S

S- Strong, M- Medium, L-Low

MAJOR BASED ELECTIVE – III
BIOENTREPRENEURSHIP
2019 -2020 Onwards

Unit I: Introduction to Bioentrepreneurship (18 hours)

Introduction to bioentrepreneurship – basic concepts, marketing strategies, Entrepreneurship Traits & Motivation: Growth of entrepreneurship, steps involved in converting ideas to products – commercialization methods, Growth of entrepreneurship, Funding opportunities, IP and licensing, start-ups in biotechnology. Training, Institution in aid of entrepreneur, Risks and benefit.

Unit II: Compost and Vermicompost (18 hours)

Compost - Purpose of Composting. Decomposition of organics - Aerobic and Anaerobic Digestion. Factors Affecting Composting Process – Carbon – Nitrogen ratio – Moisture - Temperature – Aeration – Surface area – pH. Advantages of application of Organic Fertilizer. Limitations of Composting, Applications. Vermicompost – Earthworm – Biology of Earthworm – Life cycle – Classification – Species Suitable for processing organic wastes. Microbial biomass responsible during the vermicomposting.

Unit III: Apiculture (20 hours)

Introduction to Beekeeping. History of apiculture. Importance of honey bees. Different species of honey bees. Morphology, anatomy, colony organization and life cycle honey bees. Beekeeping equipment. Beekeeping in India. Benefits of beekeeping. Social behaviour. Queen rearing. Collection and preservation of bee pasture. Seasonal management. Diseases affecting honey bees and their control measures. Handling of bee colonies and manipulation for honey production. Potential market of honey. Economics of beekeeping.

Unit IV: Mushroom cultivation (20 hours)

Mushroom culture – historical background, current status of mushroom culture in India. Nutritional values – cultivation methods; Obtaining a pure culture preparation of spawn; formulation and preparation of composts; spawning, spawn running and cropping; cultivation of paddy straw mushrooms - cultivation of Dhingri (*Pleurotus sajor caju*) medicinal value of mushrooms – Ganoderma, antiviral value, antibacterial, antifungal and antitumour effect. Recipes of mushroom (Mushroom soup, pulav)[#], preservation and packaging of mushrooms – economics of mushroom production.

Unit V: Integrated Farming System (IFS)**(14 hours)**

Integrated Farming System - introduction, principles, Components of IFS, advantages of IFS, Farming System Research, IFS for Different Agroclimatic Zones, Production and Economics of IFS, Resource Flow – Wetland – Gardenland – Dryland.

#-Self-Study Topic

Text Books

S. No	Author	Title	Publisher	Year of Publication
1	Craig Shimasaki	Biotechnology Entrepreneurship: Starting, Managing, and Leading Biotech	Academic Press	2014
2	Matei, Florentina, Zirra, Daniela	Introduction to Biotech Entrepreneurship: From Idea to Business: A European Perspective	Springer	2019
3	R. Gogoi, Y. Rathaiah, T.R. Borah	Mushroom Cultivation Technology	Scientific Publishers	2019
4	Dr. Ashok K. Rathour, Dr. Pawan Kumar 'Bharti', Dr. Jaswant Ray,	Vermitechnology Farm and Fertilizer	Discovery publishing House Pvt Ltd, New Delhi, India.	2020
5	A. Zaman	Integrated Farming System and Agricultural Sustainability	New India Publishing Agency	2019

Reference Books:

S. No	Author	Title	Publisher	Year of Publication
1	Heidrun Flaadt Cervini, Jörg Dogwiler	Bio- and MedTech Entrepreneurship From Start-up to Exit	Stämpfli Verlag	2020
2	Tavis Lynch	Mushroom Cultivation An Illustrated Guide to Growing Your Own Mushrooms at Home	Quarry Books	2018
3	John Tyler	Essential Guide to Mushroom Cultivation A Definite Guide to Cultivation and Self Use	Independently Published	2019
4	Rhonda Sherman	The Worm Farmer's Handbook Mid- to Large-Scale Vermicomposting for Farms, Businesses, Municipalities, Schools, and Institutions	Chelsea Green Publishing	2018

5	Shawn Jadrnicek, Stephanie Jadrnicek	The Bio-integrated Farm A Revolutionary Permaculture- based System Using Greenhouses, Ponds, Compost Piles, Aquaponics, Chickens, and More	Chelsea Green Publishing	2016
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Pedagogy:

- Lecture (Chalk and Talk) & Power Point Presentation
- Quiz, Seminar, Assignment & Group Discussion.
- Videos and Animations

Weblinks:

- <https://www.nationalbioentrepreneurship.in/>
- <https://www.acs.edu.au/courses/mushroom-production-86.aspx>
- https://onlinecourses.swayam2.ac.in/nos20_ge07/preview
- <https://www.youtube.com/watch?v=4nNQEO8ZOR0>
- https://agritech.tnau.ac.in/agriculture/agri_majorareas_smmf03.html

Course Designer

Dr. S. ABINAYA

MAJOR BASED ELECTIVE - III

DRUG DISCOVERY AND DEVELOPMENT

2019 -2020 Onwards

Semester - VI	DRUG DISCOVERY AND DEVELOPMENT	Hours/Week - 6	
Major Based Elective – III		Credits - 6	
Course Code - 19UBT6MBE3B		Internal 25	External 75

Objectives

- To study about the Basic techniques, methods and applications involved in Drug Designing.
- To understand the drug metabolism, mechanism of action including its kinetics and the principles of **pharmacokinetics**.
- To understand about the different regulatory aspects and novel drug delivery systems.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO 1	Classify drugs based on their source, nature, nomenclature and dosage and routes of administration.	K1
CO 2	Interpret the current approaches of drug discovery with their advantages and limitations.	K2
CO 3	Summarize the fate of drug in the biological system.	K2
CO 4	Interpret the regulatory aspects and stages of drug development.	K3
CO 5	Impart the concepts of novel drug systems and to know about Pharmacovigilance.	K3

Mapping with Programme Outcomes

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

S-Strong, M-Medium, L-Low

MAJOR BASED ELECTIVE - III
DRUG DISCOVERY AND DEVELOPMENT
2019-2020 Onwards

UNIT I: GENERAL PHARMACOLOGY

(18 Hours)

Drugs – Definition, sources and nature, types of classification, nomenclature, dosage, dose response curve and LD50. Role of drugs, Drug – Protein interactions and routes of administration. Mechanism of action. Pharmacokinetics and Pharmacodynamics. Protein therapeutics. Drug toxicity - definition, classification. Factors affecting toxicity.

UNIT II: STAGES IN DRUG DESIGN

(18 Hours)

Target Identification & validation: Drug targets – Membrane Proteins, DNA, RNA and enzymes. Lipinski's rule of five. Lead selection and optimization, drug candidate confirmation. Types of Receptors – Hormone, developmental-protein, carbohydrate and lipid receptors. Biological role and significance of each receptor. Neurotransmitters.

UNIT III: ADME PROFILING

(18 Hours)

Drug metabolism - Drug metabolizing enzymes and their induction- absorption, bioavailability, distribution, metabolism and Elimination Pathways. Efficacy assessment, Toxicology/safety pharmacology assessment.

UNIT IV: STAGES OF DRUG DEVELOPMENT

(18 Hours)

Drug development- Target identification, Target validation, Lead discovery and Optimization- Role of FDA. #Drug regulatory bodies in India –CDSCO, MHFW, IPC, ICMR, NPPA, The Drugs (Prices Controls) Order,1955. The Indian Patents and Designs, Act 1970, Magic Remedies and Objectionable advertisements Act. Intellectual property rights. Computer aided drug designing (CADD), structure based drug design, QSAR, HTP screening, molecular docking.

UNIT V: NOVEL DRUG DELIVERY SYSTEMS

(18 Hours)

Novel Drug delivery systems – Carrier based Drug Delivery System, Liposomes, Nanoparticles, Microspheres, Monoclonal antibodies, Niosomes, Resealed erythrocytes as drug carriers. Transdermal Drug Delivery Systems, Sonophoresis, Osmotic drug delivery systems, Microencapsulation.

#-Self-Study Topic

Text books:

S. No	Author	Title	Publisher	Year of Publication
1.	H. L. Sharma and K. K. Sharma	Principles of Pharmacology	Paras Medical Publishers	2017
2.	Donald J. Abraham	Burger's Medicinal Chemistry, Drug Discovery and Development	Wiley	2021

3.	Sakthivel Lakshmana Prabu, Appavoo Umamaheswari	Computer Applications in Drug Discovery and Development	IGI Global	2018
4.	Ansel, H.C.	“Pharmaceutical Dosage Forms and Drug Delivery Systems”	Lippincott Williams &Wilkins	2018
5.	SumitVerma, S and Gulati	Fundamentals of Pharmacovigilance	Paras Medical Publishers	2017

Reference books:

S. No.	Author	Title	Publisher	Year of Publication
1.	Laurence L. Brunton, Bjorn C. Knollmann, Randa Hilal-Dandan, Goodman and Gilman S	“The Pharmacological Basis of Therapeutics”	McGraw-Hill Education / Medical	2017
2.	Tom Brody	Clinical Trials: Study Design, Endpoints and Biomarkers, Drug Safety, and FDA and ICH Guidelines	Academic Press	2016
3.	Donald J. Abraham	Burger's Medicinal Chemistry, Drug Discovery and Development	Wiley	2021
4.	John Somberg, Vincent Idemyor, James T. O'Donnell	Drug Discovery and Development, Third Edition	CRC Press	2019
5.	Waller, P and Harrison-Woolrych M	An Introduction to Pharmacovigilance	Wiley Blackwel, 2nd Edition	2017

Pedagogy

- Lecture (Chalk and Talk) & Power Point Presentation
- Quiz, Seminar, Assignment & Group Discussion.
- Videos and Animations

Weblinks

- <https://www.fda.gov/patients/drug-development-process/step-1-discovery-and-development>
- <https://www.nebiolab.com/drug-discovery-and-development-process/>
- <https://nptel.ac.in/content/storage2/courses/104103071/pdf/mod15.pdf>
- <https://nptel.ac.in/courses/102/106/102106070/>
- <https://www.abdn.ac.uk/study/postgraduate-taught/degree-programmes/55/drug-discovery-and-development/>

Course Designer:

Dr. G.Gomathi

ANNEXURE - Q

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY-620 018
Nationally Accredited (III Cycle) with 'A' Grade by NAAC
ISO 9001: 2015 Certified



**DEPARTMENT OF FOOD SERVICE MANAGEMENT
AND DIETETICS**

UG :
B.Sc., NUTRITION & DIETETICS

PG :
M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY-620 018.

DEPARTMENT OF FOOD SERVICE MANAGEMENT AND DIETETICS

UG –B.Sc., NUTRITION AND DIETETICS

PG – M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

**Minutes of Board of Studies Meeting of Department of Food Service Management and Dietetics
held on 27/05/2021 at 12.15 p.m. through virtual mode.**

<https://meet.google.com/rwr-cqmx-fqd>

The following members attended the meeting

Ms.B.Thanuja	Chairperson and Associate Professor
Dr.S.UmaMaheshwari	Subject Expert, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore
Dr.R.Parimalavalli	Subject Expert, Periyar University, Salem
Dr.R.Jagan Mohan	Special Invitee, Indian Institute of Food Processing and Technology, Thanjavur.
Dr.A.Thahira Banu	University Nominee, Gandhigram Rural University, Dindigul
Dr.A.Sangeetha	Industrial Representative, Navadha Nutraceutical Product, Ariyalur.
Dr.N.Preetha	Alumna, Sri Ramachandra Institute of Higher Education and Research,Chennai
Ms.S.Fathima	Member
Ms.V.Ramya	Member
Ms.M.Vinothini	Member
Ms.S.Agalya	Member
Ms.E.Agalya	Member
Ms T.R.Revathi	Member
Ms. Pavithra R C	Member

AGENDA

1. ITEM NO.BOS/05/01

To consider and approve the syllabus of Core Course, Core Practical, Major Based Elective of B.Sc., Nutrition and Dietetics (2019-2020 Batch and onwards) for Semester VI and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

2. ITEM NO.BOS/05/02

Ratification to change the Skill Based Elective- II and III as practical papers and assessment criteria, in Semester V for B.Sc., Nutrition and Dietetics (2019-2020 Batch and onwards)

3. ITEM NO.BOS/05/03

Ratification to change the assessment criteria for Project work for the Course Code 19PFS4PW in Semester IV for M.Sc., Food Service Management and Dietetics (2019-2020 Batch and onwards).

4. ITEM NO.BOS/05/04

To discuss and plan about conduct of Dietary Internship (Semester V) in this pandemic situation, for B.Sc., Nutrition and Dietetics.

5. ITEM NO.BOS/05/05

To discuss and plan about conduct of Catering Internship (Semester III) in this pandemic situation for M.Sc., Food Service Management and Dietetics.

1.ITEM NO.BOS/05/01

The Semester VI syllabus of B.Sc., Nutrition & Dietetics was discussed and the following changes were recommended

- Diet Therapy II- Suggested to include renal replacement therapy in Unit IV and recommended to add role of functional foods and nutraceuticals as immune boosters in Unit V.
- Perspectives of Home Science- One of the objective not related to content to be changed. Suggested to add only existing programmes related to the field and recommended to include programme for old age.
- Diet Therapy II – Practical- Include immune boosters, cancer, pre – operative and post - operative related dietary modifications. MBE-II.A. Community Nutrition- In unit V include theories related nutrition intervention- nutritional education. Include recent programmes of NITI Ayog and Poshan Abhiyan of Central Government of India.
- MBE-II.B. Principles of Resource Management-Include ethics and resources of management.
- MBE-III.A. Food Processing- Include processing of spices and Condiments and Indian Standards for labeling.
- MBE-III.B. Nutraceuticals and Functional Foods - Suggested to add more content in every unit and to include chemistry and mode of action in each and every category.

2.ITEM NO.BOS/05/02

Approved to change the Skill Based Elective- II and III as practical papers and assessment criteria and course code in Semester V for B.Sc., Nutrition and Dietetics (2019-2020 Batch and onwards). Assessment criteria changed as Internal (40 marks), External (60 marks) and Total 100 marks).

- SBE- II.A. Bakery And Confectionary - Practical-Content approved.
- SBE- II.B. Computer Applications in Nutrition and Dietetics - Practical- Include google apps, animation software, online software for creating module and dietary calculation. Further suggested to include methodology to explore data from websites related to nutrition.
- SBE-III.A. Food Preservation-Practical- Visit to commercial food preservative units to be arranged. In this pandemic situation modules of National Institutes can be used as reference material.
- SBE- III.B. Food Product Development-Practical- Practical aspects of traditional products, weaning products, Ready to eat and Ready to cook foods to be added.

3.ITEM NO.BOS/05/03

Approved to change the assessment criteria for Project work for the Course Code 19PFS4PW in Semester IV, as External (100 marks) for M.Sc., Food Service Management and Dietetics (2019-2020 Batch and onwards) .

4.ITEM NO.BOS/05/04

The following suggestions were given for the conduct of Dietary Internship (Semester V), in this pandemic situation for B.Sc., Nutrition and Dietetics;

- To proceed with virtual mode
- To post –pone to next semester after consulting with the higher authority of the college.

5. ITEM NO.BOS/05/05

The following suggestions were given for the conduct of Catering Internship (Semester III), in this pandemic situation for M.Sc., Food Service Management and Dietetics;

- To conduct through virtual mode with subject experts from reputed academic catering institutions.

**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)**

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 - Practical	19UND5SBE2AP	2	2	3	40	60	100
			II.B. Computer Applications in Nutrition and Dietetics-Practical	19UND5SBE2BP						
		Skill Based Elective – III	III.A. Food Preservation-Practical	19UND5SBE3AP	2	2	3	40	60	100
			III.B. Food Product Development-Practical	19UND5SBE3BP						
		UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	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	25	75	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 - V	II.A.BAKERY AND CONFECTIONARY-PRACTICAL	HOURS / WEEK - 2	
SKILL BASED ELECTIVE - II		CREDIT - 2	
COURSE CODE – 19UND5SBE2AP		INTERNAL 40	EXTERNAL 60

Objectives

- To enable the students to obtain basic knowledge about bakery and confectionary.
- To learn preparation techniques of baked products.
- To develop skills in the preparation of confectionary items.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Identify role of equipment in bakery units	K1
CO2.	Explain basic bakery preparation requirements	K2
CO3.	Illustrate different types of bakery products	K2
CO4.	Prepare different confectionary products	K2
CO5.	Demonstrate practical application of field visit	K3

Mapping with Programme Outcomes

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

S- Strong; M-Medium

Syllabus

- Introduction to Bakery -Role of ingredients and equipment used in bakery
- Introduction to Confectionary -Role of ingredients and equipment used in confectionary
- Preparation of Cake-Sponge cake; Bread-Salt Bread.
- Preparation of Cookies-Whole wheat cookies; Biscuit- Salt biscuit.
- Preparation of tart, pie and pastry- Fresh fruit tart, Apple pie, Vegetable Puff.
- Preparation of Icing and frosting-Basic Butter cream, American Frosting.
- Preparation of candied fruit, fondant and fudge- Amla candy, Marshmallow, Chocolate fudge.

Text books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Kingslee, John	2014	Professional Text to Bakery and Confectionary	New Age International Publishers, New Delhi
2.	Samuel A.Matz	2008	Bakery Technology and Engineering	CBS Publishers
3.	A Y Sathe	1999	A First Course in Food Analysis	New Age International Publishers, New Delhi

Reference books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Vij, Sneha	2000	Bread Basket India	BPI (INDIA) Pvt Ltd
2.	Gisslen, Wayne	2009	Professional Baking	John Wiley & Sons, New York
3.	Kingslee, John	2014	Professional Text to Bakery and Confectionary	New Age International Publishers, New Delhi
4.	Nita Mehta	1997	Art of Baking	Snab Publishers, New Delhi
5.	YogambalAshokkumar	2012	Text book of Bakery and Confectionary	PHI Learning
6.	Parvinder S. Bali,	2018	Theory of Bakery and Patisserie	Oxford University Press, New Delhi

Journals

- Confectionery, Science Direct, Elsevier, Dutch.
- Journal of Food Processing & Technology, OMICS International, **India**.

Web links

<https://nios.ac.in/online-course-material/vocational-courses/bakery.aspx>

[https://www.fssai.gov.in/dam/jcr:22be15fc-8b41-4c4d-bf11-](https://www.fssai.gov.in/dam/jcr:22be15fc-8b41-4c4d-bf11-1c49812cd4f3/Draft_Special_Bakery_Units_Manual_English_08_11_2017.pdf)

[1c49812cd4f3/Draft Special Bakery Units Manual English 08 11 2017.pdf](https://www.fssai.gov.in/dam/jcr:22be15fc-8b41-4c4d-bf11-1c49812cd4f3/Draft_Special_Bakery_Units_Manual_English_08_11_2017.pdf)

<https://aissmschmct.in/wp-content/uploads/2020/07/Chapter1-Introduction-to-bakery-confectionery.pdf>

Pedagogy: E-content, Lecture, Power point presentation, Seminar, Assignment, Demonstration, Visit to commercial bakery unit.

Course designers

- MS.S.Fathima
- MS.T.R.Revathi

SEMESTER - V	II.B.COMPUTER APPLICATIONS IN NUTRITION AND DIETETICS	HOURS / WEEK - 2	
SKILL BASED ELECTIVE -II		CREDIT - 2	
COURSE CODE – 19UND5SBE2BP		INTERNAL 40	EXTERNAL 60
-PRACTICAL			

Objectives

- To understand the basics of computer
- To know the role of computers in nutrition and dietetics
- To acquire knowledge on developing e -content.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	State basic applications of computer	K1
CO2.	Illustrate text formatting	K2
CO3.	Describe nutritive value calculation by Excel	K2
CO4.	Prepare power point presentation	K3
CO5.	Predict role of computer in nutrition and dietetics	K3

Mapping with Programme Outcomes

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

S- Strong; M-Medium

Syllabus

- Typing a text and alignment with different format using MS-word, inserting a table with proper alignment using MS- word for menu planning.
- Inserting pictures and tables, preparing a slide show with transition, animation and sound effect using MS-Power point as a tool for Nutrition Education.
- Creating a worksheet using MS-Excel for Nutritive Value Calculation and preparing a chart and pie diagrams using MS-Excel
- Using internet for data exploration, uploading files, downloading files related to Nutrition and Dietetics.
- Development of Nutrition Education Materials such as E Poster, E Pamphlets, etc.
- Development of e-content using animation.
- Usage of Nutrifly India Now App developed by NIN – ICMR, Department of Health Research, Ministry of Health and Family Welfare, Govt.of India.

Text Books

S.No.	Author name	Year of Publication	Title of the book	Publisher name
1.	Nagpal, D.P. A.H.	2000	Mastering Microsoft Office	Wheeler Publishing Co. Limited
2.	Singh P.K	2008	Basics of computer.	V.K. Enterprises publishing limited, New Delhi
3.	Balagurusamy,E	2009	Computer fundamentals and C programming.	Tata McGraw Hill publishing, New Delhi.
4.	Anita Goel	2010	Computer Fundamentals	Pearson, New Delhi
5.	John Orta	2018	Computer Applications in Nutrition and Dietetics	Routledge, USA

Reference Books

S.No.	Author name	Year of Publication	Title of the book	Publisher name
1.	K.L. James	2008	The Internet-The user guide	PHI Learning Private Limited, New Delhi
2.	Peter Norton	2008	Introduction to computers	Tata McGraw Hill Education Private Limited New York
3.	Ashok Arora	2015	Computer Fundamentals	VIKAS Publishing House Pvt Ltd, West Bengal

Web links

<http://www.noblenet.org/salem/reference/wp-content/uploads/2017/01/word.pdf>

http://www2.eit.ac.nz/library/Documents/Working_With_PowerPoint_Combined.pdf

http://imm.demokritos.gr/publications/Nutrition_Science.pdf

<https://play.google.com/store/apps/details?id=com.ionicframework.myapp863035>

Pedagogy : Lecture , Demonstration, E-content, Practical .

Course Designers

- Ms.S.Agalya
- Ms.E.Agalya

SEMESTER - V	III.A.FOOD PRESERVATION -PRACTICAL	HOURS / WEEK - 2	
SKILL BASED ELECTIVE - III		CREDIT - 2	
COURSE CODE 19UND5SBE3AP		INTERNAL 40	EXTERNAL 60

Objectives

- To understand importance of food preservation.
- To develop insight on the practical aspects of food preservation.
- To know the principles of food preservation.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Define the importance of pH meter	K1
CO2.	Classify the different preservation techniques	K2
CO3.	Discuss the preservation techniques using chemical preservatives	K2
CO4.	Apply drying and dehydration in food preservation	K2
CO5.	Prepare raw mango powder using hot air oven	K3

Mapping with Programme Outcomes

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

S- Strong; M-Medium

Syllabus

- Introduction to food preservation - Principles and techniques.
- Determination of pH of different foods using pH meter.
- Preparation of products by using sugar as preservative - Jams, Jellies, Marmalades and Squashes. Testing for doneness of jam preparation (Evaluation of pectin quality and sheet test).
- Preservation by using chemical preservatives - Tomato ketchup and Tomato sauce.
- Preparation of products by using drying method – Vathal (Bitter gourd vathal) and Vadam (rice vadam).
- Preparation of products by using salt and oil as preservative – Pickles.
- Preparation of raw mango powder by dehydration using hot air oven.

Text Books

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

Reference Books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Triveni, Prakash	2010	Food Preservation	Aadi Publications, New Delhi
2.	Mc Williams	2000	Modern Food Preservation	Surjeet Publications, New Delhi
3.	Board, Niir	2000	Modern Technology on Food Preservation	Asia Pacific Business Press Inc., New Delhi

Web links

<https://www.verywellhealth.com/eat-it-with-a-grain-of-salt-1958878>

<https://reporter.mcgill.ca/>

<http://www.iitmandi.ac.in/istp/projects/2014/reports/Group%2007%20Food%20Preservation.pdf>

Pedagogy: Lecture method, Practical, Power point presentation, Assignment, Demonstration, Industrial visits.

Course designers

- Ms. S.Agalya
- Ms. Pavithra R C

SEMESTER - V	III.B. FOOD PRODUCT DEVELOPMENT - PRACTICAL	HOURS / WEEK – 2	
SKILL BASED ELECTIVE– III		CREDIT – 2	
COURSE CODE 19UND5SBE3BP		INTERNAL 40	EXTERNAL 60

Objectives

- To gain knowledge on food product development.
- To develop skills in food product development.
- To understand and apply practices to develop food products from farm to table.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Define food product development	K1
CO2.	Explain the materials used for the preparation of millet and pulse based products	K2
CO3.	Summarize the methods used for the preparation of milk and fruit based value added products	K2
CO4.	Classify the spices and condiments	K2
CO5.	Use skill in the application of standard methods for the measurement and evaluation of sensory differences	K3

Mapping with Programme Outcomes

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

S- Strong; M-Medium

Syllabus

- Introduction to phases of food product development, marketing strategy.
- Preparation of Traditional foods - Sesame balls, Roasted bengal gram balls.
- Preparation of Weaning foods and Supplementary foods – Malted finger millet powder and multi grain mix.
- Preparation of ready to eat foods – Spread Cheese, Vathakolambu Mix, Kongura chutney.
- Preparation of ready to cook foods – Upma mix, Gulab Jamun mix and Soup mix.
- Preparation of cereal and pulse based products – Noodles and Adai mix.
- Preparation of milk based food products – Butter, Ghee and Paneer .
- Preparation of fruit based food products – Fruit Preserves and fruit bars.
- Preparation of spices and condiments based products – Sambar Powder and Rasam powder (varieties).
- Development of score card for sensory evaluation – Hedonic rating scale and Composite scoring scale.
- Mini Project – Development of food product

Text books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Gordon W. Fuller	2016	New Food Product Development From Concept to Marketplace	Third Edition, CRC Press, US
2.	Mary Earle, Mary D. Earle, Richard Earle, Allan Anderson	2001	Food Product Development Maximizing Success	Wood Head Publishing, UK

Reference books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Howard R. Moskowitz	2009	An Integrated Approach to New Food Product Development	CRC Press, US
2.	M Earle, R Earle	2007	Case Studies in Food Product Development	Elsevier Science, Netherlands

Journals

- International Journal of Food Science and Technology, Wiley Black Well, England
- Journal of Food Science, Wiley Online Library

Web links

https://www.academia.edu/Documents/in/Food_Product_Development

<https://nzifst.org.nz/resources/foodproductdevelopment/Chapter-3-1-2.htm>

<https://youtu.be/zGyOTVtc12s>

Pedagogy: Lecture method, Practical, Power point presentation, Assignment, Demonstration, Industrial visit.

Course Designer

- Ms.M.Vinothini
- Ms.Pavithra R C

SEMESTER - VI	DIET THERAPY II	HOURS / WEEK - 6	
CORE COURSE – VIII		CREDIT - 6	
COURSE CODE – 19UND6CC8		INTERNAL 25	EXTERNAL 75

Objectives

- To learn role of dietary treatment in the management of disease conditions.
- To train students to plan appropriate nutrition intervention approaches and diet therapy.
- To know the role of Computers in Management of Nutrition Practice.

Course Outcomes

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

CO Number	CO statement	Knowledge level
CO 1	Define the causes, symptoms and complications of diseases.	K1
CO 2	Explain the application of dietary principles in the management of various diseases and compute nutritive value	K2
CO 3	Interpret the use of nutraceuticals in the prevention of diseases.	K2
CO 4	Illustrate the process and steps in diet counselling	K2
CO 5	Predict the importance of computers in nutrition practice.	K3

Mapping with Programme Outcomes

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

S- Strong; M-Medium

Syllabus

UNIT I

(18 Hours)

a) Nutritional care for Diabetes Mellitus: Diabetes mellitus: Meaning, aetiology and predisposing factors, symptoms, types, diagnostic and screening criteria, complications, food exchange list, glycemic index, treatment and dietary modifications.

b) Nutritional care in Hormonal diseases: Meaning, aetiology, symptoms, and dietary modification for – Cushing’s syndrome, Addison’s disease, hypothyroidism and hyperthyroidism.

UNIT II

(18 Hours)

a) Nutritional care in cardiovascular diseases: Hyperlipidaemia, Hypertension, Atherosclerosis and Congestive cardiac failure - aetiology, clinical findings and dietary management.

b) Nutritional care for Patients with Cancer: Definition, causes, types, carcinogenesis –steps, clinical symptoms, treatment , effect of treatment on nutritional status, and dietary modifications.

UNIT III

(18 Hours)

a) Nutritional care in diseases of the musculoskeletal system: Arthritis, Osteoporosis, Gout and Rheumatism - meaning, symptoms, causes, treatment and dietary management

b) Nutritional care for patients having Metabolic stress: Surgery – Pre -operative and Post-operative nutritional care, Burns – pathophysiology, medical nutrition therapy.

UNIT IV

(18 Hours)

a) Nutritional care in Renal diseases: Predisposing factors, symptoms and dietary management - Nephritis, Nephrosis, Renal failure and Urinary calculi, dialysis -types, and modification of diet in dialysis. Renal replacement therapies - meaning, need, types, complications of procedure, dietary changes needed.

b) Nutritional care in Inborn errors of metabolism: Phenylketonuria, Galactosemia and Fructosuria – overview, meaning, prognosis, symptoms, treatment and dietary management.

UNIT V

(18 Hours)

a) Functional foods and Nutraceuticals: Definition, types, role as Immune boosting source, role in the prevention and treatment of- obesity, diabetes mellitus, cardiovascular diseases and cancer.

b) Dietary Counseling - clients and counselors, client responsibility, attributes of a successful counselor, steps in counseling process, counseling guidelines.

c) Computers in Management of Nutrition Practice: General information – data input, data output, data analysis, data communication, clinical care – communication in patient care and nutritional therapy.

Text Books

S.No.	Author name	Year of Publication	Title of the book	Publisher name
1.	Joshi Y K	2003	Basis of Clinical Nutrition	Jaypee Brothers, Medical Publishers, New Delhi
2.	Mahan, Kathleen L	2004	Krause's Food, Nutrition and Diet Therapy	Pennsylvania; Saunders (2004)
3.	ShubhanginiAJoshi	2010	Nutrition and Dietetics	McGraw Hill Education Private Limited, New Delhi
4.	Prakash S Lohar	2007	Endocrinology – Hormones and Human Health	MJP publishers, Chennai
5.	Srilakshmi B	2015	Food Science	New Age International Publishers, New Delhi
6.	Srilakshmi B	2008	Nutrition Science	New Age International Publications, New Delhi
7.	Srilakshmi B	2009	Dietetics	New Age International Publications, New Delhi

Reference Books

S.No.	Author name	Year of Publication	Title of the book	Publisher name
1.	Bakhru H K	2013	Naturopathy for Longevity	Jaico publishing house, Chennai
2.	Carroll A Lutz	2001	Nutrition and Diet Therapy	International Thomson Publishers, Philadelphia
3.	Michael J Gibney	2004	Public Health Nutrition	Blackwell Publishing house, Edeinburgh
4.	SangeethaKarnik	2010	Nutrition and Dietetics Therapy	Biotech Pharma Publications, Hyderabad

5.	Sari Edelstein	2015	Life Cycle Nutrition – An Evidence based Approach	Jones and Barlett Publishers, London
6.	Udai Veer	2007	Elements of Food Science	Anmol Publications Pvt Ltd, New Delhi

Journals

- Nutrition Research, Pergamon – Elsevier Science Ltd, United States.
- Nutrition and Diabetes, Nature Publishing Group, United Kingdom.
- Nutrition and Ageing, IOS Press, Netharlands.
- European Journal of Clinical Nutrition

Web links

<https://www.nutrition.org.uk/nutritionscience/health-conditions/heart-disease.html>

<https://www.medanta.org/severe-burns/>

<https://labtestsonline.org/conditions/kidney-disease>

https://www.medicinenet.com/diabetes_mellitus/article.htm

<https://www.mayoclinic.org/tests-procedures/kidney-transplant/about/pac-20384777>

<http://www.fao.org/3/W0795T/w0795t03.htm>

<https://vikaspedia.in/health/nutrition>

<http://www.galaxycare.org/nutritious-diet-cancer-patients>

Pedagogy: Lecture, Seminar, Assignment, PowerPoint Presentation, E-content, Quiz.

Course Designers

- Ms.S.Agalya
- Ms.B.Thanuja

SEMESTER - VI	PERSPECTIVES OF HOME SCIENCE	HOURS / WEEK - 6	
CORE COURSE – IX		CREDIT - 6	
COURSE CODE – 19UND6CC9		INTERNAL 25	EXTERNAL 75

Objectives

- To understand the concept and scope of home science and its components.
- To gain knowledge on different areas of home science.
- To understand the process of human developmental .

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Define meaning and components of home science.	K1
CO2.	Classify fibres and yarns in textiles.	K2
CO3.	Compare the growth and development during Pre Natal, Post Natal, Childhood, Adolescence, Adulthood and Elderly.	K2
CO4.	Explain the principles of home management.	K2
CO5.	Organize home science extension education at various level.	K3

Mapping with Programme Outcomes

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

S- Strong; M-Medium

Syllabus

UNIT I

(18 Hours)

Meaning and Components of Home Science

Meaning of home science education, components of home science, career perspectives, its relation to other disciplines- science and humanities. The home science association of India- history and objectives, achievements of the association, representation in National bodies.

UNIT II

(18 Hours)

Textiles and Clothing

Fiber-classification(natural,synthetic), Yarn-definition, types- ply, cable, novelty. Fabric- construction method- weaving, basic steps, knitting and its importance, nonwovens and types. Clothing- origin, clothing theory, selection of clothing, Cloth finishing-dyeing,embroidery. Clothing budget, laundering and storing- cotton, wool, silk and delicate fabrics.

Interior Design

Importance of good taste, design –types, characteristics, elements and principles of design.Colour scheme, dimensions of colour. Flower arrangement-principles, requirement, types and style. Furniture-selection , arrangement principles and furnishing materials.

UNIT III

(18 Hours)

Child and Human Development

Conception-pre natal development, pre and post natal care, growth and development during childhood and adolescence, characteristics of adulthood, characteristics and problems of elderly and emerging trends in parenting.

UNIT IV

(18 Hours)

Home Management

Concept of home management and steps. family resources – management of resources like time, energy and money. Ergonomics – its importance and applications in home. Decision making in family, steps in decision making.Work simplification, importance of work simplification in home, Mundel’s classes of change.

UNIT V

(18 Hours)

Home Science Extension Education

Meaning , definition, objectives, philosophy, principles of Extension Education. Home Science Extension Service at Various Levels- Village, Block and District Level. Role of Home Science Extension in Rural And National Development- Welfare Programme- National Social Assistance Programme (NSAP), Mahatma Gandhi National Rural Employment Guarantee Act, Pradhan Mantri Gram Sadak Yojana, Annapoorna scheme.

Text Books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	M.A.Vargheese N.N. Ogale K.Srinivasan	2005	Home management	New Age International Private Limited, New Delhi
2.	Laura E.Berk	2012	Child Development	Pearson, United States of America
3.	Dr.S.S.Khanka	2013	Human Resource Management	S.Chand & Company Ltd, New Delhi

Reference Books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	SrivastavaSushila & Rani, Sudha K	2020	Text Book of Human Development	S.Chand & Company Limited, New Delhi
2.	Trueman Team	2019	NTA – UGC NET Home Science	Danika Publishing Company
3.	PremalathaMullick	2012	Textbook of Home Science	Kalyani Publishers

Journals

- Early child development and care, Taylor and Francis Group – UK Limited
- Journal of Textile and Clothing Science, International Licence–India
- Journal on Interior Design, John Wiley and Sons-United States

Web links

<https://www.yourarticlelibrary.com/home-management/home-management-meaning-concept-and-needs/47779>

<https://rural.nic.in/departments/departments-of-mord/department-rural-development>

Pedagogy: E-content , Lecture, Power point presentation, Seminar, Assignment

Course Designer

- Ms.M.Vinothini
- Ms.S.Agalya

SEMESTER - VI	DIET THERAPY II - PRACTICAL	HOURS / WEEK - 5	
CORE PRACTICAL – VI		CREDIT - 4	
COURSE CODE – 19UND6CC6P		INTERNAL 40	EXTERNAL 60

Objectives

- To understand the modification of normal diet for therapeutic purpose.
- To acquire the skills of preparing diet for various disease conditions.
- To gain experience in diet counselling for different health conditions.

Course Outcomes

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

CO Number	CO statement	Knowledge level
CO 1	Identify the symptoms and complications of diabetes mellitus and management of condition through dietary planning.	K1
CO 2	Explain importance of dietary treatment in the management of gout.	K2
CO 3	Interpret the process of planning and preparing diet for cardiovascular diseases such as Hypertension and Atherosclerosis and compute nutritive value	K2
CO 4	Prepare diet for renal diseases such as Nephritis and Nephrosis	K3
CO5	Design tools for diet counselling	K3
CO 6	Apply the principles of diet in diet counselling for various disease condition	K3

Mapping with Programme Outcomes

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

S- Strong; M-Medium

Syllabus

Planning, preparation and diet counselling for

- Diabetes mellitus
- Gout
- Osteoporosis
- Cardiovascular disorders -Hypertension and Atherosclerosis
- Renal disorders -Nephritis and Nephrosis
- Cancer of gastrointestinal tract , oral cancer and cancer cachexia

Planning of

- Diet for Pre and Post - operative conditions
- Immuno boosters diet

Application of

- Usage of Nutrify India Now App developed by NIN – ICMR, Department of Health Research, Ministry of Health and Family Welfare, Govt.of India.

Text Books

S.No.	Author name	Year of Publication	Title of the book	Publisher name
1.	Srilakshmi B	2009	Dietetics	New Age International Publications, New Delhi
2.	V.Vimala	2009	Advances in Diet Therapy: A Practical Manual	New Age International Pvt Ltd, New Delhi
3.	Shubhangini A Joshi	2010	Nutrition and Dietetics	McGraw Hill Education Private Limited, New Delhi
4.	Staci Nix	2013	William's Basic Nutrition and Diet Therapy	Elsevier, Missouri
5.	Gopalan C, Rama Sastri B V and Balasubramanian S C	2016	Nutritive value of Indian Foods	National Institute of Nutrition, Hyderabad

Reference Books

S.No	Author name	Year of Publication	Title of the book	Publisher name
1.	Joshi Y K	2003	Basis of Clinical Nutrition	Jaypee Brothers, Medical Publishers, New Delhi
2.	David H.Alpers William F. Stenson Beth E. Taylor Dennis M. Bier	2008	Manual of Nutritional Therapeutics	<i>Lippincot Williams & Wilkins, USA</i>
3.	C.R. Pennington	2013	Therapeutic Nutrition – A Practical Guide	Springer, US

Pedagogy: Lecture, Demonstration, Practical , E-content.

Web link

<https://play.google.com/store/apps/details?id=com.ionicframework.myapp863035>

Course designers:

- Ms.S.Agalya
- Ms.B.Thanuja

SEMESTER - VI	II.A.COMMUNITY NUTRITION	HOURS / WEEK - 6	
MAJOR BASED ELECTIVE- II		CREDIT - 6	
COURSE CODE – 19UND6MBE2A		INTERNAL 25	EXTERNAL 75

Objectives

- To understand national nutritional problems and their implications.
- To be familiar with nutrition intervention programmes.
- To study the importance of nutrition education.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Identify ecological factors leading to malnutrition	K1
CO2.	Explain nutritional problems of the community	K2
CO3.	Interpret nutritional status of the community	K2
CO4.	Describe role of nutrition intervention programmes	K2
CO5.	Apply nutrition education programme and create nutrition awareness.	K3

Mapping with Programme Outcomes

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

S- Strong; M-Medium

Syllabus

UNIT-I

(20 Hours)

Ecology of Malnutrition

Definition of malnutrition, vicious cycle of malnutrition, ecological factors leading to malnutrition - income, family size, dietary pattern, occupation, customs, food fads, fallacies, ignorance and other factors. Synergism between malnutrition and infection.

UNIT-II

(20 Hours)

Nutritional Problems and Nutritional Assessment

a) Prevalence, causes, consequences and prevention of common nutritional problems – Protein Energy Malnutrition (PEM), Vitamin A Deficiency Disease, Anemia, Iodine Deficiency Disorder (IDD) and Fluorosis.

b) Assessment of nutritional status -Direct method -Anthropometry, biochemical, biophysical and clinical assessment). Indirect method - Dietary Survey (24-hour dietary recall, food frequency questionnaire, diet history , dietary record), Vital statistics.

UNIT-III

(15 Hours)

Nutrition Intervention & Immunization Programmes

a) Nutrition intervention programmes in India – School Lunch Programme, Chief Minister's Nutritious Noon Meal Program (CMNNMP), Integrated Child Development Services (ICDS), Poshan abhiyaan, Primary Health Care (PHC), Public Distribution System (PDS), National Nutritional Anaemia Prophylaxis Programme, National Prophylaxis Programme against Vitamin-A Deficiency Diseases, Goitre Control Programme, National Nutrition Policy and Food Security

b) Immunization – Universal Immunization Programmes (UIP), Immunization schedule, milestones, improving coverage, improving quality, and new vaccine introduced.

UNIT-IV

(15 Hours)

National, International and Voluntary Agencies to Promote Community Health

a) National Organization concerned with food and nutrition – Indian Council of Medical Research (ICMR), National Institute of Nutrition (NIN), National Nutrition Monitoring Bureau (NNMB), Central Food Technological Research Institute (CFTRI), Defence Food Research Laboratory (DFRL), and National Institute of Public Cooperation and Child Development (NIPCCD), Food and Nutrition Board (FNB).

b) International Organization concerned with Food and Nutrition- Food and Agricultural Organization (FAO), World Health Organization (WHO), United Nations International Children's Emergency Fund (UNICEF), World Bank.

c) Voluntary Organizations to promote health and nutritional status of the community.

UNIT-V

(20 Hours)

Nutrition Education

Definition, importance, principles and methods of nutrition education. Nutrition Intervention Theories - Behavioral Theory, Social Cognitive Theory Meaningful Learning Model . Role of audio-visual aids in nutrition education. Organization of nutrition education programmes, principles of planning, executing and evaluating nutrition education programmes, problems encountered in conducting nutrition education programmes.

Text Books				
S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Srilakshmi B.	2014	Nutrition Science	New Age International Publication, New Delhi
2.	Swaminathan. M.	2007	Essentials of Food and Nutrition- An Advanced Textbook	The Bangalore Printing and Publishing Co. Ltd, Bangalore
3.	Bamji .M.S, PrahladRao.N, Reddy V	2016	Textbook of Human Nutrition	Oxford and PBH Publishing Co. Pvt. Ltd, New Delhi
4.	Swaminathan. M.	2014	Advanced Textbook of Food and Nutrition	The Bangalore Printing and Publishing Co. Ltd, Bangalore

Reference Books				
S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Park. A	2007	Park's Textbook of Preventive and Social Medicine	Bharat Publishers, Jabalpur
2.	Gibney. M.J, Margetts,B.M. Kearney. J.M. Arab. L	2004	Public Health Nutrition	Blackwell Publishing Co. UK
3.	Carolyn D. Berdanice	2009	Advanced Nutrition	CRC Press
4.	Darshan Sohi	2015	A Text book of Nutrition	S.Vikas & Company Publishers

Journals

- Journal of community nutrition and health. Rural Research Institute of Physiology & Applied Nutrition RRIPAN, India .
- Journal of Nutritional Health & Food Science, PMID,USA
- International Journal of Environmental Research and Public Health, MDPI ,Basel, Switzerland,

Web links

<https://www.healthline.com/nutrition/vitamin-a-deficiency-symptoms>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3818611/>

<https://vikaspedia.in/health/nutrition/malnutrition/malnutrition-causes-and-types>

<https://www.ncbi.nlm.nih.gov/books/NBK11726/>

<https://www.slideshare.net/DrLipilekhaPatnaik/nutrition-programmes-in-india-108900049>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3495161/>

<https://niti.gov.in/>

<https://icds-wcd.nic.in/nnm/home.htm>

<http://www.fao.org/3/i1983e/i1983e.pdf>

<https://index.nutrition.tufts.edu/data4diets/indicator/household-dietary-diversity-score-hdds>

https://www.fantaproject.org/sites/default/files/resources/HDDS_v2_Sep06_0.pdf

Pedagogy: E-content, Lecture, Power point presentation, Seminar, Assignment, Quiz, Group project.

Course Designers

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

SEMESTER - VI	II.B.PRINCIPLES OF RESOURCE MANAGEMENT	HOURS / WEEK - 6	
MAJOR BASED ELECTIVE- II		CREDIT - 6	
COURSE CODE – 19UND6MBE2B		INTERNAL	EXTERNAL
		25	75

Objectives

- To gain knowledge on process of management.
- To understand the importance of values, goals and standards of Resource Management
- To study the significance of resource management.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Identify the principles of management	K1
CO2.	Explain the role of housing and home management	K2
CO3.	Describe the importance of values, goals and standards	K2
CO4.	Illustrate human and non-human resources for efficient management	K3
CO5.	Apply the principles in time and energy management	K3

Mapping with Programme Outcomes

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

S- Strong; M-Medium

Syllabus

UNIT I

Management – Principles and Concept

(18 hours)

Management –Definition, functions, principles.

Planning- Importance, steps in planning, merits and limitations of planning .

Organizing – process, importance .

Controlling – characteristics, process, requirements for effective control system, steps .

Evaluation – characteristics, methods.

UNIT II

(18 hours)

Ethics of Management and Decision Making

Ethics of management-Meaning, ethical activities, types of management ethics, guidelines for ethical behaviour, approaches to management ethics.

Decision making- Definition, relation of decision making to management. Types of decisions – Non programmed and programmed, group and individual decision, social and economic decision, routine and conscious decision, technical, legal and political decisions, central and satellite decision.

UNIT III

(18 hours)

Values, Goals and Standards

Values - Types -intrinsic and instrumental, factual and normative values; personal values, Parker’s values.

Goals- meaning and definition, classification of goals – long term, intermediate and means end goals.

Standards- concept, classification- Quantitative and Qualitative, Conventional and Non-conventional, criteria for choosing standards.

UNIT IV

(18 hours)

Resources

Meaning and definition, classification - money, time, energy and space, characteristics of resources, role of resources in management, factors affecting the use of resources, guide to increasing satisfaction in the use of resources.

UNIT V

(18 hours)

Time and Energy Management

Tools in time management – work unit, peak loads and work curves, factors to be considered in making time and activity plans, steps in time plan.

Energy management-meaning, Work simplification – Definition, importance, work simplification techniques - process chart, operation chart, memo motion, cycle graph and path way chart, principles of body mechanics, Classes of Change .

Text Books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	P Seetharaman	2005	Introduction to family resource management	CBS publishers, London
2.	S.Goel	2016	Management of resources for sustainable development	Orient Blackswan Publication, India

Reference Books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Elizabeth B.Goldsmith	2005	Resource management for individuals and families	Pearson, Florida University
2.	Sandhya Rani Mohanty	2016	Introduction to Home Management	Anchor Academic Publishing

Journals

- Journal of Human Resource Management, Science Publishing Group, USA

Web Links

https://he.kendallhunt.com/sites/default/files/heupload/Fralick_2e_Chapter4.pdf

https://www.academia.edu/28533999/HOUSING_NEEDS_AND_HOME_MANAGEMENT_PRACTICES_OF_RURAL_FAMILIES_OF_DIFFERENT_SIZES_AND_SOCIO-ECONOMIC_CHARACTERISTICS

<https://www.businessmanagementideas.com/notes/management-notes/corporate-social-responsibility/management-ethics-meaning-need-and-importance/5319>

Pedagogy: E-content , Lecture, Power point presentation, Seminar, Assignment, Quiz,

Course designers

- Ms.S.Agalya
- Ms.S.Fathima

SEMESTER - VI	III.A.FOOD PROCESSING	HOURS / WEEK - 6	
MAJOR BASED ELECTIVE – III		CREDIT - 6	
COURSE CODE – 19UND6MBE3A		INTERNAL 25	EXTERNAL 75

Objectives

- To understand the principles of food processing.
- To apply food processing techniques to various food groups.
- To learn the suitable methods of food preservation with special reference to our country.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	List the methods of food processing techniques	K1
CO2.	Explain the method of processing of cereals , pulses and its by products	K2
CO3.	Alter the cereals and pulses into value added products	K2
CO4.	Illustrate the principles of preservation in fruits and vegetable products.	K2
CO5.	Classify the materials used in food packaging	K3

Mapping with Programme Outcomes

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

S- Strong; M-Medium

UNIT I

(18 Hours)

Food Processing – Definition, importance, principles, classification-minimally processed foods, preserved foods, manufactured foods, formulated foods, methods and benefits of food processing, effect of food processing on nutrients, scope of food processing industry, sectors of food processing industry, future Prospects, trends in modern food processing.

Processing of Cereals-Processing of cereals-Milling process, stone milling, roller milling, cereal products- wheat, rice, corn, barley, semolina, amylase rich food, macaroni products, puffed rice, flaked rice and value added products.

UNIT II

(18 Hours)

Processing of Pulses -Germination, fermentation, soaking, agglomeration, decortication, milling, puffing. By -products of pulses- dals and grams, processed soya.

Processing of Nuts and Oil seeds- coconut, groundnut, sesame, sunflower seeds, flaxseeds
Processing – Extraction of oil and refining, meal concentrates and value addition, nutritional losses during processing, storage.

Processing of Spices and Condiments - Cumin, fenugreek, coriander, fennel, poppy, aniseed, cinnamon, chilli, cardamom, turmeric, ginger, tamarind, nutmeg, asafoetida, Black pepper-
Processing , cleaning, reconditioning and grinding, packaging, storage.

UNIT III

(18 Hours)

Processing of Milk- Filtration, homogenization, pasteurization, drying, fermentation. Milk products- cheese, panner, milk powder, ice cream, khoa.

Processing of Flesh foods- Processing of fleshy foods by freezing, smoking, drying, canning.

Processing of Fruits and vegetables -Processing of fruits and vegetables by pickling, freezing, drying and canning. Vegetable and fruit products – preserves, jams, jellies, squashes, concentrates.

Processing of Sugar-Extraction of the juice, clarification, and crystallization, separation of crystals, refining of sugar, recovery of sugar molasses.

UNIT IV

(18 Hours)

Packaging and Labelling – Functions of food packaging, requirements for effective food packaging, types of containers, food packaging materials and forms, package testing, packages with special features, aseptic packaging in composite cartons, safety of food packaging.

Food labelling-Introduction, the evolution of food labelling, standards and legal issues, labelling in relationship to new technologies, types of food labelling, International food standards- Codex Alimentarius, Indian food Standards - FSSAI, BIS, AGMARK.

UNIT V

(18 Hours)

Food Storage– Meaning, domestic food storage , commercial food storage, importance of food storage, basic principles of food storage- traditional, modern, emerging trends in food storage, food storage safety,

Food Industrial Waste Management – Introduction, classification and characterization of food industrial waste disposal methods- physical, chemical and biological; Economical aspects of waste treatment and disposal.

Text Books

S.No.	Author name	Year of Publication	Title of the book	Publishers name
1.	Vikas Ahluwalia,	2007	Food Processing	Paragon International Publishers
2.	Anupama Rani	2010	Food Processing Preservation and Storage	Sonali Publications

Reference Books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Norman N. Potter, Joseph H. Hotchkiss,	2007	Food Science , 5 th Edition	Cbs Publishers and Distributors Pvt . Ltd
2.	Avantina Sharma	2006	Textbook of Food Science & Technology	International Book Distribution Co
3.	Shubhangini A Joshi	2010	Nutrition and Dietetics	McGraw Hill Education Pvt. Ltd
4.	Janice Albert	2010	Innovations in food labelling	Woodhead publishing ltd, New Delhi
5.	Fellows P.J	2017	Food Processing Technology Principles and Practice	Elsvier publications

Journals

- Trends in Food Science and Technology, Elsevier Bv, Netherlands
- Journal of Food Engineering, Elsevier, Netherlands
- Journal of Food Processing and Technology, Wiley, ISSN 1745-4549, Ohio state

Web Links

<http://www.fao.org/3/a-au104e.pdf>

https://apps.icarda.org/wsInternet/wsInternet.aspx/DownloadFileToLocal?filePath=Tools_and_guidelines/Technical_bulletin3.pdf&fileName=Technical_bulletin3.pdf

<https://www.niir.org/books/book/handbook-on-spices-condiments-cultivation-processing-extraction-h-panda/isbn-9788178331324/zb>

<https://pubmed.ncbi.nlm.nih.gov/26312771/>

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

Course Designers

- Ms. M.Vinothini
- Ms. T.R.Revathi

SEMESTER - VI	III.B.NUTRACEUTICALS AND FUNCTIONAL FOODS	HOURS / WEEK - 6	
MAJOR BASED ELECTIVE– III		CREDIT - 6	
COURSE CODE – 19UND6MBE3B		INTERNAL 25	EXTERNAL 75

Objectives

- To familiarize with recent advances in nutraceuticals and functional foods.
- To know the classification of functional foods.
- To gain knowledge on the health benefits of nutraceuticals and functional foods.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Define the term functional foods and nutraceuticals	K1
CO2.	Explain the classification of nutraceuticals and functional foods	K2
CO3.	Give examples of nutraceuticals and functional foods	K2
CO4.	Describe the role of probiotics and prebiotics in health	K3
CO5.	Prepare a supplemented product using a functional food as a component	K3

Mapping with Programme Outcomes

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

S- Strong; M-Medium

Syllabus

UNIT I

(18 Hours)

Introduction to nutraceuticals

Nutraceuticals -Definition, history, sources, classification of nutraceuticals based on food source, chemical nature and mechanism of action. Significance and relevance of nutraceuticals in the management of disease and disorders – CVD, cancer, diabetes, obesity and immune enhancement.

UNIT II

(18 Hours)

Introduction to functional foods

Functional foods – Evolution and definition of functional foods, functional foods - dietary fibre, oligosaccharides, resistance starch, omega- 3-fatty acids, conjugated linoleic acid. Significance and relevance of functional foods in the management of disease and disorders – CVD, cancer, diabetes, obesity and immune enhancement.

UNIT III

(18 Hours)

Probiotics and Prebiotics

Probiotics – definition, types, health benefits of probiotics in gastrointestinal health, cancer, and other diseases, challenges and regulatory issues related to probiotics. Prebiotics – definition, types, health benefits of prebiotics, recent advances in prebiotics – galacto-oligosaccharides (GOS), functional disaccharides (lactulose, lactitol and lactose), resistant starch (RS), prebiotic ingredients in foods.

UNIT IV

(18 Hours)

Phytochemicals and Antioxidants

Phytochemicals- Definition, mode of action, classification of phytochemicals: Terpenoids, Carotenoids (Carotene, Leutein, Zeaxanthin, Lycopene), Polyphenols-Non flavonoid polyphenols, Flavonoids (Flavanols, Flavanol ,Flavan-3-ol, Flavones, Flavanones, Anthocyanidins, Phytoestrogens , Other Polyphenols(Curcumin, Tannins, Lignan and Resveratrol) Sulphur containing compounds (Sulphides and Glucosinolates).

Antioxidants- Definition and mechanism of action, classification of antioxidants- endogenous and exogenous. Role of endogenous antioxidants- Super Oxide Dismutase (SOD), Catalases, Glutathione Reductase, Peroxidases- Glutathione Peroxidase in protecting cells.

UNIT V

(18 Hours)

Regulatory aspects of functional foods and nutraceuticals

Regulatory aspects - Regulations of nutraceutical in India (FSSAI), regulatory requirements in India, registration process in India. Regulation of nutraceutical in USA (DSHEA), registration process in USA. Regulation of nutraceutical in Japan (FOSHU), registration process in Japan.

Text books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Agarwal A	2014	Textbook of human nutrition	Jaypee Brothers Medical Publishers (P) Ltd
2.	Edward.R.Farnworth	2008	Handbook of Fermented functional foods	CRC Press
3.	Susan Sungsoo Cho , Mark L.Dreher	2001	Handbook of Dietary Fibre	CRC Press

Reference books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Nicola Graimes	1999	The practical Encyclopedia of whole foods	Anness Publishing Ltd
2.	HariNiwas Mishra, Rajesh Kapur, Navneet Singh Deora, AasthaDeswal	2016	Functional foods	New India Publishing Agency, New Delhi
3.	Robert e.C Wildman	2016	Handbook of Nutraceuticals and Functional Foods	CRC Press, Newyork
4.	Debasis Bagchi	2014	Nutraceutical and functional food regulations in the United States and around the world	Elsevier, USA

Journals

- Functional Foods in Health and Disease, Functional Food Center, Inc, United States
- Journal of Functional Foods, Elseiver, United States
- The Pharma Innovation Journal, Akinik Publications, Newdelhi
- International Journal on Nutraceuticals, Functional Foods and Novel Foods from Research to Industrial Applications, NIH, United States

Web Links

<http://www.ift.org/knowledge-center/read-ift-publications/science-reports/scientific-status-summaries/functional-foods.aspx>

<https://foodrevolution.org/blog/probiotics-and-prebiotics/>

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

Course Designers

- Ms.M.Vinothini
- Ms.T.R.Revathi

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	
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 in Hospitality Industry	19PFS4EC5A	6	4	3	25	75	100
		V.B.Counselling Skills	19PFS4EC5B						
	Project Work		19PFS4PW	6	3	-	-	100	100
		TOTAL			30	21			

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY -18**END SEMESTER EXAMINATION RESULTS – APRIL 2021****RESULT ANALYSIS****I UG**

S.NO.	DEPARTMENT	SEM	NUMBER REGISTERED	NUMBER APPEARED	NUMBER OF PASS	PASS PERCENTAGE
1	TAMIL	II	34	34	34	100
2	ENGLISH	II	117	117	117	100
3	BSW	II	37	37	37	100
4	BBA	II	86	86	86	100
5	B.COM	II	248	248	248	100
6	B.COM (CA)	II	66	66	64	96.97
7	MATHEMATICS	II	81	81	79	97.53
8	PHYSICS	II	44	44	44	100
9	CHEMISTRY	II	51	51	50	98.04
10	MICROBIOLOGY	II	78	77	77	100
11	BIOTECHNOLOGY	II	74	74	74	100
12	COMPUTER SCIENCE	II	146	146	145	99.32
13	COMPUTER APPLICATIONS	II	118	118	118	100
14	INFORMATION TECHNOLOGY	II	39	39	39	100
15	NUTRITION & DIETETICS	II	38	38	38	100

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY -18

END SEMESTER EXAMINATION RESULTS – APRIL 2021

RESULT ANALYSIS

II UG

S.NO.	DEPARTMENT	SEM	NUMBER REGISTERED	NUMBER APPEARED	NUMBER OF PASS	PASS PERCENTAGE
1	TAMIL	IV	35	35	35	100
2	ENGLISH	IV	132	132	132	100
3	BSW	IV	45	44	43	97.73
4	BBA	IV	96	96	96	100
5	B.COM	IV	220	220	219	99.55
6	B.COM (CA)	IV	60	60	60	100
7	MATHEMATICS	IV	110	110	110	100
8	PHYSICS	IV	107	107	107	100
9	CHEMISTRY	IV	83	83	83	100
10	MICROBIOLOGY	IV	68	68	68	100
11	BIOTECHNOLOGY	IV	68	68	67	98.53
12	COMPUTER SCIENCE	IV	147	147	145	98.64
13	COMPUTER APPLICATIONS	IV	99	98	98	100
14	INFORMATION TECHNOLOGY	IV	40	40	39	97.50
15	NUTRITION & DIETETICS	IV	34	34	34	100

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY -18

END SEMESTER EXAMINATION RESULTS – APRIL 2021

RESULT ANALYSIS

I PG

S.NO.	DEPARTMENT	SEM	NUMBER REGISTERED	NUMBER APPEARED	NUMBER OF PASS	PASS PERCENTAGE
1	TAMIL	II	5	5	5	100
2	ENGLISH	II	38	38	38	100
3	COMMERCE	II	24	24	24	100
4	MSW	II	26	26	26	100
5	MATHEMATICS	II	65	65	65	100
6	PHYSICS	II	44	44	44	100
7	CHEMISTRY	II	26	26	26	100
8	MICROBIOLOGY	II	27	27	27	100
9	COMPUTER SCIENCE	II	33	33	33	100
10	FSM & D	II	28	28	28	100

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY -18

END SEMESTER EXAMINATION RESULTS – APRIL 2021

RESULT ANALYSIS

II PG

S.NO.	DEPARTMENT	SEM	NUMBER REGISTERED	NUMBER APPEARED	NUMBER OF PASS	PASS PERCENTAGE
1	TAMIL	IV	10	10	10	100
2	ENGLISH	IV	31	31	31	100
3	COMMERCE	IV	17	17	17	100
4	MSW	IV	15	15	15	100
5	MATHEMATICS	IV	55	55	55	100
6	PHYSICS	IV	32	32	32	100
7	CHEMISTRY	IV	24	24	24	100
8	MICROBIOLOGY	IV	12	12	12	100
9	COMPUTER SCIENCE	IV	26	26	26	100
10	FSM & D	IV	17	17	17	100