

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

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



Minutes of the Fourth Meeting of the Academic Council

Date: 27.02.2021

Time: 10.30 a.m.

Venue: Trust Meeting Hall

CAUVERYCOLLEGE FOR WOMEN
Affiliated to Bharathidasan University
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Annamalainagar
Tiruchirapalli-620018
FOURTH MEETING OF THE ACADEMIC COUNCIL

DATE : 27.02.2021

TIME: 10.30 A.M.

Venue : Trust Meeting Hall

MINUTES

WELCOME AND INTRODUCTORY REMARKS OF THE CHAIRMAN

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

She briefed on the

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

She also highlighted the achievements of the college from June 2020 to February 2021

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

CONFIRMATION OF THE MINUTES OF THE LAST MEETING HELD ON 15.06.2020

The Member Secretary Dr Sinthu Janita Prakash read the minutes of the III Meeting of the Academic Council comprising 21 Resolutions- (Resolution 3/01 to Resolution 03/21) of the III Meeting of the Academic Council pertaining to the regulations of 2020-2021 batch) and onwards, credits assigned for the Wadhvani courses, change in the number of questions for competitive exam papers, implementation of UGC Fit India Campaign & Unnat Bharat Abhiyan Activities under Part V, commencement of new programmes, approval of the amendment in the Programme Structure & IV Semester syllabus was confirmed.

RESOLUTION 04/01

To consider and approve the conversion of one section with special syllabi for B. Com, B.Sc Mathematics and BCA Programmes based on market requirements

Dr D.I. George Amalarethinam, External Academic Expert and Dr Balamurugan University Nominee suggested to design a common curriculum for all the sections with more number of elective courses focusing on Professional Accounting for B.Com, Computer Applications for Mathematics and Digital Technology for BCA.

RESOLUTION 04/02

To approve the regulations for offering SWAYAM Courses as Extra Credit Courses

- The faculty members of the department shall guide the students to identify the relevant courses in SWAYAM-NPTEL.
- A mentor has to give proper counselling and encourage the students to register for the online course, to maintain a record of their mentee and to motivate the students to submit assignments on time.
- **(For the students who are admitted from the Academic Year 2019-2020 except for the Department of Tamil)**
- UG students can register and clear two NPTEL courses in any of the semesters starting from Semester III to Semester V
- PG students can register for the NPTEL course in Semester III
- Interested students can enrol for more courses and gain a maximum of 10 Credits
- **(For the students who are admitted from the Academic Year 2020-2021 except for the Department of Tamil)**
- UG Students can register and clear two NPTEL courses in any of the semesters starting from Semester II to Semester V
- PG Students can register for two NPTEL courses one in each semester during the II and III Semester

- Interested students can enrol for more courses and gain a maximum of 10 Credits.

Pass Criteria:

- The students who have passed and earned a certification from NPTEL will be given the same credit of the selected course as given by NPTEL. (Internal 40% (10/25) + External 40%(30/75))
- The students who were unable to pass as per the NPTEL norms but secured 40% and above cumulatively (Internal + External), are considered as passed and will gain the same credit of the NPTEL course.
- 4 Weeks – 1 Credit, 8 Weeks – 2 Credits, 12 Weeks – 3 Credits
- In case, a student fails to meet the pass criteria of NPTEL as well as the pass criteria proposed by the college in the current semester, she may select same/new NPTEL course in the next semester and complete it successfully.
- In case of any assistance, faculty and students may approach the SPoC of NPTEL Local Chapter.

RESOLUTION 04/03

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

It is resolved to follow the V Semester Syllabi of Part III Core, Major Based Elective and Skill 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 A**.

RESOLUTION 04/04

To consider and approve the

- A. V Semester syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of B.A English for 2019-2020 batch and onwards
- B. Syllabi of UGC Jeevan Kaushal Life Skills Course- Professional Skills(19UGPS) to be offered to all under graduate programmes in Semester V of 2019-2020 batch and onwards.

It is resolved to follow the

- A. V Semester syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of B.A English for 2019-2020 batch and onwards
- B. Syllabi of UGC Jeevan Kaushal Life Skills Course- Professional Skills(19UGPS) to be offered to all under graduate programmes in Semester V of 2019-2020 batch and onwards.

as recommended by the Board of Studies in UG-English and moved by

the Chairman **Dr S Jayashree Agarwal** in the meeting and the same be approved as given in **Annexure B**

Dr. K. Suriyan, University Nominee has suggested to emphasize on the existing rich traditions and culture of Tamilnadu during the classroom discussions for UGC Jeevan Kaushal Life Skills Course- Professional Skills(19UGPS).

RESOLUTION 04/05

To consider and approve

- A. The syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.A Social Work for 2019-2020 batch and onwards
- B. The modification of the II Semester syllabi of Core Courses and Elective Courses of M.A. Social Work for 2020-2021 batch and onwards.

It is resolved to follow

- A. The syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.A Social Work for 2019-2020 batch and onwards
- B. The modification of the II Semester syllabi of Core Courses and Elective Courses of M.A. Social Work for 2020-2021 batch and onwards.

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

RESOLUTION 04/06

To approve the syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.B.A for 2019-2020 batch and onwards

It is resolved to approve the syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.B.A for 2019-2020 batch and onwards as recommended by the Board of Studies in Business Administration and moved by the Chairman **Dr J Tamil Selvi** in the meeting and the same be approved as given in **Annexure D**

Dr K. Suriyan, University Nominee has suggested to include more of Training and Development in the curriculum.

RESOLUTION 04/07

To consider and approve

- A. The syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Com and B.Com(CA) for 2019-2020 batch and onwards
- B. The modification in the syllabi of CC-III-19UCC2CC3, Modern Marketing of B.Com (CA) of 2020-2021 batch and onwards.

It is resolved to follow

- A The syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Com and B.Com (CA) for 2019-2020 batch and onwards
- B. The modification in the syllabi of CC-III-19UCC2CC3, Modern Marketing of B.Com (CA) of 2020-2021 batch and onwards.

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

RESOLUTION 04/08

To consider and approve

- A. The syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Sc. Mathematics for 2019-2020 batch and onwards
- B. The modification in syllabus of CCIII, 19UMA2CC3 Analytical Geometry and Vector Calculus in Semester II of 2020-2021 batch and onwards

It is resolved to approve

- A. The syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Sc. Mathematics for 2019-2020 batch and onwards
- B. The modification in syllabus of CCIII, 19UMA2CC3 Analytical Geometry and Vector Calculus in Semester II of 2020-2021 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 F**

RESOLUTION 04/09

To consider and approve the syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Sc. Physics for 2019-2020 batch and onwards

It is resolved to approve the syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Sc. Physics for 2019-2020 batch and onwards as recommended by the Board of Studies in Physics and

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

Dr D I George Amalarethinam, External Academic Expert has suggested to include Practical Courses as Skill Based Electives.

RESOLUTION 04/10

To consider and approve

- A. The syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Sc. Chemistry for 2019-2020 batch and onwards
- B. Modification in Core Practical-II- Organic Chemistry for 2020-2021 batch and onwards.

It is resolved to approve

- A. The syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Sc. Chemistry for 2019-2020 batch and onwards
- B. Modification in Core Practical-II Organic Chemistry for 2020-2021 batch and onwards.

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

Dr K. Suriyan, University Nominee has suggested to offer different Ancillary Courses to students who have/have not studied Mathematics in higher secondary level.

RESOLUTION 04/11

To approve the syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Sc. Computer Science for 2019-2020 batch and onwards

It is resolved to approve the syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Sc. Computer Science for 2019-2020 batch and onwards as recommended by the Board of Studies in Computer Science and moved by the Chairman **Dr V Sinthu Janita** in the meeting and the same be approved as given in **Annexure I**

RESOLUTION 04/12

To consider and approve the syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of BCA for 2019-2020 batch and onwards

It is resolved to approve the syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of BCA for 2019-2020 and onwards as recommended by the Board of Studies in Computer Applications and moved by the Chairman **Ms Merlin Packiam** in the meeting and the same be approved as given in **Annexure J**

RESOLUTION 04/13

To consider and approve the syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Sc. Information Technology for 2019-2020 batch and onwards

It is resolved to approve the syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Sc. Information Technology for 2019-2020 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 K**

RESOLUTION 04/14

To approve the syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Sc. Microbiology for 2019-2020 batch and onwards

It is resolved to approve the syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Sc. Microbiology for 2019-2020 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 L**

RESOLUTION 04/15

To consider and approve the syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Sc. Biotechnology for 2019-2020 batch and onwards

Considered and approved the syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Sc. Biotechnology for 2019-2020 batch and onwards as recommended by the Board of Studies in Biotechnology and moved by the Chairman **Dr H Abirami** in the meeting and the same be approved as given in **Annexure M**

RESOLUTION 04/16

To approve the syllabi of Part III Core, Major Based Elective and Skill Based Elective Courses of Semester V of B.Sc. Nutrition & Dietetics for 2019-2020 batch and onwards

It is resolved to approve the syllabi of Part III Core, Major Based Elective

and Skill Based Elective Courses of Semester V of B.Sc. Nutrition & Dietetics for 2019-2020 batch and onwards as recommended by the Board of Studies in Food Service Management and Dietetics and moved by the Chairman **Ms B Thanuja** in the meeting and the same be approved as given in **Annexure N**.

RESOLUTION 04/17

Matters relating to the Conduct of End Semester Examinations and the Declaration of Result during Covid 19

It is resolved to approve the Conduct of End Semester Examinations and the Declaration of Result during Covid 19 as given in **Annexure O**.

Dr K Karunakaran, External Academic Expert, has suggested to revise the syllabus often and if required, to introduce multiple assessment methods as per UGC guidelines and to introduce components/courses in the education system to improve the EQ (Emotional Quotient) level of students.

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Dr V Sujatha

(Chairman of the Academic Council & The Principal)



காவேரி மகளிர் கல்லூரி (தன்னாட்சி)
திருச்சிராப்பள்ளி- 18
தமிழாய்வுத்துறை

காவேரி மகளிர் கல்லூரி, தமிழாய்வுத்துறை, இணையவழியில் 2021 ஜனவரி - 6 அன்று நடத்திய இளங்கலைத் தமிழிலக்கியத்திற்கான ஐந்தாம் பருவத்திற்கான பாடத்திட்டக்குழுக் கூட்டத்தின் குறிப்பு

பாடத்திட்டக்குழுக் கூட்டத்தில் பங்கேற்ற உறுப்பினர்கள்

- | | |
|-----------------------------|--|
| 01. முனைவர் ச. இராமலட்சுமி | தலைவர், பேராசிரியர் |
| 02. முனைவர் இரா. காமராசு | பாடத்திட்ட வல்லுநர்
தமிழ்ப் பல்கலைக்கழகம்,
தஞ்சாவூர் |
| 03. முனைவர் இரா. கருணாநிதி | பாடத்திட்டவல்லுநர்
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 மே.க. வசந்தி	உறுப்பினர்
14. முனைவர் இரா. வனிதா	உறுப்பினர்
15. முனைவர் வி. சத்யவதி	உறுப்பினர்
16. முனைவர் க. ராதிகா	உறுப்பினர்
17. முனைவர் மு. அனு	உறுப்பினர்
18. முனைவர் ப. சசிரேகா	உறுப்பினர்
19. முனைவர் மா. ஆசியாதாரா	உறுப்பினர்
20. முனைவர் ச. தீபா	உறுப்பினர்
21. முனைவர் க. அகல்யா	உறுப்பினர்
22. முனைவர் இர. கீர்த்தனா	உறுப்பினர்
23. திருமதி. செ. புனிதா	உறுப்பினர்
24. திருமதி. கா. சுகன்யா	உறுப்பினர்
25. திருமதி. பெ. அபிராமி	உறுப்பினர்
26. முனைவர் தெ. அகிலா	உறுப்பினர்
27. செல்வி. ஜெ. தேவிதா	உறுப்பினர்

முனைவர் பா.கவிதா, உறுப்பினர், உதவிப் பேராசிரியர், தமிழாய்வுத்துறை, காவேரி மகளிர் கல்லூரி (தன்னாட்சி), திருச்சி – 18, அவர்களுக்கு ஐந்தாம் பருவப் பாடத்திட்டக் குழுக் கூட்டத்திலிருந்து விலக்கு அளிக்கப்பட்டுள்ளது.

பாடத்திட்டக்குழுக் கூட்டத்தின் நிகழ்ச்சிநிரல் :

பகுதி எண் : 1

தமிழாய்வுத்துறையின் இளங்கலைத் தமிழிலக்கியத்திற்கான ஐந்தாம் பருவத்திற்கான பாட வரையறை மற்றும் பாடத்திட்டத்தை ஆலோசித்து அங்கீகாரமளித்துத் திருச்சிராப்பள்ளி காவேரி மகளிர் கல்லூரி கல்விக்குழுவுக்குப் பரிந்துரை செய்தல்.

பகுதி எண் : 2

மாணவர்களின் வளர்ச்சிக்கான செயல்திட்டங்கள் குறித்த ஆலோசனை வழங்குதல்.

பகுதி எண் : 3

பாடத்திட்டம் உருவாக்கிய குழுவினரைப் பாராட்டுதல்.

பகுதி எண் : 4

பாடத்திட்டக்குழுவின் அனுமதியின் பெயரில் பிற செயல்பாடுகள்.

முதலில், பாடத்திட்டக்குழுத் தலைவர் முனைவர் ச.இராமலட்சுமி, பேராசிரியர், தமிழாய்வுத்துறை, காவேரி மகளிர் கல்லூரி, திருச்சி- 18 அவர்கள் ஐந்தாம் பாடத்திட்டக்குழுக் கூட்டத்தில் பங்கேற்ற உறுப்பினர்களை இணையவழியில் அறிமுகம் செய்துவைத்தார். நிகழ்ச்சிநிரலில் உள்ளபடி இணையவழி கலந்துரையாடல் தொடங்கியது.

பகுதி எண் : 1

தமிழாய்வுத்துறையின் இளங்கலைத் தமிழிலக்கியத்திற்கான ஐந்தாம் பருவத்திற்கான பாட வரையறை மற்றும் பாடத்திட்டத்தை ஆலோசித்து அங்கீகாரமளித்துத் திருச்சிராப்பள்ளி காவேரி மகளிர் கல்லூரி கல்விக்குழுவுக்குப் பரிந்துரை செய்தல்.

பாடத்திட்டக்குழுவினர் இளங்கலைத் தமிழிலக்கியத்திற்கான ஐந்தாம் பருவத்திற்கான பாடத்திட்டத்தை ஆராய்ந்து ஆலோசித்தனர். பிறகு பாடத்திட்டங்களுக்கு அனுமதி வழங்கினர்.

கலந்துரையாடலின்போது கூறப்பட்ட ஆலோசனைகள்

- பாடநூல் வெளியீடு குறித்த தரவுகளைச் செப்பம் செய்யலாம்.
- 'மொழி வரலாறு' தாளில் அலகு 5 விரிவாக்கப்படலாம்.
- படைப்பிலக்கியத்தில் பார்வை நூல்களாகப் புதிய நூல்களை அறிமுகப்படுத்தலாம்.

பின்வரும் தீர்மானம் ஏற்கப்பட்டது :

“தமிழாய்வுத்துறையின் இளங்கலைத் தமிழிலக்கியத்திற்கான ஐந்தாம் பருவத்திற்கான பாட வரையறை மற்றும் பாடத்திட்டங்கள் ஆலோசிக்கப்பட்டு அனுமதி வழங்கத் தீர்மானிக்கப்படுகிறது.”

பாடத்திட்டக்குழுவினர் கூறிய ஆலோசனைகளைத் தேவைக்கேற்ப ஏற்றுக்கொள்ளலாம் எனப் பரிந்துரைத்தனர்.

பகுதி எண் : 2

மாணவர்களின் வளர்ச்சிக்கான செயல்திட்டங்கள் குறித்த ஆலோசனை வழங்குதல்.

- இயன்ற பாடங்களில் நேரடிக் களப் பயிற்சி வழங்கலாம்.

பின்வரும் தீர்மானம் ஏற்கப்பட்டது :

“மாணவர்கள் கல்வித்திறன் மேம்பாட்டிற்கான முயற்சிகள் மேற்கொள்ளப்படவேண்டும் எனத் தீர்மானிக்கப்படுகிறது.”

பாடத்திட்டக்குழுவினர் கூறிய ஆலோசனைகளைத் தேவைக்கேற்ப ஏற்றுக்கொள்ளலாம் எனப் பரிந்துரைத்தனர்.

பகுதிஎண் : 3

பாடத்திட்டம் உருவாக்கிய குழுவினரைப் பாராட்டுதல் :

- பாடத்திட்ட வல்லுநர்குழுத் தலைவர், ஐந்தாம் பருவத்திற்கான பாடத்திட்டங்களை உருவாக்க உறுப்பினர்கள் மேற்கொண்ட முயற்சிகளை விளக்கினார்.
- ஐந்தாம் பருவத்திற்கான பாடப்பிரிவு நோக்கம், பாடத்திட்டப் பயன்கள், பாடநோக்கம் ஆகியவற்றின் உருவாக்கம் குறித்துச் சிறப்பாகப் பாராட்டப்பட்டது.

பின்வரும் தீர்மானம் ஏற்கப்பட்டது:

"ஐந்தாம் பருவத்திற்கான பாடத்திட்டம் உருவாக்கிய உறுப்பினர்களுக்குப் பாராட்டு தெரிவிக்கத் தீர்மானிக்கப்பட்டது."

பகுதி எண் : 4

பாடத்திட்டக்குழுவின் அனுமதியின்பேரில் பிற செயல்பாடுகள்

கூட்டத்தில் கூறப்பட்ட ஆலோசனைகள் :

- இணையவழியில் மாணவியருக்குச் சான்றிதழ் வகுப்புகள் தொடங்கலாம்.

பாடத்திட்டக் குழுவின் கூறிய ஆலோசனைகளைத் தேவைக்கேற்ப ஏற்றுக்கொள்ளலாம் எனப் பரிந்துரைத்தனர்.

பாடத்திட்ட வல்லுநர்குழுத் தலைவர் நன்றியுடன் ஐந்தாம் பருவத்திற்கான இணையவழி பாடத்திட்டக் குழுக்கூட்டம் நிறைவுபெற்றது.

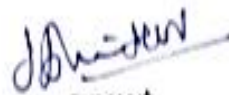




Dr. R. KARUNANITHI
Associate Professor of Tamil
Thiru. Kolidaipet Govt. Arts College
Viduthalaipatti - 620 018


முனைவர். கி. கௌரிநாராயணி
உதவிப் பேராசிரியர்,
தமிழாய்வதற்குறை,
புனித சிலுவை தன்னாட்சிக் கல்லூரி,
திருச்சி - 2.





தலைவர்

பாடத்திட்டக்குழுக்கூட்டம்

மே.முனைவர் ச.இராமலட்சுமி
தலைவர், தமிழாய்வதற்குறை
சுமேரி டிபார்ட்மென்ட் முனைவர்,
திருச்சி - 620 018

இளங்கலைத் தமிழிலக்கியம் முன்றாமாண்டு
ஐந்தாம் பருவம்

காவேரி மகளிர் கல்லூரி (தன்னாட்சி), திருச்சி - 18
CBCS பாடத்திட்டம்
(2020 - 2021 ஆம் கல்வியாண்டு முதல் சேர்க்கை பெறும் மாணவியருக்கு)
தமிழாய்வுத்துறை - இளங்கலைத் தமிழிலக்கியம்

Sem	Part	Course	Title	Course Code	Ins. Hrs / Week	Credit	Exam	Marks		Total
							Hours	Internal	External	
I	I	Language Course – I (LC)	பகுதி I தமிழ்	19ULT1	6	3	3	25	75	100
			Hindi	19ULH1						
			French	19ULF1						
			Sanskrit	19ULS1						
	II	Language Course – I (ELC)	English	19UE1	6	3	3	25	75	100
	III	Core Course – I (CC)	நன்னூல் - எழுத்ததிகாரம் (காண்டிகையுரை)	19UTA1CC1	6	5	3	25	75	100
				19UTA1CC2	6	5	3	25	75	100
Allied Course – I (AC)		தமிழ் இலக்கிய வரலாறு	19UTA1AC1	4	3	3	25	75	100	
IV	UGC Jeevan Kaushal Life Skills	Universal Human Values (உலகளாவிய மனித மதிப்புகள்)	20UGVE	2	2	3	25	75	100	
TOTAL					30	21				600
II	I	Language Course – II (LC)	பகுதி I தமிழ்	19ULT2	6	3	3	25	75	100
			Hindi	19ULH2						
			French	19ULF2						
			Sanskrit	19ULS2						
	II	Language Course – II (ELC)	English	19UE2	6	3	3	25	75	100
	III	Core Course – III (CC)	நன்னூல் - சொல்லதிகாரம் (காண்டிகையுரை)	19UTA2CC3	6	5	3	25	75	100
				19UTA2CC4	6	5	3	25	75	100
Allied Course – II (AC)		தமிழக வரலாறும் பண்பாடும்	19UTA2AC2	4	3	3	25	75	100	
IV	Environmental Studies	சுற்றுச்சூழல் கல்வி	19UGES	2	2	3	25	75	100	
TOTAL					30	21				600
III	I	Language Course – III (LC)	பகுதி I தமிழ்	19ULT3	6	3	3	25	75	100
			Hindi	19ULH3						
			French	19ULF3						
			Sanskrit	19ULS3						
	II	Language Course – III (ELC)	English	19UE3	6	3	3	25	75	100
	III	Core Course – V (CC)	யாப்பருங்கலக்காரிகை (ஒழிபியல் நீங்கலாக)	19UTA3CC5	6	5	3	25	75	100
				19UTA3CC6	6	5	3	25	75	100
Allied Course – III (AC)		இதழியல்	19UTA3AC3	4	3	3	25	75	100	
IV	Non Major Elective I – for those who studied Tamil under Part I a) Basic Tamil for other language studies b) Special Tamil for those who studied Tamil upto 10 th +2 but opt for other languages in degree programme	தமிழின் செம்மொழிப்பண்புகள்	19UTA3NME1	2	2	3	25	75	100	
			Basic Tamil							19ULC3BT1
		Special Tamil	19ULC3ST1							
TOTAL					30	21				600

S. No.	Course	Title	Course Code	Ins. Hrs / Week	Credit	Exam Hours	Marks		Total
							Internal	External	
II	Language Course - IV (LC)	பகுதி I தமிழ்	19ULT4	6	3	3	25	75	100
		Hindi	19ULH4						
		French	19ULF4						
		Sanskrit	19ULS4						
III	Language Course - IV (ELC)	English	19UE4	6	3	3	25	75	100
IV	Care Course - VII (CC)	நம்பியகப்பொருள்	19UTA4CC7	5	5	3	25	75	100
	Care Course - VIII (CC)	காப்பியங்கள்	19UTA4CC8	5	5	3	25	75	100
	Allied Course - IV (AC)	இலக்கியத் திறனாய்வு	19UTA4AC4	4	3	3	25	75	100
V	Non-Major Elective II - for those who studied Tamil under Part I a) Basic Tamil for other language studies b) Special Tamil for those who studied Tamil upto 10 th +2 but opt for other languages in degree programme	தமிழரின் வழிபாடுகளும் விழாக்களும்	19UTA4NME2	2	2	3	25	75	100
		Basic Tamil	19ULC4BT2						
		Special Tamil	19ULC4ST2						
	Skill Based Elective I	I. அ) பயன்முறைத் தமிழ் I I. ஆ) இதழியலும் மக்கள் ஊடகமும்	19UTA4SBE1A 19UTA4SBE1B	2	2	3	25	75	100
TOTAL				30	23				700
VI	Care Course - IX (CC)	புறப்பொருள் வெண்பாமாலை	19UTA5CC9	5	5	3	25	75	100
	Care Course - X (CC)	அற இலக்கியம்	19UTA5CC10	5	5	3	25	75	100
	Care Course - XI (CC)	மொழி வரலாறு	19UTA5CC11	5	5	3	25	75	100
	Care Course - XII (CC)	நாட்டுப்புறவியல்	19UTA5CC12	5	5	3	25	75	100
	Major Based Elective - I	I. அ) படைப்பிலக்கியம் (or) I. ஆ) கல்வெட்டியல்	19UTA5MBE1A 19UTA5MBE1B	4	3	3	25	75	100
VII	Skill Based Elective - II	II. அ) பயன்முறைத் தமிழ் II (or) II. ஆ) செய்தி சேகரித்தலும், செப்பனிடுதலும்	19UTA5SBE2A 19UTA5SBE2AB	2	2	3	25	75	100
	Skill Based Elective - III	III. அ) பேச்சுக்கலை (or) III. ஆ) மக்கள் தொடர்பியல்	19UTA5SBE3A 19UTA5SBE3B	2	2	3	25	75	100
	UGC Jeevan Kushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100
TOTAL				30	29				800
VIII	Care Course - XIII (CC)	தண்டியலங்காரம்	19UTA6CC13	6	5	3	25	75	100
	Care Course - XIV (CC)	சங்க இலக்கியம் - 1	19UTA6CC14	6	5	3	25	75	100
	Care Course - XV (CC)	சங்க இலக்கியம் - 2	19UTA6CC15	6	5	3	25	75	100
	Major Based Elective II	II. அ) நாடகவியல் (or) II. ஆ) கோயில் கலைகள்	19UTA6MBE2A 19UTA6MBE2B	5	4	3	25	75	100
	Major Based Elective III	III. அ) கற்றுலாவியல் (or) III. ஆ) வாழ்க்கை வரலாற்று இலக்கியம் (உ.வே.சா)	19UTA6MBE3A 19UTA6MBE3B	6	4	3	25	75	100
IX	Gender Studies	Gender Studies	19UGGS	1	1	3	25	-	100
	Extension Activity	Extension Activity	19UGEA	-	1	-	-	-	-
TOTAL				30	25				600
OVER ALL TOTAL				180	140	-			3900

Dr. R. KARUNANITHI
Associate Professor of Tamil
Thiru Kolanjiapper Govt. Arts College
Vridhachalam - 606 001.

முனைவர். அ. ஜெஸிந்தாராணி
உதவிப் பேராசிரியர்,
தமிழாய்வுத்துறை,
புனித சிலுவை தன்னாட்சி கல்லூரி,
திருச்சி - 2.

பேராசிரியர் ச. இராஜமல்லம்
தலைவர், தமிழாய்வுத்துறை
காவேரி கன்னி கல்லூரி (தன்னாட்சி)
திருச்சி - 620 018
CAUVERI FOR WOMEN
(AUTONOMOUS)
ANNAMALAI NAGAR
TIRUCHIRAPPALLI - 620 018

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
	புறப்பொருள் வெண்பாமாலை	III	71	4	-	5

நோக்கம்

1. தமிழரின் புறப்பொருள் இலக்கணம் கற்பித்தல்
2. தமிழரது போர்நெறிகளைப் பயிற்றுவித்தல்
3. தொல்காப்பியப் புறத்திணைகளில் நிகழ்ந்த மாற்றங்களை அறிவுறுத்தல்

COURSE OUTCOMES

இப்பாடத்திணைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	தமிழரின் புறவாழ்வு நெறிகளைக் கண்டறிதல்	K1
CO2	புறநூல்களில் உள்ள புறத்திணைக் கூறுகளை விளக்குதல்	K2
CO3	புறத்திணைப் படலங்களைப் பகுத்தாய்தல்	K3
CO4	தமிழ்ப் புறமரபினை ஆராய்ந்தறிதல்	K4

MAPPING WITH PROGRAMME OUTCOMES

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

S – Strong ; M – Medium; L - Low

பாடத்திட்டம்

அலகு 1 : (15மணி)

வெட்சிப் படலம், கரந்தைப் படலம்

அலகு 2 : (15மணி)

வஞ்சிப் படலம், காஞ்சிப் படலம், நொச்சிப் படலம்

அலகு 3 : (15மணி)

உழிஞைப் படலம், தும்பைப் படலம்

அலகு 4 : (15மணி)

வாகைப்படலம்

அலகு 5 : (15மணி)

பாடாண் படலம்

பாட நூல்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	பொ.வே. சோமசுந்தரனார் (உ.ஆ.)	புறப்பொருள் வெண்பாமாலை	கழக வெளியீடு, சென்னை - 18	1975

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	சோ.ந. கந்தசாமி	புறத்திணை வாழ்வியல்	தமிழ்ப்பல்கலைக்கழகம், சென்னை - 5	1994

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
	அற இலக்கியம்	III	71	4	-	5

நோக்கம்

1. தமிழ் அறஇலக்கியங்களைக் கற்பித்தல்
2. அற இலக்கியங்களின் தனித்தன்மையை அறிவுறுத்தல்
3. சமூக அரசியல் பொருளாதாரப் பின்னணியை உணர்த்துதல்
4. மனித வாழ்க்கை எவ்வாறு இருக்க வேண்டும் என்பதை உணர்த்துதல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	தமிழரின் அற உணர்வினைக் கண்டறிதல்	K1
CO2	தமிழரின் வாழ்வியலை எடுத்துக்காட்டுகளுடன் விளக்குதல்	K2
CO3	ஒவ்வொரு காலகட்ட அறச் சிந்தனைகளையும் கணித்தல்	K3
CO4	அற இலக்கியங்கள் தோன்றிய சமூக, அரசியல், பொருளாதாரச் சூழலை ஆராய்ந்தறிதல்	K4
CO5	அற இலக்கியங்களின் அமைப்பினை ஒப்பிட்டறிதல்	K4

MAPPING WITH PROGRAMME OUTCOMES

COs	PO1	PO2	PO3	PO4
CO1	S	M	S	S
CO2	S	M	S	S
CO3	S	M	S	S
CO4	S	S	S	S
CO5	S	S	S	S

S – Strong ; M – Medium; L - Low

பாடத்திட்டம்

அலகு 1 : (15 மணி)

திருக்குறள் - அறத்துப்பால் - இல்லறவியல் முழுவதும் (20 அதிகாரங்கள்)

அலகு 2 : (15 மணி)

நாலடியார் - செல்வம் நிலையாமை, இளமை நிலையாமை,மேன்மக்கள், அறன் வலியுறுத்தல் (40 பாடல்கள்)

அலகு 3 : (15 மணி)

நான்மணிக்கடிகை - 91முதல் 104 வரை உள்ள பாடல்கள்

‘வன்கண்பெருக்கின்’ எனத் தொடங்கும் பாடல் முதல் 14 பாடல்கள்
திரிகடுகம் - முதல் 20 பாடல்கள்

அலகு4 : (15 மணி)

பழமொழி நானூறு - முதல் 20 பாடல்கள்

ஆசாரக்கோவை - முதல் 20 பாடல்கள்

அலகு 5 : (15 மணி)

முதுரை முழுவதும்

பாட நூல்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	எஸ். கௌமாரீஸ்வரி (ப.ஆ.)	புதினெண் கீழ்க்கணக்கு நூல்கள் மூலமும் உரையும்	சாரதா பதிப்பகம், சென்னை	2009

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	ந.மு.வேங்கடசாமி நாட்டார்	ஓளவையார் அருளிய முதுரை	கழக வெளியீடு, சென்னை	1987
2	கதிர் முருகு (ப. ஆ.)	பிற்கால நீதி இலக்கிய வரலாறு	நாம் தமிழர் பதிப்பகம், சென்னை	2010
3	பரிமேலழகர் (உ.ஆ.)	திருக்குறள்	சாரதா பதிப்பகம், சென்னை - 14	

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
	மொழி வரலாறு	III	71	4	-	5

நோக்கம்

1. மொழியின் பண்பாட்டையும், அதன் சிறப்பினையும் மாணவர்களுக்கு அறியச் செய்தல்.
2. மொழியின் அடிப்படையினை அறியச் செய்தல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	பேச்சுமொழி, எழுத்து மொழியின் இலக்கணத்தை வரையறுத்தறிதல்	K1
CO2	மொழியின் வளர்ச்சி நிலைகளை எடுத்துச்சொல்லுதல்	K2
CO3	மொழியினங்களை வகைப்படுத்துதல்	K3
CO4	திராவிட மொழியினக் கூறுகளை ஆராய்ந்தறிதல்	K4

MAPPING WITH PROGRAMME OUTCOMES

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

S – Strong ; M – Mediam; L - Low

பாடத்திட்டம்

அலகு 1 : (20 மணி)

அரியகலை – பேச்சு மொழியும் எழுத்து மொழியும் - உணர்ச்சி, அறிவு, செயல், மொழியின் பண்பாடு - போலச் செய்தல் - ஒப்புமை ஆக்கம் - வழக்கம், இலக்கணம் - ஒரு பொருட் கிளவி

அலகு 2 : (15 மணி)

கடன் வாங்கல் - மருஉ - ஒலித்திரிபு - இலக்கிய மொழியின் செல்வாக்கு – கிளைமொழி - பொதுமொழி – சிறப்புமொழி - குறுமொழி, -குழந்தை மொழி

அலகு 3 : (20 மணி)

மொழியின் தோற்றம் - பண்பட்ட நிலை ஆராய்ச்சி முயற்சிகள் - மூளை வளர்ச்சி - குகையும் அரண்மனையும் - அடிச்சொற்கள் - சைகை மொழி - நாகரிகம் வளராதவர் மொழி - குரல் ஒலி - போலி மொழி - பண்மொழி - தொழில் ஒலி - இன்பப் பாட்டு

அலகு 4 : (10 மணி)

மொழி நிலைகள் - மொழியினங்கள் - ஆரிய மொழியினம்

அலகு 5 : (10 மணி)

திராவிட மொழியினம் - தமிழ் எழுத்து - எண்கள்

பாட நூல்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	மு. வரதராசன்	மொழி வரலாறு	கழக வெளியீடு, சென்னை - 1	1954

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	டாக்டர் ரா. சீனிவாசன்	மொழியியல்	முல்லை நிலையம், சென்னை - 17	2009
2	தெ.பொ.மீ	தமிழ் வரலாறு	ஸிக்மா பிரிண்ட்ஸ், சென்னை - 14	2005

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
	நாட்டுப்புறவியல்	III	56	4	-	3

நோக்கம்

1. நாட்டுப்புற மக்களின் வாழ்க்கை முறைகள் , பண்பாட்டினை உணர்த்துதல்
2. தமிழரின் நாட்டுப்புறப் பாரம்பரியத்தை அறிமுகப்படுத்துதல்
3. இலக்கியத்தின் சிறப்பையும் , பயன்களையும் பெறுதல்
4. நாட்டுப்புறக் கலைகள் மற்றும் மருத்துவம் அறிதல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	நாட்டுப்புற மக்களின் வாழ்வியலை ஆராய்ந்தறிதல்	K4
CO2	நாட்டுப்புற இலக்கியங்களின் அமைப்பு குறித்த வரலாற்றினைக் கண்டறிதல்	K1
CO3	நாட்டுப்புற மக்களின் பிறப்பு முதல் இறப்பு வரையிலான சடங்குகளை வகைப்படுத்துதல்	K3
CO4	நாட்டுப்புறக் கலைகளை விளக்குதல்	K2
CO5	நாட்டுப்புறவியல் ஆய்வுகள் குறித்து திறனாய்ந்து புத்திலக்கியம் படைக்கும் திறன் பெறுதல்	K4

MAPPING WITH PROGRAMME OUTCOMES

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

S – Strong ; M – Medium; L - Low

பாடத்திட்டம்

அலகு 1 : (15 மணி)

நாட்டுப்புறவியல் - சொல் விளக்கங்கள் - நாட்டுப்புறவியல் அறிஞர்கள் - நாட்டுப்புறவியல் வரலாறு - இந்திய நாட்டுப்புறவியல் வரலாறு - தமிழக நாட்டுப்புறவியல் வரலாறு - நாட்டுப்புறவியல் வளர்ச்சியும் , திறனாய்வும்

அலகு 2 : (15 மணி)

பழந்தமிழிலக்கியங்களில் நாட்டுப்புற வழக்காறுகளின் செல்வாக்கு - சங்க இலக்கியங்கள் - பக்தி இலக்கியங்கள் - நீதி இலக்கியங்கள் - சமூக முக்கியத்துவம் - இலக்கியச் சிறப்புகள்

அலகு 3 : (10 மணி)

நாட்டுப்புற இலக்கிய வகைகள் - கதைகள் - பாடல்கள் - விடுகதைகள் - பழமொழிகள் - புதிர்கள் - நாட்டுப்புறக் கலைகள் - நாட்டுப்புற மருத்துவம் - அறிவியல்

அலகு 4 : (10 மணி)

நாட்டுப்புற நம்பிக்கைகள் - பிறப்பு முதல் இறப்பு வரையிலான சடங்குகள் - பழக்கவழக்கங்கள் - நேர்த்திக் கடன்கள் - கூத்துக்கள் - விளையாட்டுக்கள்

அலகு 5 : (10 மணி)

நாட்டுப்புறத் தெய்வங்கள் - வழிபாடு - பண்டிகைகள் - விழாக்கள் - நாட்டுப்புறவியல் ஆய்வுகள் - சேகரிப்புப் பணிகள் - வளர்ச்சி நிலை - கோட்பாடுகள்

பாட நூல்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	டாக்டர் சு. சக்திவேல்	நாட்டுப்புற இயல் ஆய்வு	மாணிக்கவாசகர் பதிப்பகம், சென்னை	2006

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	ஆறு. இராமநாதன்	நாட்டுப்புறக் கதைக்களஞ்சியம் (தொகுதிகள்)	மாணிக்கவாசகர் பதிப்பகம், சிதம்பரம்	1987
2	ஏ.என்.பெருமாள்	நாட்டுப்புறக்கலைகள்	உலகத் தமிழாராய்ச்சி நிறுவனம் வெளியீடு, சென்னை	1987
3	அரு. மருததுரை	நாட்டுப்புற வாழ்வியல்	அருணா வெளியீடு, முசிறி	1995
4	ஆறு. அழகப்பன்	நாட்டுப்புறவியல் ஆய்வு முறைகள்	தமிழ்ப்பல்கலைக்கழகம்	1991
5	சு. சண்முகசுந்தரம்	நாட்டுப்புற இலக்கியத்தின் செல்வாக்கு	இலக்கிய மாணவர் வெளியீடு, சென்னை	1976

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
	படைப்பிலக்கியம்	III	71	4	-	5

நோக்கம்

1. படைப்பாற்றலை ஊக்குவித்தல்.
2. கவிதை, நாடகம், உரைநடை, சிறுகதை ஆகியவற்றின் தனித்தன்மைகளைக் கற்றுத்தருதல்.
3. படைப்பிலக்கியத்தின் பல்வேறு கூறுகளைக் கற்பித்தல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	படைப்பிலக்கிய வகைகளைக் கண்டறிதல்	K1
CO2	கவிதை, சிறுகதை, நாடகம் போன்ற படைப்புகளை உருவாக்கும் முறையை விவரித்தல்	K2
CO3	நிகழ்ச்சிநிரல் தயாரித்து, தொகுத்து வழங்கும் திறனை உருவாக்குதல்	K3
CO4	வானொலி, தொலைக்காட்சி நிகழ்ச்சிகளுக்கான நேர்முக வர்ணனைகளை வகைப்படுத்துதல்	K3
CO5	படைப்புகள் உருவாகும் முறையை ஆராய்ந்தறிதல்	K4

MAPPING WITH PROGRAMME OUTCOMES

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

S – Strong ; M – Medium; L - Low

பாடத்திட்டம்

அலகு 1 : (15 மணி)

கவிதை - அறிமுகம் - அமைப்பு - பொருண்மை - மரபுக்கவிதை - வடிவங்கள் - புதுக்கவிதை எழுதப் பயிற்றுவித்தல்.

அலகு 2 : (15 மணி)

சிறுகதை - இலக்கணம் - அமைப்பு - தமிழின் சிறந்த சிறுகதைகள் - சிறுகதை எழுதப் பயிற்றுவித்தல்.

அலகு 3 : (15 மணி)

நாடகம் - இலக்கணம் - வகைகள் - ஓரங்க நாடகம் - நாடகம் எழுதப் பயிற்றுவித்தல்.

அலகு 4 : (15 மணி)

கட்டுரை - கட்டுரை வகைகள் - திறனாய்வக் கட்டுரை - நூல் மதிப்பீடு - இதழ்க் கட்டுரை எழுதப் பயிற்றுவித்தல்.

அலகு 5 : (15 மணி)

நிகழ்ச்சித் தொகுப்பு - ஊடகங்களுக்கான நேர்முக வருணனை - செய்தித்தாள்களுக்கு அறிக்கை அளிக்கப் பயிற்றுவித்தல்.

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	மு. வரதராசன்	இலக்கியத் திறன்	பாரி நிலையம், சென்னை	2015
2	மா. இராமலிங்கம்	புதிய உரைநடை	தமிழ் புத்தகாலயம், சென்னை	1978
3	கி.வா. ஜகன்நாதன்	கவி பாடலாம்	அமுத நிலையம், சென்னை.	2010
4	இ. சுந்தரமூர்த்தி	நடையியல் சிந்தனை	நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை	1994
5	ஜெயமோகன்	எழுதும் கலை	தமிழினி பதிப்பகம், சென்னை	2009
6	மு.சுதந்திரமுத்து	படைப்புக்கலை	அறிவுப் பதிப்பகம், சென்னை	2008
7	எஸ். ராமகிருஷ்ணன்	கதாவிலாசம்	விகடன் பிரசுரம், சென்னை	2017

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
	கல்வெட்டியல்	III	71	4	-	5

நோக்கம்

- 1.கல்வெட்டுகள் வழி பழந்தமிழர் வரலாற்றையும் பண்பாட்டையும் கற்பித்தல்
- 2.தமிழ் மொழியின் தொன்மையை சான்றுகளுடன் பயிற்றுவித்தல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	தமிழ்மொழியின் தொன்மையை கண்டறிதல்	K1
CO2	தமிழர்வரலாற்றை விளக்குதல்	K2
CO3	கல்வெட்டுகளின் வழி தமிழரின் பெருமையை கணித்தல்	K3
CO4	கல்வெட்டுகள் வழி தமிழ்பண்பாட்டின் செழுமையை ஆராய்ந்தறிதல்	K4

MAPPING WITH PROGRAMME OUTCOMES

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

S – Strong ; M – Medium; L - Low

பாடத்திட்டம்

அலகு – 1 (15மணி)

பண்டைக் குறியீடுகளும் எழுத்துகளும் - பூலாக்குறிச்சி கல்வெட்டு எழுத்துக்கள்- தமிழ்நாட்டு எழுத்து முறைகளின் வளர்ச்சி - தமிழ்க் கல்வெட்டுக் கண்டுபிடிப்புகள்.

அலகு –2 (15மணி)

கல்வெட்டுகளும் இலக்கியமும் - தமிழ்க் கல்வெட்டுகளும் வரலாறும் - செப்பேடுகள் - பதிப்பித்தலில் அணுகுமுறை - மெய்க்கீர்த்தி - ஓலையும் கல்வெட்டும்.

அலகு –3 (15மணி)

சோழர் காலத்திய ஆவணப் பதிவு முறைகள் - சில அரிய சொற்கள் - ஆள் பெயர்கள் காட்டும் சமுதாயம் - மாராயமும் மாராயனும் - வைத்திய குலம்.

அலகு –4 (15மணி)

கல்வெட்டில் இந்து - முஸ்லீம் சமய ஒருமைப்பாடு - சேலம் மாவட்டக் கல்வெட்டுகள் - விடுகாதழகிய பெருமாள் - எழுத்துப் பொறிப்புப்பெற்ற தீர்த்தங்கரர் திருமேனி - அழுந்தாரும் அழுந்தியூரும்.

அலகு – 5 (15மணி)

தொண்டியில் ஒரு புதிய கல்வெட்டு - வரலாற்று நோக்கில் நாகப்பட்டினம் - தஞ்சை மார்ட்டியர் கல்வெட்டுகளும் செப்பேடுகளும் - ஓலை ஆவணங்களும் முத்திரை ஓலைகளும்.

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	முனைவர் எ.சுப்பராயலு முனைவர் செ. இராச (ப.ஆ)	தமிழ்க் கல்வெட்டியலும் வரலாறும்	தமிழ்ப் பல்கலைக்கழகம் வெளியீடு, தஞ்சாவூர்.	
2	நடன காசிநாதன்	கல்வெட்டு ஓர் அறிமுகம்		
3	க.நெடுஞ்செழியன்	மெய்க்கீர்த்திகள்	மனிதப் பதிப்பகம்	

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
	பயன்முறைத்தமிழ் - II	IV	28	2	-	2

நோக்கம்

1. பொதுக்கட்டுரை, கடிதம், விமர்சனம் எழுதக் கற்றுத் தருதல்
2. அணிந்துரை, நிகழ்ச்சிநிரல் எழுதப் பயிற்றுவித்தல்
3. அழைப்பிதழ், செய்தித்தாள் அறிக்கை வடிவமைக்கக் கற்றுத் தருதல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
ஊழு1	மொழி, உரைநடையில் உள்ள பிழைகளைக் கண்டறிதல்	மு1
ஊழு2	இலக்கணம், பத்திகள், கட்டுரை ஆகியனவற்றைப் பிழையின்றி எழுத விளக்குதல்	மு2
ஊழு3	நூல், திரைப்பட விமர்சனம், அணிந்துரை எழுதத் தயார்செய்தல்	மு3
ஊழு4	கடிதம் - உறவுமுறைக் கடிதம் மற்றும் அலுவலகக்கடிதம் எழுதப் பயிற்றுவித்தல்	மு4

MAPPING WITH PROGRAMME OUTCOMES

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

S – Strong ; M – Medium; L - Low

பாடத்திட்டம்

அலகு 1 : (6 மணி)

மொழி நடை – உரைநடையில் கவனிக்க வேண்டுவன – பத்தியிலிருந்து வினா விடை எழுதுதல்

அலகு 2 : (6 மணி)

கட்டுரை எழுதுதல் - பத்தி எழுதுதல் - இலக்கணப் பிழையின்றி எழுதுதல்

அலகு 3 : (6 மணி)

நூல், திரைப்படம் - விமர்சனம் எழுதுதல் - அணிந்துரை எழுதுதல்

அலகு 4 : (6 மணி)

உறவுமுறைக் கடிதம் - அலுவலகக் கடிதம் - நேர்காணல் எழுதுதல்

அலகு 5 : (6 மணி)

அழைப்பிதழ் - நிகழ்ச்சிநிரல் எழுதுதல் - நிகழ்ச்சி வருணனை - செய்தித்தாள் அறிக்கை தயாரித்தல்

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	அ.கி. பரந்தாமனார்	நல்ல தமிழ் எழுது வேண்டுமா	பாரி ஆப்செட் பிரிண்டர்ஸ், சென்னை	1991
2	மா. இராமலிங்கம்	புதிய உரைநடை	தமிழ்ப் புத்தகாலயம், திருவல்லிக்கேணி	1981
3	எம்.ஏ.நு.மான்	அடிப்படைத் தமிழ் இலக்கணம்	கருப்பூர் சாலை, புத்தாந்தம், திருச்சி	2007

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
	செய்தி சேகரித்தலும் செப்பனிடுதலும்	IV	28	2	-	2

நோக்கம்

1. ஊடகங்களின் தேவையை உணர்த்துதல்.
2. ஊடகங்களைப் பயன்படுத்த பயிற்றுவித்தல்.

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	செய்தி சேகரித்தலின் முக்கியத்துவத்தினைக் கண்டறிதல்	K1
CO2	செய்தி சேகரித்தலில் செய்தியாளர்களின் பங்களிப்பு குறித்து விவரித்தல்	K2
CO3	செய்தி சேகரித்தலின் வகைகளை ஆராய்ந்து அறிதல்	K3
CO4	சமூக வளர்ச்சிக்குத் தகவல் தொடர்பு சாதனங்களின் பங்களிப்பினை இணைத்தறிதல்	K4

MAPPING WITH PROGRAMME OUTCOMES

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

S – Strong ; M – Medium; L - Low

பாடத்திட்டம்

அலகு -1(செய்திசேகரித்தல் கொள்கைகளும் கோட்பாடுகளும்) (6மணி)

செய்தி சேகரித்தலின் கோட்பாடுகள், செயல்பாடுகள், பொறுப்புகள் - செய்தி எழுதுதல் - தரவுகள்- தரவின் வகைகள் - செய்தி உள்ளடக்கம் - திருத்தி எழுதுதலின் நுட்பங்கள், செய்திநிறுவனங்கள் உரிமை பெறல்.

அலகு -2(செய்திசேகரித்தல் உத்திகள்)(6மணி)

செய்திசேகரித்தல் உத்திகள் - செய்தியாளரின் தகுதிகள் - செய்திக் கூறுகள் - ஆதாரங்கள் - வகைகள் - சிக்கல்கள் - சேகரிப்பு - பின்பற்றுதல்.

அலகு -3(செய்திசேகரித்தல் வகைகள்) (6மணி)

குற்றம் - நீதிமன்றம் - சுகாதாரம் - சிவில் நிர்வாகம் - சமூகம் - பண்பாடு - அரசியல் - கல்வி

அலகு -4(செய்தி செப்பனிடுதல்) (6மணி)

செய்தி செப்பனிடுதல் இயல்பும் தேவையும் - கோட்பாடுகள் - தலையங்க மேசை - தலையங்க மேசை செயல்பாடுகள் - பத்திரிக்கை நகல் தயாரித்தலின் செயல் முறைகள் - தொகுத்தல் குறியீடுகள் - செய்தி திருத்துதலில் குறியீடுகளும் இன்றிமையாமையும்.

அலகு -5 (செப்பனிடுதல் செயல்பாடுகள்) (6மணி)

துணையாசிரியர் மற்றும் தலைமை துணையாசிரியரின் தகுதிகளும் - செயல்பாடுகளும் - நகலெடுத்தலும் - தெரிவுசெய்தலும்.

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	மா. பா. குருசாமி	இதழியல் கலை	குரு - தேமொழி பதிப்பகம், திருச்செந்தூர்	1988
2	முனைவர் கி. இராசா	மக்கள் தகவல் தொடர்பியல்	பாவணார் ஏடகம், சென்னை	2003

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
	பேச்சுக்கலை	IV	28	2	-	2

நோக்கம்

- மாணவர்களின் பேச்சாற்றலை ஊக்குவித்தல், பேசும் வழிமுறைகளை கற்பித்தல், பேச்சாளர்களை உருவாக்குதல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	தமிழரின் நாகரிக வளர்ச்சிக்கேற்ற மேடைப் பேச்சினை அறிதல்	K1
CO2	தமிழ்மொழியின் அமைப்பிற்கேற்ப உரையாற்றும் முறையைத் தயார் செய்தல்	K2
CO3	அவைக்கு தகுந்தவாறு மேடைப்பேச்சின் உத்திகளை இணைத்தல்	K3
CO4	ஊடகங்களுக்கு ஏற்றாற்போல் பேசும் கலையினை வடிவமைத்தல்	K4

MAPPING WITH PROGRAMME OUTCOMES

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

S – Strong ; M – Medium; L - Low

பாடத்திட்டம்

அலகு 1 : (6 மணி)

மேடைப்பேச்சு – அறிமுகம் - மேடைப்பேச்சு வரலாறும் வகைகளும் - மேடைத் தோற்றம் - மேடைப் பேச்சின் நடை

அலகு 2 : (6 மணி)

வானொலி, தொலைக்காட்சி, உரைகள் - அலுவலக மற்றும் தொழிலாளர்கள் பேசும்முறை – பட்டிமன்றம் - வழக்காடு மன்ற உரைகள் - வரவேற்புரை – தலைமையுரை – வாழ்த்துரை – நன்றியுரை

அலகு 3 : (6 மணி)

பேச்சைத் தொடங்கும்முறை – அவையினரின் ஆர்வத்தைத் தூண்டும் முறை – கவிதையுடன் தொடங்குதல் - கதைகள் கூறல் - நகைச்சுவை இணைத்தல் - சுவையாக முடித்தல்

அலகு 4 : (6 மணி)

பேசும் தலைப்பிற்கேற்ற குறிப்புகள் எடுத்தல் - சொற்பொழிவின் பண்புகள் - தெளிவு – எளிமை – புரியும்வகையில் மேற்கோள்களைச் சொல்லுதல்

அலகு 5 : (6 மணி)

பேசும் அவையின் குறித்து அறிந்து கொள்ளுதல் - சூழல் உணர்ந்து பேசுதல் - சரியான நேரத்தில் ஆரம்பித்து உரிய நேரத்தில் முடித்தல்

பாட நூல்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	முனைவர் ம. திருமலை	பேச்சுக்கலை	மீனாட்சி புத்தக நிலையம், மதுரை	2009

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	அறந்தை நாராயணன்	“மேடையில் பேசலாம் வாருங்கள்”	நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை	2011
2	குமரி ஆனந்தன்	“நீங்களும் பேச்சாளராகலாம்”	பூம்புகார் பிரசுரம், மதுரை	2010
3	கு. ஞானசம்பந்தன்	“பேசும் கலை”	நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை	2004

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

பாடக் குறியீடு	பாடம்	Category	L	T	P	Credit
	மக்கள் தொடர்பியல்	IV	28	2	-	2

நோக்கம்

1. தகவல் தொடர்பின் வளர்ச்சி நிலைகளை அறியச் செய்தல்
2. ஊடகத்தின் முக்கியத்துவத்தை உணர்த்துதல்
3. ஊடக வேலை வாய்ப்புகளைப் பெற மாணவர்களை தயார்படுத்துதல்

COURSE OUTCOMES

இப்பாடத்தினைப் பயில்வதால் மாணவியர் பெறும் திறன்கள்

CO No.	CO Statement	Knowledge Level
CO1	தகவல் தொடர்பின் முக்கியத்துவத்தினைக் கண்டறிதல்	K1
CO2	தகவல் பரிமாற்றத்திற்கு பயன்படும் தகவல் தொடர்பு சாதனங்களின் வரலாறு குறித்து விவரித்தல்	K2
CO3	தகவல் தொடர்பு சாதனங்களின் அமைப்பு மற்றும் அவை செயல்படும் விதத்தினை ஆராய்ந்தறிதல்	K3
CO4	சமூக வளர்ச்சிக்குத் தகவல் தொடர்பு சாதனங்களின் பங்களிப்பினை இணைத்தறிதல்	K4

MAPPING WITH PROGRAMME OUTCOMES

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

S – Strong ; M – Medium; L - Low

பாடத்திட்டம்

அலகு -1 (6மணி)

மக்கள் தொடர்பு - இயல்பு - நோக்கம் - வரையறைகள், வாய்ப்புகள் - வரலாறும். வளர்ச்சியும் - நிர்வாகவியல் கொள்கைகள் மற்றும் செயல்பாடுகள்.

அலகு -2 (6மணி)

மக்கள் தொடர்பியல் கொள்கைகள் - மக்கள் தொடர்பு - அலுவலர்களின் கடமைகள் - மக்கள் தொடர்புக்கு தேவையான முக்கியக் கூறுகள் - நிறுவனம் மற்றும் வணிகத்தில் மக்கள் தொடர்பு - மக்கள் தொடர்புக்கருவிகள், மக்கள் தொடர்புத் துறையின் செயல்பாடுகள்

அலகு -3 (6மணி)

மக்கள் தொடர்புப் பணியாளரின் பணிகள் - மருத்துவமும் மக்கள் தொடர்பும் - மக்கள் தொடர்பும் தொழிலாளர் நல்லுறவும் - வாடிக்கையாளர் உறவு - அரசுடனான உறவு - சமுதாய உறவு.

அலகு -4 (6மணி)

மக்கள் தொடர்பும் ஊடகமும் - பேச்சு, அச்சிடுதல் - வாய்மொழித் தொடர்பு, அச்சிட்ட மற்றும் வரைபடத் தொடர்பு - பின்னூட்டு.

அலகு -5 (6மணி)

மக்கள் தொடர்புக் கொள்கை - வரைமுறை - திட்டமிடுதல் - தொடர்புகொள்ளும் வழிமுறை - தீர்வுகளை மதிப்பிடுதல் - நிறுவன இதழ்கள்.

பார்வை நூல்கள்

வ.எ.	ஆசிரியர்	நூல்	பதிப்பகம்	ஆண்டு
1	மா. பா. குருசாமி	இதழியல் கலை	குரு - தேமொழி பதிப்பகம், திருச்செந்தூர்	1988
2	முனைவர் கி. இராசா	மக்கள் தகவல் தொடர்பியல்	பாவணார் ஏடகம், சென்னை	2003
3	அ.ஆலிஸ்	மக்கள் தகவல் தொடர்புக்கலை	மதுமதி வெளியீடு, திருச்சி	1995

கற்பித்தல் முறைகள்

கலந்தாய்வு, வினாடி வினா, திட்டக்கட்டுரை, கரும்பலகை, குழு விவாதம்

N. Sath
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

முனைவர் இரா. கா.மராசு
ஆசிரியர் மற்றும் தலைவர்
தாட்டுப்பூறவியல் துறை
சிழிப்பல்கலைக்கழகம்
கள்ளசாவர் - 613 010

Dr. R. KARUNANITHI
Associate Professor of Tamil
Thiru Kolanjapper Govt. Arts College
Vadachalam - 606 001.

முனைவர். அ. ஜெஸிந்தாராணி
உதவிப் பேராசிரியர்,
தமிழாய்வுத்துறை,
புனித சிலுவை தன்னாட்சிக் கல்லூரி,
திருச்சி - 2.



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
Nationally Accredited (III Cycle) with “A”Grade
(CGPA 3.41 out of 4) by NAAC Annamalainagar,
Trichy -18.

PG DEPARTMENT OF ENGLISH
AGENDA – FOURTH BOARD OF STUDIES MEETING – 04th JANUARY 2021

1. ITEM NO. BOS/04/01

To consider and approve the Curriculum and Syllabus of Core Courses, Major Based Elective & Skill Based Electives of Semester V for B.A English (2019-2020 batch and onwards) and forward to the Academic Council, Cauvery College for Women Autonomous, Trichy.

2. ITEM NO. BOS/04/02

Ratification to change the Assessment Criteria for Core Course XI – **English Literature for UGC Examination with Course Code 19PEN3CC11** in Semester III for M.A English (2019-2020 batch and onwards) and forward to the Academic Council, Cauvery College for Women Autonomous, Trichy.

3. ITEM NO. BOS/04/03

To include Online Course offered by SWAYAM as an extra credit course in Semester II in the Programme Structure of B.A & M.A English (2020-2021 batch and onwards) and forward to the Academic Council, Cauvery College for Women Autonomous, Trichy.

4. ITEM NO. BOS/04/04

To approve the Jeevan Kaushal – Professional Skills Course offered to all the undergraduate students of 2019-2020 batch and onwards and forward to the Academic Council, Cauvery College for Women (Autonomous), Trichy.

5. ITEM NO. BOS/04/05

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



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
Nationally Accredited (III Cycle) with "A" Grade
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Trichy -18.
PG DEPARTMENT OF ENGLISH

MINUTES OF THE MEETING - FOURTH BOARD OF STUDIES

DATE: 04th JANUARY 2021

MEDIUM: Google Meet

TIME: 10:00 AM

Members Present

- | | |
|-------------------------------|---|
| 1. Dr. P. Urmila | Chairperson, Associate Professor & PG Head |
| 2. Dr. S. Jayashree Agrawal | Chairperson, Assistant Professor & UG Head |
| 3. Dr. G. Baskaran | Subject Expert, Gandhigram Rural Institute |
| 4. Dr. B. Kathiresan | University Nominee, Thiruvalluvar University, Vellore |
| 5. Dr. P. Nagaraj | College Nominee Subject Expert, Bharathiar University, Coimbatore |
| 6. Mr. R. Pandi Ganesh | Industrial Representative, EIT Madurai |
| 7. Ms. R. Sruthi | Alumna, Guest Lecturer, N.K.R. Govt Arts College, Namakkal |
| 8. Ms. R. Uma Maheswari | Member |
| 9. Dr. Rita Shanthakumar | Member |
| 10. Dr. Prema Joshua | Member |
| 11. Ms. P. Helan Jona | Member |
| 12. Ms. G. Gayathri | Member |
| 13. Ms. Cecilia Merlin Wilton | Member |
| 14. Ms. A. Violet Pangaja Bai | Member |
| 15. Ms. K. Kanimozhi | Member |
| 16. Ms. J. Jenifer Nancy | Member |
| 17. Ms. C. Chitra | Member |
| 18. Ms. Nandita Ravinder | Member |

19. Ms. M. IrudhyaPushpam	Member
20. Ms. Diana Betty Garrett	Member
21. Ms. S. Ramalakshmi	Member
22. Ms. R. Shanthi	Member
23. Ms. P. K. Durgadevi	Member
24. Ms. J. Vani Priya	Member
25. Ms. T. Haseena Banu	Member
26. Ms. V. Sudhandra Devi	Member
27. Ms. A. Esther Rani	Member
28. Ms. A. Edel Flora Mary	Member
29. Ms. N. Yoga	Member
30. Ms. L. Samyuktha	Member
31. Ms. G. Vijayaranganayaki	Member
32. Ms. K. Anitha	Member
33. Ms. G. Bhavani Sushma	Member
34. Dr. A. Suganthi	Member
35. Dr. S. Senthil Kumari	Member
36. Ms. S. Srinidhi	Member
37. Dr. R. Vanitha	Member
38. Ms. Vanmathi Siva	Member
39. Ms. K. Jasima Nilofar	Member
40. Ms. T. Mothika	Member

The leave of absence was granted to:

1. Ms. U. SreeAruna	Member
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ACTION REPORT OF THIRD BOARD OF STUDIES HELD ON 28.05.2020

The Resolution No.BOS/03/02 with regard to the paper Introduction to Language and Linguistics, replacing of Unit V to Unit II was made.

The Resolution No. BOS/03/04 stating changes in the Programme Outcome 5 was executed.

The Resolution No. BOS/03/06 with regard to the Electives, the various suggestions mentioned were executed.

The Resolution No. BOS/03/03 regarding the Curriculum and Syllabus for M.A English the following changes were executed - The paper Diasporic Literature is renamed as Indian Diasporic Literature.Modification in the syllabus of New Literature is made.In the paper North East Indian Literature, NobelLaureate authors are included.

The Resolution No. BOS/03/05changes in the Programme structure were carried out.

FOURTHBOARD OF STUDIES

Minutes – UG

The following Resolutions were passed by the Board of Studies members

1. RESOLUTION NO.BOS/04/01

Considered and approved the Curriculum and Syllabus of Core Courses, Major Based Elective & Skill Based Electives of Semester V for B.A English (2019-2020 batch and onwards) so as to enable employability and provide scope for higher studies.

- ✓ The suggestions & remarks given with regard to the Course Outcomes of the papers such as Translation: Theory & Practice, Functional English, Academic Writing were noted and corrections were carried out.
- ✓ As per the suggestions of the BoS jury, the Skill Based Elective II - Functional English is reworked.

2. RESOLUTION NO.BOS/04/03

Included Online Course offered by SWAYAM as an extra credit course in Semester II in the Programme Structure of B.A English (2020-2021 batch and onwards)

3. RESOLUTION NO. BOS/04/04

Considered and approved the Jeevan Kaushal – Professional Skills Course offered to all the under graduate students of 2019-2020 batch and onwards students to help them with their professional career and development.

4. RESOLUTION NO.BOS/04/05

The Chairperson expressed appreciation to the members of the Board of Studies for their contribution in the ground plan of the syllabus and curriculum. Consequently, the UG Head, Department of English and Chairperson, Dr. S. Jayashree Agrawal had suggested the members to resolve and implement the suggestion to suffice the requirements of career development and for future educational prospects of the students.

NOTE : RESOLUTION NO. 2 pertain to PG and is implemented thence.

Minutes - PG

The following Resolutions were passed by the Board of Studies members

1. RESOLUTION NO.BOS/04/02

Ratified the change in the Assessment Criteria for Core Course XI – **English Literature for UGC Examination with Course Code 19PEN3CC11** in Semester III for M.A English (2019-2020 batch and onwards) and approved the Curriculum and Syllabus for M.A English so that it enables employability and provides scope for higher studies.

2. RESOLUTION NO.BOS/04/03

Included Online Course offered by SWAYAM as an extra credit course in Semester II in the Programme Structure of M.A English (2020-2021 batch and onwards)

3. RESOLUTION NO.BOS/04/05

The Chairperson expressed appreciation to the members of the Board of Studies for their contribution in the ground plan of the syllabus and curriculum. Consequently, The PG Head, Department of English and Chairperson, Dr. P. Urmila had suggested the members to resolve and implement the suggestions to suffice the requirements of career development and for future educational prospects of the students.

NOTE : RESOLUTION NOS. 1& 4pertain to UG and is implemented thence.

There being the Board of Studies meeting was resolved and concluded by recommending the UG and PG syllabus to The Academic Council, Cauvery College for Women, Trichy-18

Dr. G. Baskaran Professor & Dean, Gandhigram University, Dindigul.	
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There being the Board of Studies meeting was resolved and concluded by recommending the UG and PG syllabus to The Academic Council, Cauvery College for Women, Trichy-18

Dr. B. Kathiresan Professor Thiruvalluvar University, Vellore	
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There being the Board of Studies meeting was resolved and concluded by recommending the UG and PG syllabus to The Academic Council, Cauvery College for Women, Trichy-18

Dr. P.Nagaraj Associate Professor Bharathiar University, Coimbatore	
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There being the Board of Studies meeting was resolved and concluded by recommending the UG and PG syllabus to The Academic Council, Cauvery College for Women, Trichy-18

<p>Ms. R. Sruthi Guest Lecturer N.K.R.Government Arts College for Women Namakkal.</p>	
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There being the Board of Studies meeting was resolved and concluded by recommending the UG and PG syllabus to The Academic Council, Cauvery College for Women, Trichy-18

Mr. R. Pandi Ganesh Industrial Representative, EIT Madurai	
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**Cauvery College for Women (AUTONOMOUS)
Nationally Accredited (III Cycle) with “A” Grade
(CGPA 3.41 out of 4) by NAAC
Annamalai Nagar, Trichy -18**



From 2020 – 2021 Batch and onwards

UG 2019-2020 SEMESTER V SKELETON

SEM	PART	COURSE	TITLE	SUB.CODE	HRS/ WEEK	CREDITS	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	6	5	3	25	75	100
		Core Course XI (CC)	American Literature	19UEN5CC11	5	5	3	25	75	100
		Core Course XII (CC)	Women's Writings in English	19UEN5CC12	5	5	3	25	75	100
		Major Based Elective – I	Mastering English Literature	19UEN5MBE1A	5	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 Skill	19UGPS	2	2	3	25	75	100	
		Extra credit course	SWAYAM ONLINE COURESE	To be fixed later	As per UGC Norms					
TOTAL					30	29				700

FIFTH SEMESTER SYLLABI

Core Course IX: Shakespeare

S. No	Subject Code	Title	Category	L	T	P	Credits
1	19UEN5CC9	Shakespeare	Core Course IX	70	20	-	5

Objective:

- To introduce the dramatic techniques to the learners.
- To make the learners understand the characterization, dramatic and poetic techniques in Shakespearean plays.
- To enhance the learner's appreciation of select plays of Shakespeare

Prerequisite:

Basic knowledge of Elizabethan Age and Elizabethan Drama

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Acquire details of the Age of Shakespeare and his works	K1
CO2	Demonstrate the settings of Shakespearean Theatre	K2
CO3	Describe the aesthetics and uniqueness of Shakespeare both as a dramatist and poet	K3
CO4	Assess the characters portrayed by Shakespeare	K4
CO5	Analyze the style and techniques of Shakespearean Plays	K4

MAPPING WITH PROGRAMME OUTCOME

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

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

SYLLABUS

UNIT - I (Hours: 07)

- a. Shakespeare as a Sonneteer and Narrative Poet
- b. Fools & Clowns in Shakespearean plays
- c. Shakespeare and Disguise

UNIT- II (Poetry) (08Hours)

Sonnets: 53, 104, 138, 151

UNIT - III (15 Hours)

As You Like It

UNIT- IV (25 Hours)

Hamlet

UNIT- V (15Hours)

The Tempest

Text Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1	William Shakespeare	The Complete Works of Shakespeare	Wilco Publishing House	2018

Books for Reference

S.No	Author(s)	Title of the Book	Publisher	Year of Publication
1	AC.Brady	<i>Shakespearean Tragedy: Lectures on Hamlet, Othello, King Lear, Macbeth</i>	Macmillan and Co	1905
2	H.B.Charlton	<i>Shakespearean Comedy</i>	London: Mathew	1938
3	Boris Ford	<i>The Age of Shakespeare</i>	Penguin Books	1982

Pedagogy: Role play, Seminar, Quiz, Assignment

Course Designer: Ms. P. K.Durgadevi

Core Course X: Principles of Literary Criticism

S. No	Subject Code	Title	Category	L	T	P	Credits
2.	19UEN5CC10	Principles of Literary Criticism	Core Course X	80	10	-	5

Preamble

- To identify the difference and the advancement in critical terms and concept - from classical criticism to the present age.
- To enable the learners use critical tools and demonstrate the critical understanding of literary criticism.

Prerequisite:

A primary understanding of critical terms and concept and its applications in literature.

Course Outcomes

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO 1	Illustrate and familiarize the mode of criticism and theory of literary works.	K3
CO2	Interpret texts of different literary genres and theories.	K3
CO3	Examine, explain and apply the prominent Literary Principles.	K3
CO4	Explain the critical ethos of literary works of various age and writers.	K4
CO5	Analyze the critical works of art.	K5

Mapping with Programme Outcomes

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

SYLLABUS

UNIT-I–Graeco - Roman Criticism (18 hours)

Growth of Literary Criticism -Critical References about the Nature and Function of Poetry

Plato’s Theory of Ideas, Plato’s Indictment of Poetry

Aristotle’s Theory of imitation

Horace’s Precepts Concerning the Art of Poetry and Drama

Longinus’s On the Sublime –Definition – True and False Sublime - Distinction between True and False Sublime

UNIT- II - The Origin, the Early and the Classical English Criticism (17 hours)

Sir Philip Sidney: (1554-1586) - ‘An Apology for Poetry’

Ben Jonson: (1573- 1637)– Theory of Humours

UNIT – III - English Criticism of the Elizabethans (15 hours)

John Dryden: An Essay on Dramatic Poesy

Alexander Pope: An Essay on Criticism.

UNIT- IV - English Criticism of the Romantics (15 hours)

William Wordsworth – Preface to Lyrical Ballads

S.T. Coleridge – Biographia Literaria (Chapter XIV)

UNIT-V - English Criticism of the Victorians & the Moderns (15 hours)

Mathew Arnold – The Study of Poetry

T.S. Eliot – Tradition and Individual Talent

Textbook

S.No	Author	Title of the Book	Publishers	Year of Publication
1	Mundra Sc, Agarwal Sc	Principles & History of Literary Criticism	Prakash Book Depot	2009

Books for Reference:

S. No	Author	Title of the Book	Publishers	Year of Publication
1	Enright & de Chickera	English Critical Texts	OUP	1975
2	Rafey Habib	A History of Literary Criticism: from Plato to the Present Halden	Blackwell Publishing Ltd	2005
3	S. Joesph Arul. Jayraj, S. Paul Pragash & M. John Britto	Literary Criticism	Lambert Academic Publishing	2010
4	Birjadish Prasad	An Introduction to English Criticism	Macmillan India Ltd	1965

Pedagogy: Group Discussion, Quiz, Assignment

Course designers: Dr. P. Urmila & Ms. K. Anitha

Core Course XI: American Literature

S.NO	SUB CODE	TITLE	CATEGORY	L	T	P	Credits
3	19UEN5CC11	American Literature	Core Course XI	70	20	-	5

Objectives:

- Identify representations of American authors and works, significant historical or cultural events.
- Analyze American literary works of individuals and communal values within social, political, religious contexts of different literary periods.
- Develop an understanding of the progress of American characteristic forms or styles of expression in different periods.

Prerequisite:

An understanding of the History of American Writers and their Writings.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Develop an understanding about American Transcendentalism.	K1
CO2	Compute the key ideas and works with major and minor poets of America.	K2
CO3	Relate the American history and social conditions with the referred text.	K3
CO4	Associate the literary drama's in terms of cultural and social issues.	K4
CO5	Illustrate the elements such as imagery, theme, motif & style in literature.	K4

MAPPING WITH PROGRAMME OUTCOME

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

S-Strong M-Medium, L-Low

SYLLABUS

UNIT-I (POETRY: DETAILED) (14HRS)

Ralph Waldo Emerson -Brahma

Walt- Whitman When Lilacs last in the Dooryard Bloomed

Emily Dickinson-. Success is Counted Sweetest

UNIT- II (POETRY: NON DETAILED) (14 HRS)

Robert Frost - Stopping by Woods on a Snowy Evening

Wallace Steven- Anecdote of the Jar

Sylvia Plath- Mirror

UNIT –III (PROSE) (14 HRS)

Ralph Waldo Emerson – Self Reliance

Martin Luther King -I Have a Dream

UNIT – IV (DRAMA) (14 HRS)

Eugene O Neil- The Hairy Ape

Arthur Miller- Death of a Salesman

UNIT –V (FICTION) (14 HRS)

Earnest Hemingway- The Old Man and the Sea

John Steinbeck - The Grapes of Wrath

Text Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1	Earnest Hemingway	The Old and The Sea	Scribner	1995
2	John Steinbeck	The Grapes of Wrath	Penguin	2001
3	Eugene O Neil	The Hairy Ape	Signet Classics	1998

Books for Reference:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Daniel S. Burt	The Chronology of American Literature: America's literary achievement from Colonial Era to Modern Times.	Houghton Mifflin Harcourt	2005

Pedagogy: Group Discussion, Quiz, Assignment

Course Designer: Ms. Nandita Ravinder

Core Course XII: Women's Writings in English

S.NO	SUB CODE	TITLE	CATEGORY	L	T	P	CREDIT
4	19UEN5CC12	Women's Writings in English	Core Course XII	80	10	-	5

Objectives:

To acquaint students with women writers through critical study of selected works in order to develop an understanding of literary elements, motifs and conventional themes which were influenced by different social and cultural backgrounds of the women writers.

Prerequisite:

Ability to comprehend, differentiate and appreciate works written by Women Writers from various backgrounds.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Identify and recall some of the developments, themes and narrative strategies of works written by Women Writers.	K1
CO2	Explain literary texts and their developments through the perspective of gender, culture and social context.	K2
CO3	Relate literary text across genres, historical periods with the different theories of different ages.	K3
CO4	Apply independent research to supplement the course material and integrate this information into course assignments.	K4
CO5	Analyze thematically and technically develop a thorough understanding of major women writers across the world.	K4

MAPPING WITH PROGRAMME OUTCOME

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

S-Strong M-Medium, L-Low.

SYLLABUS

UNIT – I (POETRY) (Hours - 14)

Maya Angelou - Still I Rise

Kamala Das - Freaks

UNIT – II (Drama) (Hours - 14)

Susan Glaspell -Trifles

UNIT – III (Short Stories) (Hours - 18)

Alice Walker - Everyday Use

Kate Chopin - The Story of an hour

UNIT – IV(Prose) (Hours - 16)

Elaine Showwalter - Towards a Feminist poetics

Shashi Deshpande - Writing from the Margins

UNIT – V (FICTION) (Hours - 18)

Margaret Atwood - The Edible Woman

Text Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1	Manorama, Trikha	<i>Twentieth Century Canadian Poetry</i>	Pencraft International.	2001
2.	Margeret Atwood	<i>The Edible Woman</i>	McClelland and Stenost Publishing House	1969
3.	Sashi Deshpande	<i>Writing from the Margins and other Essays</i>	Penguin Books India	2003

<https://www.poetryfoundation.org/poems/46446/still-i-rise>

<https://www.poemhunter.com/poem/the-freaks/>

http://www.uobabylon.edu.iq/eprints/publication_3_10984_471.pdf

<http://faculty.weber.edu/jyoung/English%206710/Everyday%20Use.pdf>

<https://www.wlww.k12.or.us/cms/lib8/OR01001812/Centricity/Domain/1309/Kate%20Chopin%20Story%20Texts.pdf>

https://link.springer.com/chapter/10.1007%2F978-1-349-25934-2_43

Books for Reference:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1	Erica Bauermeister	500 Great Books by Women Writers: A Reader's Guide	Penguin	1994

Pedagogy: Group Discussion, Debate, Paper presentation, Extensive reading, Seminar with PPT

Course Designer: Dr. S.Jayashree Agarwal

Major Based Elective I - Mastering English Literature

S.NO	SUB CODE	Title	Category	L	T	P	Credit
5. a	19UEN5MBE1A	Mastering English Literature	Major Based Elective I	65	10	-	3

Preamble:

To prepare learners to develop an avid interest in Mastering English Literature.

Prerequisite:

A fundamental knowledge in English literature, literary devices and genres.

Objectives:

- The course enables the learners to think and imbibe the purpose of their study.
- It prepares the learners to become thorough for frequent questions of examination based on literature or genre type.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Classify genres in English literature.	K2
CO2	Clarify genres and its features.	K3
CO3	Acquire a definite knowledge of terms with relevant examples and explanations.	K3
CO4	Diagnose, Compare and Correlate the different genres and its features.	K4
CO5	Examine and explain the salient Literary Theories.	K4

MAPPING WITH PROGRAMME OUTCOME

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

S-Strong M-Medium L-Low.

SYLLABUS

UNIT I: Drama (13hours)

- The Conventions of Drama
- Language of The Drama
- Character And Plot

UNIT II: Poetry (13 Hours)

- Performing & Hearing
- The Poem As a Whole
- What Poet Makes
- What Poet Thinks
- What Poet Does.
- Poetic Shapes & Sounds.

UNIT III Classical Civilization (17 Hours)

- The Classics and education
- Classical figures
- Classical Women
- Myths
- Philosophers and poets.

UNIT IV: Fiction (17 Hours)

Definition and Explanation:

- Authors
- Characters
- Themes
- Plot
- Story
- Settings & Scope

UNIT V: Action (15 Hours)

- Characters
- Audience
- Watching and Studying.

Text Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Richard Gill	Mastering English Literature (3rd Edition)	Red Globe Press	2006

Reference Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	M.H. Abrams , Geoffrey Galt Harpham	A Glossary of Literary Terms	Cengage Learning India Private Limited; 11th edition	2015

Pedagogy: Group Discussion, Quiz, Assignment and Seminars.

Course Designer: Dr. A. Suganthi Rao

Major Based Elective – I: Translation: Theory and Practice

S.NO	SUB CODE	TITLE	CATEGORY	L	T	P	CREDIT
5.b	19UEN5MBE1B	Translation: Theory and Practice	Major Based Elective - I	65	10	-	3

Course Objective

Knowledge of the most important translation theories and areas of applied Translation Studies.

Ability to critically reflect on different Translation theories.

Ability to apply the methods and strategies discussed in some of these theories.

Prerequisite:

Fluency or ability to learn at least one other language.

Understanding and acceptance of different cultures.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	Identifying the translation theories and studies.	K1
CO2	Translate the inter linguist and intra linguist translations of a literary source text.	K2
CO3	Classify the positive and negative aspects of translating classical texts from the Source Language to the Target Language.	K3
CO4	Apply the dictums framed by the renowned translators to translate the works.	K4
CO5	Examine and associate the methods in translation while translating texts from one language to another.	K4

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	M	S	S
CO4	M	S	S	S	M
CO5	S	S	S	S	S

S-Strong M-Medium, L-Low.

SYLLABUS

UNIT-I (8 hours)

What is translation? – Reason for translating- What should translation do?- What should translation not do?.

UNIT-II (15hours)

Translation in ancient times- Thirukkural / Gitanjali- Translation in the third millennium BC- In first century AD- In the fourth century – In the eighth and ninth centuries.

History of Translation and Translation Theories in India- Early Translations/ transcreations in India- Translation theories in India largely unwritten.

UNIT-III (15 hours)

Translation Procedures- Equivalence- Translation of the Bible- Translation of Poetry-Translation of Prose - Untranslatability

UNIT-IV (15 hours)

Experts view on Translation- Dryden on Translation- Mathew Arnold on Translation- Horst Frenz- Susan Bassnett- MC.Guire- Eugene Nida- Peter Newmark- J.C. Catford- Theodore Savory-Hilaire Belloc.

UNIT-V (12 hours)

Translation Practice.

Thirukkural

Chapter -1

Chapter - 2

Chapter -3

Text Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1	Bassnett, Susan	<i>Translation Studies.</i>	London: Routledge.	2002.
2	Bassnett, Susan & Harish Trivedi	<i>Post-colonial Translation: Theory & Practise</i>	London: Routledge.	2002.

Reference:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
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1.	Baker, Mona	The Routledge Encyclopedia of Translation Studies	New York, Routledge	2008
2.	New Mark, Peter	Approaches to Translation	Oxford: Pergamon Press	1981
3.	Collins	Cobuild Dictionary	Orient Blackswan	2014

Pedagogy: Group Discussion, Quiz, Assignment, Translation Practice

Course Designer: Ms.G.Gayathri

Skill Based Elective – II- Academic Writing

S. No	SUBJECT CODE	TITLE	CATEGORY	L	T	P	CREDITS
6.b	19UEN5SBE2A	Academic Writing	Skill Based Elective – II	25	5	-	2

Objectives:

The course is intended to refine the writing skills in a professional and academic style and it provides fundamental knowledge for effective and result oriented academic writing.

Prerequisite:

The fundamental knowledge in acquiring writing skills of English language fluently.

Course Outcomes

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO 1	Adapt, learn, practice and apply concepts relevant to basic academic writing	K 3
CO 2	Find, analyze and synthesize the various types of Academic Writing	K 4
CO 3	Assess the different stages of academic process writing, including brainstorming and organizing, drafting, revising and editing.	K5
CO 4	Plan to interpret and attend to the instructions, the features of the rhetorical hierarchy	K 6
CO 5	Compose and apply the main rhetorical-moves relevant to the essay genres	K 6

Mapping with Programmed Outcome

Cos	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	M	S	S	S	S
CO 2	S	S	S	S	M
CO 3	S	S	M	S	S
CO 4	S	S	S	M	S
CO 5	S	S	S	S	S

S – Strong, M – Medium, L – Low.

Syllabus

Unit -I Introduction to Academic Writing (5 hours)

What is Academic Writing - Characteristics of Academic Writing -Types of Academic Writing

Unit - II Basic Grammatical Analysis (5 hours)

Subject/ Verb Agreement - Tenses – Homophones – Homonyms –Compound Words

Unit – III Writing Process (5 hours)

Various Stages of Writing Process- Prewriting - Organizing - Writing The First Draft - Revising And Editing Final Copy – Comprehension.

Unit -IV Basic Paragraph Structure (5 hours)

Topic Sentence – Transition Sentence – Narration – Description – Exposition

Unit – V Letter Writing and Essay (5 hours)

Letter Writing - Types – Essays – Types – Critical Essays

Text Book:

Author(s)	Title of the Book	Publisher	Year of Publication
Stephen Bailey	Academic Writing - A handbook for International Students	Roman & Little Field	2011

Books for Reference:

Author(s)	Title of the Book	Publisher	Year of Publication
Andrew P Johnson	Academic Writing – Process & Product	Roman & Little Field	2016
Jane Straus	The Blue Book of Grammar	John Wiley & Sons Inc. NYC	2014

Pedagogy: Quiz, Assignment & Activity.

Course Designer: Ms. P Virginia

Skill Based Elective – II: Functional English

S.NO	SUB CODE	TITLE	CATEGORY	L	T	P	CREDIT
6.a	19UEN5SBE2B	Functional English	Skill Based Elective – II	26	4	-	2

Objectives:

- To give adequate practice to the students in language through day to day life situations.
- To give fundamental knowledge in communication and writing skills.

Prerequisite:

To have basic knowledge in speaking and writing in good English.

COURSE OUTCOMES

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

CO Number	CO Statement	Knowledge Level
CO1	State the communication strategies to participate in group and class discussions.	K1
CO2	Explain variety of accurate sentence structure.	K2
CO3	Prepare a situational dialogue based on a recent incident you encountered.	K3
CO4	Relate the concepts and sentences in paragraph and essay writing.	K4
CO5	Distinguish the various types of communication and using it appropriately.	K4

MAPPING WITH PROGRAMME OUTCOME

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

S-Strong M-Medium, L-Low.

SYLLABUS

UNIT – I (5 hours)

Communication – Definition - Written Communication - Oral Communication - Face To Face Communication - Audio-Visual Communication.

UNIT-II (5 hours)

Greetings – Introducing - Inviting A Person - Thanking-Seeking Permission - Offering Suggestions - Giving Advice
- Asking Questions - Complaining And Apologizing.

UNIT – III (5 hours)

Non-Verbal Communication - Body Language - Group Discussion.

UNIT – IV (5 hours)

Paragraph Writing - Essay Writing - Note Making, Summarizing.

.UNIT –V (5 hours)

Designing a Resume, Facing an Interview.

Text Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1	Seely, John.	The Oxford Guide To Writing and Speaking. ve Writing	UK:OUP	2013

Books for Reference:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1	M.P.Singh &Mohan	Speaking English Effectively Cambridge Companion to Creative Writing	Trinity Press	2015

Pedagogy: Group Discussion, Quiz, Assignment PowerPoint Presentation, Role Play

Course Designer: Ms. K.Kanimozhi

Skill Based Elective – III – Public Speaking

S.NO	SUB CODE	TITLE	CATEGORY	L	T	P	CREDIT
7.a	19UEN5MBE3A	Public Speaking	Skill Based Elective – III	25	5	-	2

Objective:

To develop opportunities, to strengthen and prepare the skills needed for public speaking at different situations.

Preamble:

The course is structured to develop public speaking skills to the learners by introducing the modalities of the language.

Prerequisite:

An intermediate knowledge in English vocabulary and language.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the concepts and strategies involved in public speaking.	K4
CO2	Organise and present focused message in public speaking setting	K5
CO3	Employ strategies and skills to manage communication skills.	K6
CO4	Apply practical skills and knowledge necessary to express themselves clearly with confidence and brevity.	K6

Mapping with programme outcome

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

S-Strong M- Medium L-Low

Syllabus

UNIT 1- Introduction (Hours: 5)

Public Speaking - Benefits - Types Of Speech - Speaking Competencies - Ethics In Public Speaking

UNIT II- Persuasive Speaking (Hours: 5)

What Is Persuasive Speech - Functions Of Persuasive Speech - Types Of Persuasive Speech - Persuasive Strategies

UNIT III – Informative Speaking (Hours: 5)

Functions Of Informative Speaking - Role Of A Speaker - Types Of Informative Speaking - Developing Informative Speaking

Unit IV- Organizing, Outlining, Delivery (Hours: 5)

The Topic, Purpose, Thesis - Organization Styles - Outlining The Speech - Methods Of Delivery

Unit V- Speaking with Confidence (Hours: 5)

Techniques To Build Confidence - Avoiding Language Pitfalls - Controlling The Voice - Using Stylised Language - Powerful Public Speeches

Abraham Lincoln - Gettysburg Speech

Oprah Winfrey - Golden Globe Speech

Chimamanda Ngozi Adichie - We Should All Be Feminists (TED Talks)

Aravind Adiga - Winner Of Man Booker Prize 2008 Speech

Text Book:

S. No	Author(s)	Title of the book	Publisher	Year of Publication
1.	Stephen Lucas	The Art of Public Speaking (7th Ed.)	McGraw Hill	2001

Pedagogy: Group Discussion, Quiz, Assignment

Course Designer: Ms.S.Srinidhi, Ms.T.Mothika

Skill Based Elective – III – Art of Speaking

S.NO	SUB CODE	TITLE	CATEGORY	L	T	P	CREDIT
7.b	19UEN5MBE3B	Art of Speaking	Skill Based Elective – III	25	5	-	2

Objective:

To develop opportunities, to strengthen and prepare the skills needed for public speaking at different situations.

Preamble:

The course is structured to develop public speaking skills to the learners by introducing the modalities of the language.

Prerequisite:

An intermediate knowledge in English vocabulary and language.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the concepts and strategies involved in public speaking.	K4
CO2	Organise and present focused message in public speaking setting	K5
CO3	Employ strategies and skills to manage communication skills.	K6
CO4	Apply practical skills and knowledge necessary to express themselves clearly with confidence and brevity.	K6

Mapping with programme outcome

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

S-Strong M- Medium L-Low

Syllabus

UNIT 1- Organizing Speech (Hours: 5)

Planning and Preparation – Setting the Main Body (chronological directional, logical, problem – solution, topical and psychological patterns); Developing Main Points – Supporting ideas (definitions, examples, analogies, testimonies, statistics), Beginning and Ending of

UNIT II- Modes of Delivery (Hours: 5)

Reading the Manuscript – Speaking Extemporaneously – Impromptu –Speaking from memory; Speaker’s Voice – volume, pitch, rate, pauses and pronunciation.

Non- verbal Communication – personal appearance, posture, gestures, eye contact

UNIT III – Public Speaking: Do’s and Don’ts:- (Hours: 5)

Avoiding Bad Habits

Self-Importance, Apologizing, Facts and Figures, Jargon, Talking Down, Obscenity, Snide Comments, Put- downs, Public Criticism,

Developing Good Ones

Personal Pronouns, Empathy, Relating Truth, Keeping to Time, Accent.

Unit IV- Speech for Special Occasions (Hours: 5)

Welcome Speeches – Introduction Speeches – Felicitation Speeches – Commemorative Speeches – Farewell Speeches - Vote of Thanks

Unit V- Speeches that Changed the World (Hours: 5)

John F. Kennedy - Ask What You Can Do For Your Country

Jawaharlal Nehru - Tryst with Destiny

Abraham Lincoln - Gettysburg Address

Mark Antony’s funeral oration in W. Shakespeare’s Julius Caesar

Text Book:

S. No	Author(s)	Title of the book	Publisher	Year of Publication
1.	Stephen Lucas	The Art of Public Speaking (7th Ed.)	McGraw Hill	2001

Pedagogy: Group Discussion, Quiz, Assignment

Course Designer: Ms. M.Irudhaya Pushpam

UGC - Jeevan Kaushal - Professional Skills

S. No	Sub Code	Title	Category	L	T	P	Credits
8	19UGPS	Professional Skills	UGC - Jeevan Kaushal	5	25 Hrs	-	2

Objectives:

- To prepare students to become viable entrepreneurs or employees with necessary professional skills.
- To enhance the comprehensive skills required for a work environment leading them competent and confident.

Prerequisite:

An open minded and assertive attitude to acquire the salient skills for a prospective career.

COURSE OUTCOMES

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Identify and define professional communication skills and effective interaction.	K1
CO2	Examine and reproduce LSRW skills in professional development.	K2
CO3	Explain and express views and opinions in an assertive manner.	K2
CO4	Prepare and practise to communicate through digital mode.	K3
CO5	Employ and transfer the acquired skills in a practical approach	K3

MAPPING WITH PROGRAMME OUTCOME

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

S- Strong M-Medium L-Low

SYLABUS

Unit 1: Resume Skills - (5 Hours)

- Preparation and Presentation.
- Avoiding Common Errors.
- Preparing Resumes for Specific Purposes.

Unit 2: Interview Skills - (8 Hours)

- Useful Vocabulary
- Preparation and Presentation.
- Dos and Don'ts
- Observation of a Simulated Interview.

Unit 3: Body Language and Personal Grooming (5 Hours)

- Importance of Body Language (Postures, Eye Contact, Expressions & Etiquettes)
- Good Grooming is Being Clean

Unit 4: Social and Cultural Etiquettes (6 Hours)

- Good Manners and Etiquettes
- Table Manners
- Manners in Public

Unit 5: Group Discussion Skills - (6 Hours)

- Meaning and Methods of Group Discussion.
- Procedure of Group Discussion.
- Group discussion – Simulation.
- Common Errors – How to Avoid It

Material for Teaching and Reference:

https://graphicdesign.sfcc.spokane.edu/dZine/projects/Q3-typographic_resume/resume_basics.pdf

<http://worldwideuniversity.org/library/bookboon/the-art-of-interview-skills.pdf>

https://www.tutorialspoint.com/positive_body_language/positive_body_language_tutorial.pdf

<https://oaktrust.library.tamu.edu/bitstream/handle/1969.1/160849/254/MP0254.pdf?sequence=8&isAllowed=y>

http://www.edudel.nic.in/welcome_folder/after12th/enrich_dt_11112014.pdf

<http://egyankosh.ac.in/bitstream/123456789/35846/5/Unit-10.pdf>

Pedagogy: Seminar, Simulation, Quiz & Assignment

Course Designer: Dr. Rita Shanthakumar & Dr.A. Suganthi Rao

UG 2020-2021 SEMESTER II SKELETON

SEM	PART	COURSE	TITLE	SUB.CODE	HRS/ WEEK	CRED ITS	EXAM HRS	MARKS		TOTAL	
								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	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	
		Extra credit course	SWAYAM ONLINE COURESE	To be fixed later	As per UGC Norms						
TOTAL					30	21				600	

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
Nationally Accredited (3rd cycle) with 'A' Grade by NAAC
TRICHY



PG DEPARTMENT OF ENGLISH
(2020-2021)

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

Sem	Course	Title	Subject Code	Inst Hrs/ Week	Credit	Exam	Marks		Total	
						Hrs	Int	Ext		
I	Core course-I	British Literature – I (1340-1798)	19PEN1CC1	6	4	3	25	75	100	
	Core course-II	Shakespeare	19PEN1CC2	6	4	3	25	75	100	
	Core course-III	Indian English Literature	19PEN1CC3	6	4	3	25	75	100	
	Core course-IV	Women’s Writing	19PEN1CC4	6	4	3	25	75	100	
	Elective Course-I	Linguistics & Rhetoric	19PEN1EC1A/	6	4	3	25	75	100	
		European Literature	19PEN1EC1B							
Total				30	20				500	
II	Core Course-V	British Literature – II (1799-Present Age)	19PEN2CC5	6	5	3	25	75	100	
	Core Course-VI	Translation Theory & Practice	19PEN2CC6	6	5	3	25	75	100	
	Core Course-VII	American Literature	19PEN2CC7	6	5	3	25	75	100	
	Core Course-VIII	Literary Criticism - I	19PEN2CC8	6	5	3	25	75	100	
	Elective Course-II	English Language Teaching	19PEN2EC2A/	6	4	3	25	75	100	
		Post-Colonial Studies	19PEN2EC2B							
	Swayam Online Course	Literature,Culture& Media	Will fix it later	12 weeks	3	As Per UGC Norms				
	Total				30	24				500
	III	Core Course-IX	Asian Literature In English	19PEN3CC9	6	5	3	25	75	100
		Core Course-X	Research Methodology	19PEN3CC10	6	5	3	25	75	100
Core Course-XI		English Literature for UGC Examination	19PEN3CC11	6	5	3	-	100	100	
Core Course-XII		Literary Criticism - II	19PEN3CC12	6	5	3	25	75	100	
Elective Course-		Academic Writing	19PEN3EC3A/	6	4	3	25	75	100	

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



**Cauvery College for Women (Autonomous)
P.G & Research Department of Social Work**

IV Board of Studies (Virtual Meeting)

Minutes of the Meeting

Date : 04/01/2021

Time : 10.00 AM

The Members attended the meeting

1. Dr.G.Kanaga
Professor & Dean of Alumnae Relations
PG & Research Department of Social Work
Cauvery College For Women (Autonomous)
Trichy.
Chairman & Professor
2. Dr.P.Ilango
Professor
Department of Social Work
Bharathidasan University
Trichy
Subject Expert
Bharathidasan University
3. Dr.F.X.Lovelina Little Flower
Professor & Head
Department of Social Work
Bharathiyar University
Coimbatore
Subject Expert
Bharathiar University
4. Dr.Arul Kamaraj
Assistant Professor
Loyola College
Chennai-34
Subject Expert
other University
5. Dr.K.Suriyan
Professor and Head I/C
Department of Sociology
Bharathidasan University
Trichy.
Special Invitee
Bharathidasan University

- | | |
|--|--------------------------------------|
| 6. Dr.T.R.Kanmani
Assistant Professor
Department of Psychiatric Social Work
NIMHANS
Bengaluru. | Subject Expert
(other University) |
| 7. Dr.G.Mettilda Buvaneswari
Associate Professor & Head
PG & Research Department of Social Work
Cauvery College For Women (Autonomous)
Trichy. | Member |
| 8. Dr.S.Vidhya
Assistant Professor
PG & Research Department of Social Work
Cauvery College For Women (Autonomous)
Trichy | Member |
| 9. Ms.PL.Rani
Assistant Professor
PG & Research Department of Social Work
Cauvery College For Women (Autonomous)
Trichy | Member |
| 10. Dr.O.Aisha Manju
Assistant Professor
PG & Research Department of Social Work
Cauvery College For Women (Autonomous)
Trichy | Member |
| 11. Ms.S.Hema
Assistant Professor
PG & Research Department of Social Work
Cauvery College For Women (Autonomous)
Trichy | Member |
| 12. Dr.T.Amirtha Mary
Assistant Professor | Member |

PG & Research Department of Social Work
Cauvery College For Women (Autonomous)
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/04/ 01

To include Online Course offered by SWAYAM as an extra credit course in Semester V in the Programme Structure of BSW (2019-2020 batch and onwards) and forward to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

ITEM NO.BOS/04/ 02

To consider and approve the syllabus and Programme Structure of BSW (2019-2020 batch and onwards) for Fifth Semester and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

ITEM NO.BOS/04/ 03

Ratification to change the Assessment Criteria for Core Course IX-Structure and Functions of Social Work for Competitive Exams with Course Code 19PSW3CC9 IN Semester III for MSW (2019-2020 batch) and Ratification to change the Assessment Criteria for Core Course VIII-Structure and Functions of Social Work for Competitive Exams with Course Code 19PSW3CC8 in Semester III for MSW(2020-2021 batch onwards) and forward to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

ITEM NO.BOS/04/ 04

To include Online course offered by SWAYAM as an extra credit course in Semester II in the Programme structure of BSW & MSW (2020-2021 batch and onwards) and forward to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

ITEM NO/04/05.

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/04/ 01

To include Online Course offered by SWAYAM as an extra credit course in Semester V in the Programme Structure of BSW (2019-2020 batch and onwards)

Dr.G.Mettilda Buvaneswari, Associate Professor and Head of the Department briefed the members about the inclusion of Swayam Online Course in V Semester in the Programme Structure of BSW (2019-2020 batch and onwards)

The discussion was held among the members and was resolved as follows:

Resolved to include Swayam Online Course in V Semester in the Programme Structure of BSW (2019-2020 batch and onwards) is approved for BSW and recommend to Academic Council, Cauvery College for Women (Autonomous) for further Process.

ITEM NO/04/ 02

To consider and approve the syllabus and Programme Structure of BSW (2019-2020 batch and onwards) for V Semester Dr.G.Mettilda Buvaneswari, Associate Professor and Head of the Department presented the syllabus and Programme Structure of BSW for V Semester.

Resolved to consider and approve the syllabus and Programme Structure of BSW for V Semester and recommend to Academic Council, Cauvery College for Women(Autonomous), Trichy-18 for further Process

ITEM NO.BOS/04/ 03

Ratification to change the Assessment Criteria for Core Course IX-Structure and Functions of Social Work for Competitive Exams with Course Code 19PSW3CC9 IN Semester III for MSW (2019-2020 batch) and Ratification to change the Assessment Criteria for Core Course VIII-Structure and Functions of Social Work for Competitive Exams with Course Code 19PSW3CC8 in Semester III for MSW(2020-2021 batch onwards) and forward to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

Dr.G.Mettilda Buvaneswari, Associate Professor and Head of the Department explained the need to change the Assessment Criteria for Core Course IX-Structure and Functions of Social Work for Competitive Exams with Course Code 19PSW3CC9 IN Semester III for MSW (2019-2020 batch) and Ratification to change the Assessment Criteria for Core Course VIII-Structure and Functions of Social Work for Competitive Exams with Course Code 19PSW3CC8 in Semester III for MSW(2020-2021 batch onwards) and forward to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

Ratified to change the Assessment Criteria for Core Course IX-Structure and Functions of Social Work for Competitive Exams with Course Code 19PSW3CC9 IN Semester III for MSW (2019-2020 batch) and Ratification to change the Assessment Criteria for Core Course VIII-Structure and

Functions of Social Work for Competitive Exams with Course Code 19PSW3CC8 in Semester III for MSW(2020-2021 batch onwards) and forward to Academic Council, Cauvery College for Women (Autonomous) Trichy-18.

ITEM NO.BOS/04/ 04

To include Online course offered by SWAYAM as an extra credit course in Semester II in the Programme structure of BSW & MSW (2020-2021 batch and onwards)

Dr.G.Mettilda Buvanewari, Associate Professor and Head of the Department briefed the members about the inclusion of Swayam Online Course in Semester II in the Programme structure of BSW & MSW (2020-2021 batch and onwards)

The discussion was held among the members and was resolved as follows:

Resolved to include Swayam Online Course in Semester II in the Programme structure of BSW & MSW (2020-2021 batch and onwards) and recommend to Academic Council, Cauvery College for Women (Autonomous) for further Process.

Signature

Dr.G.Kanaga

Dean of Alumnae Relations

Chairman & Professor

PG & Research Department of Social Work

Cauvery College For Women (Autonomous)

Trichy-18

S.No	Name and Designation	Signature
1	Dr.G.Kanaga Chairman & Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18	
2	Dr.P.Ilango Subject Expert Professor Department of Social Work Bharathidasan University, Trichy.	
3	Dr.F.X.Lovelina Little Flower Subject Expert Professor & Head Department of Social Work Bharathiyar University Coimbatore	
4	Dr.Arul Kamaraj	

	<p>Subject Expert other University Assistant Professor Loyola College Chennai-34</p>	
5	<p>Dr.K.Suriyan Special Invitee Professor and Head I/C Department of Sociology Bharathidasan University Trichy.</p>	
6	<p>Dr.T.R.Kanmani Subject Expert Other University Assistant Professor Department of Psychiatric Social Work NIMHANS Bengaluru</p>	
7	<p>Dr.G.Mettilda Buvaneswari Member Associate Professor & Head PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18</p>	
8	<p>Dr.S.Vidhya Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18</p>	
9	<p>Ms.PL.Rani Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18</p>	
10	<p>Dr.O.Aisha Manju Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18</p>	
11	<p>Ms.S.Hema</p>	

	<p>Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18</p>	
12	<p>Dr.T.Amirtha Mary Member Assistant Professor PG & Research Department of Social Work Cauvery College For Women (Autonomous) Trichy-18</p>	

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

(Nationally Accredited with “A” Grade (III Cycle) by NAAC)
ISO 9001: 2015 Certified



PG & RESEARCH DEPARTMENT OF SOCIAL WORK

SYLLABUS – BACHELOR OF SOCIAL WORK

Programme Educational Objectives

Graduates will gain basic knowledge of social work, analyse the causes of social problems, identify scope of social work and equip themselves with skills of observation, reporting, Analytical thinking, organising, public relations etc.

Programme Outcome

- PO1** Apply the Knowledge of social work to understand the issues and problems that arise in the society
- PO2:** Identify challenges in Health sectors, family issues, industries, disability, Correctional settings, etc.
- PO3:** Apply professional social work skills, values and ethics
- PO4:** Link with the society by involving into community services
- PO5:** Utilize life skills to achieve personal and professional goals

**BACHELOR OF SOCIAL WORK PROGRAMME STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2019 - 2020 onwards)**

Sem	Part	Course	Course Title	Course Code	Ins Hrs/ week	Credits	Exam Hours	Marks		
								Internal	External	Total
I	I	Language course I Tamil/ Other languages	Ikkala Ellaikiyam	19ULT1	6	3	3	25	75	100
			Story, Novel, Hindi Literature – 1 & Grammer – I	19ULH1						
			History of popular tales,Literature and Sanskrit story	19ULS1						
			Communication in French – I	19ULF1						
	II	English language course – I (ELC)	Functional Grammer for Effective Communication – I	19UE1	6	3	3	25	75	100
	III	Core course I	Introduction to Social Work	19USW1CC1	6	5	3	25	75	100
		Core course II	Structure of Indian Society and Indian Problems	19USW1CC2	6	5	3	25	75	100
Allied Course I		Basics of Economics and Political System	19USW1AC1	4	3	3	25	75	100	
IV	Value Education	Value Education	19UGVE	2	2	3	25	75	100	
			Total		30	21			600	
II	I	Language course II Tamil/ Other languages	Edaikala Ellakiyamum Puthinamum	19ULT2	6	3	3	25	75	100
			Prose, Drama, Hindi Literature - 2 & Grammer – II	19ULH2						
			Poetry, Textual Grammer and Alakara	19ULS2						
	Comunication in French – II	19ULF2								
	English	Functional Grammer for	19UE2	6	3	3	25	75	100	

	II	language course II (ELC)	Effective Communication – II							
	III	Core course III	Methods of Social Work	19USW2CC3	6	5	3	25	75	100
		Core course IV	Human Growth and Development	19USW2CC4	6	5	3	25	75	100
		Allied Course II	Communication for Social workers	19USW2AC2	4	3	3	25	75	100
	IV	Environmental Studies	Environmental Studies	19UGES	2	2	3	25	75	100
			Total		30	21				600
III	I	Language course III Tamil/ Other languages	Kappiyamum Nadagamum	19ULT3						
			Medieval, Modern Poetry and History of Hindi Literature – 3	19ULH3	6	3	3	25	75	100
			Prose, Textual Grammer and Vakyarachana	19ULS3						
			Communication in French - III	19ULF3						
	II	English language course -III (ELC)	Reading & Writing for Effective Communication- I	19UE3	6	3	3	25	75	100
	III	Core course V	Introduction to Social Work Research and Statistics	19USW3CC5	6	5	3	25	75	100
			Field Work Practicum	19USW3CC6P	6	5	3	40	60	100
			Social Legislations	19USW3AC3	4	3	3	25	75	100
	IV	Non Major Elective I - for those who studied Tamil under Part I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto 10 th / +2 but opt for other	Human Rights/	19USW3NME1						
			Basic Tamil/	19ULC3BT1	2	2	3	25	75	100

		languages in degree programme	Special Tamil	19ULC3ST1						
	V	Extra Credit Course	Swayam Online Course	To be fixed later	As per UGC recommendation					
			Total		30	21				600
IV	I	Language course IV Tamil/ Other languages	Pandaya Ellakiyam Letter writing, General essays, Technical terms, Proverbs, Idioms and phrases, Hindi Literature - 4 Drama, History of Drama literature Communication in French - IV	19ULT4 19ULH4 19ULS4 19ULF4	6	3	3	25	75	100
	II	English language course- IV (ELC)	Reading & Writing for Effective Communication- II	19UE4	6	3	3	25	75	100
	III	Core course VII	Social Welfare Administration	19USW4CC7	5	5	3	25	75	100
		Core course VIII	Field work Practicum	19USW4CC8P	5	5	3	40	60	100
		Allied Course IV	Health Care Services	19USW4AC4	4	3	3	25	75	100
	IV	Non Major Elective - II - for those who studied Tamil under Part I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto 10 th / +2 but opt for other languages in degree programme	Women Rights and Laws Basic Tamil Special Tamil	19USW4NME2 19ULC4BT2 19ULC4ST2	2	2	3	25	75	100
V	Skill Based Elective-I	Stress Management/ Life Skills	19USW4SBE1A/ 19USW4SBE1B	2	2	3	25	75	100	
	VI	Extra Credit Course	Swayam Online Course	To be fixed later	As per UGC recommendation					

			Total		30	23				700
V	III	Core course IX	Family and Child Welfare	19USW5CC9	5	5	3	25	75	100
		Core course X	Community Development (Urban/Rural/ Tribal)	19USW5CC10	5	5	3	25	75	100
		Core course XI	Introduction to Counselling and Guidance	19USW5CC11	5	5	3	25	75	100
		Core Course XII	Theories of Social Work	19USW5CC12	5	5	3	25	75	100
		Major Based Elective I	Disaster Management/ Welfare of Vulnerable	19USW5MBE1A/ 19USW5MBE1B	4	3	3	25	75	100
	IV	Skill Based Elective II	Psychological First Aid / Employability skills	19USW5SBE2A/ 19USW5SBE2B	2	2	3	25	75	100
		Skill Based Elective III	Family Life Management / Social Entrepreneurship	19USW5SBE3A/ 19USW5SBE3B	2	2	3	25	75	100
		UGC Jeevsn Kaushal Life Skills	Professional Skills	19UGSD	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
VI	III	Core course XIII	Welfare of the Persons with disability	19USW6CC13	6	5	3	25	75	100
		Core course XIV	Correctional Social Work	19USW6CC14	6	5	3	25	75	100
		Core Course XV	Field Work Practicum	19USW6CC15P	6	5	3	40	60	100
		Major Based Elective II	Gerontological Social Work / Youth Welfare	19USW6MBE2A/ 19USW6MBE2B	5	4	3	25	75	100
		Major Based Elective III	Social Work in Industry / Basics of Organizational Behaviour	19USW6MBE3A/ 19USW6MBE3B	6	4	3	25	75	100
	IV	Gender Studies	Gender Studies	19UGGS	1	1	3	25	75	100
		Extension Activity	Extension Activity	19UGEA		1				
			Total		30	25				600
			Grand Total		180	140				3900

Semester V	Family and Child Welfare	Category	Course Code	Instructional Hours	Credit
		Core course IX	19USW5CC9	75	5

The course aims to make the students to understand on the concepts and the importance of family and child welfare.

CO Number	CO Statement	KNOWLEDGE LEVEL
CO2	Define the concepts of Family and child welfare.	K1
CO3	Explain the concepts of child welfare and the problems of children	K2
CO4	Outline Family Welfare Planning methods	K2
CO5	Identify Family and Child Welfare services by Government & Non-government organisations	K3
CO6	Categorize Institutional and Non Institutional services, national and international organisations working for children.	K4

Cos	PO1	PO2	PO3	PO4
CO1	S	M	S	S
CO2	M	L	S	S
CO3	M	L	S	S
CO4	M	L	S	S
CO5	M	L	S	S
CO6	M	L	S	S

S – Strong; M – Medium; L – Low

Unit I Family (15 hours)

Meaning and philosophy of Family; Importance of family; changing patterns of family in Indian context; Single Parent family: Definition, types, issues and challenges; Child-Parent Relationship: Issues and Remedies.

Unit II Child Welfare (15 hours)

Concept and meaning of child welfare, National child welfare policy in India; Children in Difficult Circumstances: Child labours, Street children, Trafficked children, Child-Beggars, Abused Children, Children living with HIV/AIDS; Problems of girl children.

Unit III Familywelfare planning (15 hours)

Family welfare programmes; Methods of family planning: Artificial and Natural family planning methods; Role of social worker in promoting family welfare programmes.

Unit IV Family and child welfare services(15 hrs)

Legislative provisions for children in India (Salient features): Pre-Conception and Pre-Natal Diagnostic Techniques Act; Programmes and policies for child welfare: SarvaSikshaAbhiyan, Integrated Child Development Scheme, Integrated Child Protection Scheme, Central Adoption Resource Authority, National Commission for Protection of Child Rights ;Role of central and state government in family and child welfare.

Unit V Role of voluntary agencies in family and child welfare services(15hours) Institutional services: Residential homes for children, Shelter homes, aftercare homes, homes for special children, SOS villages ; Non-Institutional services: Sponsorship, day/night care centres, foster care, adoption.; national and international organisations working for children

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Heredia, R.C. (1995). The Family in changing World. New Delhi: Indian Social Institute.

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Khasgiwala, A. (1993). Family Dynamics: Social Work Perspective. Bangaluru,Anmol Publications.

Shireman, J. F. (2015). Critical Issues in Child Welfare.Columbia: University Press.

Rao, D.B. (1997). Care the Child. New Delhi: Discovery Publishing House.

Web Resources

Family and Child Welfare – Course, <http://ecoursesonline.iasri.res.in/course/view.php?id=198>

Child protection | UNICEF India. <https://www.unicef.org/india/what-we-do/child-protection>

MSWE-002 - eGyanKosh .<http://www.egyankosh.ac.in/bitstream/123456789/52017/1/Block-4.pdf>

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

Course Designer: Dr.O.Aisha Manju

Semester V	Community Development (Rural /Urban/ /Tribal	Category	Course Code	Instructional Hours	Credits
		Core X	19USW5CC10	75	5

Preamble

The course will introduce the students the basic concepts, principles and approaches in Rural, Urban and Tribal Community Development, develop an in-depth understanding among students about Rural, Urban and Tribal Community Development.

Course Outcomes

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

CO Number	CO statement	Knowledge Level
CO1	Explain the basic concepts, principles and approaches in Rural, Urban and Tribal Community Development.	K1
CO2	Describe the features of Rural, Urban and Tribal Communities	K1
CO3	Examine the various traditional and conventional methods, strategies, policies, programmes and developmental efforts towards Rural, Urban and Tribal Community Development.	K4
CO4	Explain the Social Structure, Social Relations and Institutions related to Rural and Tribal communities.	K2
CO5	Analyse the role and contribution of Professional Social Worker in the developmental process.	K4

Mapping Course Outcome with Programme Outcome

CO1	M	S	S	M	M
CO2	M	S	S	S	M
CO3	S	S	M	M	S
CO4	M	M	M	M	S
CO5	S	S	M	M	S

S-Strong

M- Medium

L-Low

Syllabus

UNIT I: COMMUNITY DEVELOPMENT: CONCEPT & APPROACH(15 hours)

Community Development: Meaning, Origin, Principles, Values. Community Development Process: Organizing, Visioning, Planning, Implementation, Monitoring and Evaluation. Community Development related concepts and approaches: Community Participation, Community Empowerment, Social Capital, Community Driven Development and Sustainable Livelihoods.

UNIT II:RURAL COMMUNITY DEVELOPMENT(15 hours)

Rural Community: Characteristics, Problems related to Agriculture and its allied activities. Rural Community Development:Concept, Origin, Gandhian construction programmes and Early Experiments of Rural Community Development. Rural Development Agencies: CAPART, NABARD, Regional Rural Development Banks. Rural Development Programmes: MGNREGA, PMGSY, SGSY, NRLM, SSA.

UNIT III: URBAN COMMUNITY DEVELOPMENT (15 hours)

Urban Communities: Types,Characteristics, Rural Urban linkages (Rurban) and Rural-Urban contrast. City - Meaning & Classification. Urbanization &Urbanism. Slums – Concept, Culture of Slums and Factors contributing to Slum development. Urban Community Development:Concept, Origin, Approaches, Principles, Process and Methods of Urban Community Development. Urban Development Programmes in India - Five year plans, Urban Development Projects –Nehru Rozgar Yojana, Jawaharlal Nehru National Urban Renewal Mission, Swachh Bharat Mission. Urban Development Agencies – National, State, Local Bodies, Structure and Functions. Nagarpalika Act (74th Amendment), Housing and Urban Development Corporation (HUDCO).

UNIT IV: TRIBAL COMMUNITY DEVELOPMENT (15 hours)

Tribal Community:Concept, Characteristics and Types of Tribal Community, Geographical distribution of Tribes, Life Style of Tribes – Socio-economic conditions, Cultural & Religious practices, Belief System, Tribal Revolts and Problems of Tribes.Tribal Development Administration & Programmes:Constitutional, Legal and Economic provisions for the protection of Tribes, Functions of Tribal Development Blocks.

UNIT V:PARTICIPATORY LEARNING AND ACTION (15 hours)

Participatory Learning and Action: History, Concept, Principles. Advantages & Limitations. Rapid Rural Appraisal(RRA), Participatory Rural Appraisal (PRA) Tools: Resource and Social Maps, Venn Diagrams, Seasonal Calendars, Daily activity charts, Timelines, Matrices, Wealth Ranking.

References

1. Mello, L.D. (2018). Community Development: Rural, Urban and Tribal perspective, FSP Media Publications.
2. Gupta, K.B (2010). Rural development in India, Atlantic Publication.
3. Soundarapandian, M (2010). Rural Entrepreneurship: Growth and Potentials,Kanshika Publications.
4. Singh, K. (2008). Rural Development: Principles, Policies and Management, Sage Publications.
5. Thakur, B. (2005). Urban and Regional Development in India: Vol I New Delhi: Concept Publishing Company.
6. Chaubey, P.K. (2004). Urban Local Bodies in India. New Delhi: Indian Institute of Public Administration.
7. Singh, K.S (2002). Tribal Situation in India, Indian Institute of Advanced Publication.
8. Soundarapandian, M (2001). Tribal Development in India: A Case Study, Anmol Publisher.
9. Bhargava, G. (1998). Urban Problems and Policy Perspectives. New Delhi: Abhinav Publishers.
10. Chambers, R.(1997)Whose Reality Counts? Putting the Last First. London, Intermediate Technology.
11. Pretty, J.et. al., (1995). Participatory Learning and Action: A Trainer's Guide. London, IIED.

Online sources

1. <https://www.scribd.com/doc/18799723/Introduction-to-Rural-Community-Development>
2. https://www.researchgate.net/publication/328289155_RURAL_DEVELOPMENT_IN_INDIA-A_WAY_FORWARD

3. http://planningcommission.nic.in/hackathon/Urban_Development.pdf
4. <http://wcr.unhabitat.org/wp-content/uploads/sites/16/2016/05/WCR-%20Full-Report-2016.pdf>
5. [http://smartcities.gov.in/upload/uploadfiles/files/SmartCityGuidelines\(1\).pdf](http://smartcities.gov.in/upload/uploadfiles/files/SmartCityGuidelines(1).pdf)
6. <https://kingcenter.stanford.edu/sites/default/files/publications/231wp.pdf>
7. http://planningcommission.nic.in/plans/planrel/fiveyr/10th/volume2/v2_ch4_2.pdf
8. <https://tribal.nic.in/writereaddata/AnnualReport/AnnualReport2016-17.pdf>

Course Designer: Dr. T. Amirtha Mary

Pedagogy: E content, PPT, Lectures, Group Discussions on research articles & case studies, Expert Talk.

Semester V	INTRODUCTION TO COUNSELLING & GUIDANCE	Category	Course Code	Instructional Hours	Credits
		Core course XI	19USW5CC11	75	5

To introduce students to the concept of counselling & Guidance and its related aspects

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1	Define the theoretical foundations of counseling	K1
CO2	Explain the process of Counselling & Guidance	K2
CO3	Apply methods and techniques of counselling & Guidance	K3
CO4	Summarise the skills of application to real life situations	K3
CO5	Categories the role of counselling & Guidance in different fields	K3

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

S – Strong; M – Medium; L – Low

Unit I(5hours) :Introduction to Counselling& Guidance

a. Definition, objectives, principles, need and importance, types, Scope, skills

b. Meaning, nature, Need, Types & Functions of Guidance, Principles, Ethical consideration of Guidance & counselling, Difference between Counselling & Guidance, counselling as a helping profession

Unit II (5 hours):Theories of Counselling: Client-Centred or Person-Centred Theory (affective), Rational- Emotive Theory (cognitive) and Behavioural Counselling.

Unit III (5 hours):Methods and Techniques of Counselling& Guidance : Method - Directive, Non-Directive and eclectic counselling. Interview, observation, case study method- meaning, types and procedures. Counselling Techniques: Increasing desired behavior, decreasing undesired behaviour Techniques and changing cognitive patterns.

Unit IV (5 hours):Counselling Process/ Steps: Relationship building, Problem assessment, Goal Setting, Intervention, Evaluation and Follow-up. Phases of Guidance

Unit V (5hours) :Counselling in Various Settings: Community counselling, mental health, disaster affected and correctional setting; industrial counselling, marriage counselling, family counselling. Counselling practice with the special groups: children, adolescent, youth, women, alcoholic and drug addicts, aged, HIV/ AIDS infected, Differently abled Transgender Areas of Guidance-Personal, Social, vocational, educational

References:

- *Aggarwal, J.C. (1989). Educational and Vocational Guidance and Counselling, Doaba House; Delhi
- *Aggarwal, J.C. (1998). Career Information in Career Guidance: Theory and Practice, Doaba House, Delhi.
- *Bond, Tim (2010). Standards and Ethics for Counselling in Action, SAGE Publications.
- *Burnard, Philip (2002). Counselling Skills Training (A Sourcebook of Activities for Trainers), Viva Books Private Limited. Cochran, Larry (1997).

- *Crow, Lester D. & Crow, Alice (1962). An Introduction to Guidance: basic principles and practices, Eurasia publishing House (p) LTD, New Delhi.
- *Dev, Kapil (2006). Educational Counselling, Pragun Publications, New Delhi
- *Gibson, Robert L. & Mitchell, Marianne H. (2012). Introduction to Guidance and Counselling, Prentice Hall of India, New Delhi.
- *Gupta, Manju (2003). Effective Guidance & Counselling modern Methods and Techniques, Mangal Deep Publications, India.
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- McLeod, John (2008). An Introduction to Counselling, Rawat Publications. McLeod, J. (2013) An Introduction to counselling. McGraw-Hill Education. New Delhi.
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- Nag, Dr. Subir (2012-13). Counselling and Guidance, Rita Publication, Kolkata.
- Nathan, Robert & Hill, Linda (2012). Career Counselling, SAGE Publications
- *Nelson-Jones, Richard (2008). Basic Counselling Skills, A Helper's Manual, SAGE Publications India Pvt. Ltd.
- *Rao, S. Narayana & Sahajpal, Prem (2013). Counselling and Guidance, Page 6 of 26 McGraw Hill Education, New Delhi.
- *Soundarajan, R. (2017). Counselling: Theory, Skills and Practice, McGraw Hill Education, New Delhi
- *Sharma, Ramnath and Sharma, Rachana (2007). Guidance and Counselling in India, Atlantic Publishers and Distributors, New Delhi.
- *Srivastava, Sushil Kumar (2007). Career Counselling, ATLANTIC Publishers & Distributors (P) LTD.

Pedagogy: PPTs, Videos, case discussion, Group Discussion

Course Designer: Ms. PL. Rani

Semester V	Theories of Social Work	Category	Course code	Instructional Hours	Credit
		Core course XII	19USW5CC12	75	5

The purpose of this course is to help the students to learn the concepts of Theories and its Applicability

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

CO1	Explain the concept of theory and its importance in Social Work	K1
CO2	Relate role theory and its application in Social Work.	K2
CO3	Summarise the Impact of Gestalt theory in Social Work Practice	K3
CO4	Analyse crisis theory and related aspects	K3
CO5	Explain Psycho analytic theory and its implication on Social Work Practice.	K4

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

S- Strong, M-Medium, L-Low

Unit – 1 (15 hours) Theory

Definition, Functions, Characteristics- relevance and Importance of theory in social work.

Structuralism and Functionalism of Theory

Unit – 2 (15 hours) Role theory

Definition, Characteristics of Role, Concepts and constructs of Role Theory- Learning of Roles, Role Set, Role Vigour, Role ambiguity, Role Conflict, Role Complimentary and Discomplementary. Concept of role in social work- application of role in social work

Unit – 3 (15 hours) Social Learning Theory

General Principles- Behaviours learned through Modelling, SLT concepts-Observational Learning, Intrinsic Reinforcement, Modelling Process, SLT Perspectives

Unit – 4 (15 hours) crisis Theory

Origin-Sociological studies in crisis theory, social work and crisis theory, social work practice in crisis situation, treatment in crisis theory

Unit – 5 (15 hours) Psycho analytical theory

Structure of Personality,- ID, Ego, Superego, Levels of Consciousness-Conscious, Preconscious and Unconscious. Psychosexual Development and its Impact on Personality. Defense Mechanism.

References

Coleman, J. C. (1969). *Abnormal Psychology and Modern Life*; DB araporevala Sons & Co. *Private Limited, Mumbai in arrangement with Scott, Foresman and Company.*

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Hoffman, L. W. (1993). *Hoffman Developmental Psychology Today*: MCGraw Hill companies. The.

Mark, M. M., Donaldson, S. I., & Campbell, B. (2011). *Social Psychology and Evaluation*, The Guildford Press.

Turner, F. J. (Ed.). (2011). *Social work treatment: Interlocking theoretical approaches*. Oxford University Press

Pedagogy : Assignments, Seminars, Role play, PPT, E-Contents

Course Designer : Dr.S.Vidhya

Semester V	Disaster Management	Category	Course Code	Instructional Hours	Credits
		Major Based Elective I	19USW5MBE1A	60	3

The purpose of this course is to help the students to understand about Disaster its Types and Impact.

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

CO1	Outline the concept associated with disaster	K1
CO2	Identify the types of Disaster	K2
CO3	Summarize the legislations on Disaster	K3
CO4	Discuss the role of central government and State Government in disaster	K3
CO5	Demonstrate the importance of Capacity Building	K4

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

S-Strong, M-Medium, L-Low

Unit I (12 hours)

Definition and concept –Disaster, Hazards, Vulnerability. Disaster Cycle, Disaster Management Definition concept and Importance

Unit II (12 hours)

Natural Disaster - Flood, Drought, Cyclone, Earthquake

Manmade Disaster - Communal Violence, Ethnic conflicts, refugees

Other Disasters -Epidemics, Fire, Industrial Disaster, Accidents - Road, Railway and Air Accidents

Unit III (12 hours)

Disaster Management Act 2005, Impact of Disaster-Physical, economical and Psycho social and Social Exclusion

Unit IV (12 hours)

Role of central and State Government in Prevention, Mitigation, Preparedness, Response, Relief and Rehabilitation

Unit V (12 hours)

Capacity Building-institutional capacity Development, Training of Communities, need for Disaster Management in Educational Institutions.

References

- Dave,A.S., Sekar,K., Bhadra,S., Rajashekar,GP, Kishore Kumar,K., Srinivasa Murthy,R. 2002 Riots: Psychosocial care for Individuals. Books for Change, Bangalore. In English and Gujarati.
- Goel.S.L.,(2005) Encyclopedia of Disaster Management, Deep and Deep Publications Pvt Ltd, NewDelhi
- Nadkarni, V.V. (1991) Developing curriculum in the area of Disaster Management. In S. Bharat and M. Desai (Eds) Research on Families with Problems in India: Issues and implications (Volume I), Bombay: Tata Institute of Social Sciences.
- Narayana R.L., Srinivasa Murthy,R., Daz P (2003) Disaster mental health in India: Monograph. American Red Cross. Indian Red Cross, New Delhi
- National Institute of Mental Health and Neurosciences 1997 Report on National workshop on Psychosocial consequences of disasters, Bangalore.

Web sources

www.ndma.gov.in

Pedagogy-Assignment, Seminar, discussion, E-content, PPT,

Course Designer- Dr.S.Vidhya

Semester V	Welfare of the Disadvantaged Sections	Category	Course Code	Instructional Hours	Credits
		Major Based Elective I	19USW5MBE1B	60	3

The course aims to make the students to understand on the concepts and problems of Disadvantaged.

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1	Define the concept of Disadvantaged	K1
CO2	Illustrate the problems of Disadvantaged	K2
CO3	Define the role of social workers in welfare of the Disadvantaged	K2
CO4	Analyse the welfare programmes for the Disadvantaged	K3

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

S – Strong; M – Medium; L – Low

Unit I Disadvantaged Sections (12 hours)

Disadvantaged: Definition, Concept; Scheduled Castes, Schedule Tribes, Minorities, Women, Children, Elderly, Disabled, Poor migrants and Transgenders.

Unit II Scheduled Castes , Scheduled Tribes and Minorities (12 hours)

Scheduled Caste: Definition ,Problems of the Scheduled Castes ,Programmes and Policies of Government and Non-governmental Organizations for the welfare measures of Scheduled Castes; Scheduled Tribes: Definition, Welfare Programmes of the Government for STs; Minorities: Definition and problems. National Commission for minorities

Unit III Disadvantages of Women Children and Elderly (12 hours)

Disadvantages of children in nutrition intake, access to healthcare, environment and education; Women: Health and Nutritional Issues ; Elderly: Definition ,disadvantages of elderly in economic dependency and health care access.

Unit IV Differently abled ,Poor Migrants and Transgenders (12 hours)

Differently abled :Types, problems; Poor Migrants: Definition, Problems; Transgenders: stigma and discrimination ; Role of Social Workers in the welfare of disadvantaged Section.

Unit V Important welfare schemes for disadvantaged sections (12 hours) :

National SC/ST Hub, Ujjawala scheme for Women, National Children Fund, Pradhan Mantri Vaya Vandana Yojana, Assistance to Disabled Persons for Purchase / Fitting of Aids and Appliances (ADIP Scheme), 'Garib Kalyan Rozgar Abhiyaan', Pension Scheme for Destitute Transgender in Tamilnadu.

References

- Asha Rani. (1986). Children in Different situation in India – A Review, Bombay, Tata Institute of Social Sciences.
 Bhargava Vinita. (2005). Adoption in India, New Delhi, Sage Publications.
 Government of India. (1992). A Commitment to the Child Women and Child Development, Dept. of Plan of Action.
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Dey, A. B (Ed.) (2003). Ageing in India: Situation Analysis and Planning for the Future. New Delhi / WHO and AIIMS.
Indira Jaiprakash. (1999). Aging in India, A report submitted to World Health Organization, Geneva.
National institute of public co-operation & child development. (1994). The child in India –a statistical profile New Delhi : NIPCCD
Giardino, A.R., Christian, C.W., Giardino, E.R. (1997) A practical guide to the Evaluation of child physical abuse and neglect, Sage Publication: New Delhi.
Gupta, M. (1998) International Encyclopedia of women's Development, New Delhi. :Sage Publications.

Web Resources

The disadvantaged groups: women and children - egyankosh<http://egyankosh.ac.in/bitstream/123456789/43141/1/Unit-9.pdf>

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

Course Designer: Dr.O.Aisha Manju

Semester V	Psychological First Aid	Category	Course Code	Instructional Hours	Credits
		SBE I	19USW5SBE2A	30	2

Preamble

To make the students aware of Psychological aid & it helps to handle the crisis situation effectively.

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

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1.	Define Psychological First aid & its importance	K1
CO2.	Explain the stages of PFA	K2
CO3.	Analyse the impact of Crisis events on individuals	K3
CO4.	Apply the PFA training on crisis events	K4

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

S-Strong,M-Medium,L-Low

Syllabus

Unit 1(2 Hrs): Crisis Events,Psychological First Aid,Meaning,Definition Who,when & Where PFA

Unit 2(2 Hrs): Rapport and Reflective Listening,respect Safety,dignity,& rights, Assessment of Needs, Prioritization, Intervention, Disposition, Self-Care and Wrap-Up

Unit 3(2 Hrs): Providing PFA- Good Communication ,Prepare & Learn About the situation,Action Principles of PFA-look,listen & link,ending the help

Unit 4(2 Hrs): PFA for different group of people such as special needs,people with differently abled,people at risk or discrimination or violence

Unit 5(2 Hrs): Caring for yourself & your close ones,Getting ready to help,Managing stress & Healthy work & life habits.

Unit 6(Not for examination) : Practise PFA -Case Studies of Natural disaster,violence & displacement, Accident

References:

#Brymer, M, Jacobs, A, Layne, C, Pynoos, R, Ruzek, J, Steinberg, A et al (2006). Psychological First Aid: Field operations guide (2nd ed.) Los Angeles: National Child Traumatic Stress Network and National Centre for PTSD.

#Burke, S, Richardson, J (2009). Psychological First Aid: An Australian Guide. Crisis Care Commitment. Australian Psychological society and Australian Red Cross. <http://www.psychology.org.au/assets/files/red-cross-psychological-first-aid-book.pdf>

#Inter-Agency Standing Committee (IASC) (2007). IASC Guidelines on Mental Health and Psychosocial Support in Emergency Settings. Geneva: IASC.

#The Sphere Project (2011) Humanitarian Charter and Minimum Standards in Disaster Response. Geneva. The Sphere Project

#World Health Organization, War Trauma Foundation and World Vision International (2011). Psychological First Aid: Guide for field workers. WHO: Geneva.

Websource:

#Summary of Psychological First Aid (unicef.org)

#<http://www.sphereproject.org>#<http://www.nctsn.org/content/psychological-first-aid> and <http://www.ptsd.va.gov/professional/manuals/psych-first-aid.asp>

#http://www.who.int/mental_health Psychosocial_june_2007.pdf

Semester V	Employability Skills	Category	Course Code	Instructional Hours	Credit
		Skill based Elective II	19USW5SBE2B	30	2

To enlighten the employability skills which helps to meet expectation of Industries from the students .

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1	Recall the Concept of Employability Skills	K1
CO2	Utilize the knowledge on Microsoft Office	K2
CO3	Describe the Occupational Safety and health Hazards	K2
CO4	Use the Knowledge of Productivity	K3
CO5	Explain about Quality Management System	K4

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

S – Strong; M – Medium; L – Low

Unit I(15 hours)

Employability Skills: Meaning, Significance and Various employability skills-.

Unit II (15 hours)

IT Literacy: Basic operating of Word Processing, Creating, opening and closing Documents, use of shortcuts, Creating and Editing of Text, Formatting the Text, Insertion & creation of Tables, Printing document. Basics of Excel worksheet, understanding basic commands, creating simple worksheets, understanding sample worksheets, use of simple formulas and functions, Printing of simple excel sheets and Making Power Point Presentation.

Unit III (15 hours)

Self Management Skills: Meaning and importance of Stress Management and techniques. Self Awareness-Meaning and types of self awareness, Self motivation and self- regulation and SWOT Analysis.

Unit IV (15 hours)

Productivity: Definition, Necessity, Meaning of GDP. Benefits Personal / Workman – Incentive, Production linked Bonus, Improvement in living standard.

Unit V (15 hours)

Quality Management System: Idea of ISO 9000 and BIS systems and its importance in maintaining qualities.

References:

- Wayne Cascio & Ranjeet Nambudiri. (2010) . Managing Human Resources: Productivity, Quality of Work Life Profits(8th ed.).
- Reema Thareja . (2014).*Fundamentals of Computers*, Oxford University Press.
- Vishnu P. Singh & Subhas C & Kapil Dev (2014). Employability Skills, Asian Pulishers

Web Sources:

psscive.ac.in/assets/uploads/ncert_books/Employability_Skills10.pdf

<https://www.slideshare.net/bogeybear/employability-skills>

<https://libguides.bcu.ac.uk/employabilityskills/findingbooksandjournals>

Pedagogy: You tube Videos,Chalk and Talk and Group Discussions.

Course Designer: Ms.S.Hema

Semester V	FAMILY LIFE MANAGEMENT	Category	Course Code	Instructional Hours	Credits
		Skill Based Elective III	19USW5SBE3A	30	2

This course prepares the students become best home managers in dealing with different affairs of family life management process.

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

CO Number	CO Statement	KNOWLEDGE LEVEL
CO1	Recall Family Dynamics	K1
CO2	Understand Philosophy, Values, Standards and Goals of Family	K2
CO3	Examine Decision-making in Family	K3
CO4	Discover Kinds of Family Resources	K4
CO5	Plan for the future	K6

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

S – Strong; M – Medium; L – Low

Unit I (6 hours)

Family Life in a Changing World; Role of Family; Role of Family members; Role of Women; Family Life Cycle: Stages; The home in an industrial Context; Concept of Management in the Home; Managerial Responsibilities.

Unit II (6 hours)

Philosophy, Values, Standards and Goals: Development of a Philosophy; The concept of Value; Values and Attitudes; Development of Family Value Patterns; The concept of Standards; The concept of Goals; Customary beliefs.

Unit III (6 hours)

Decision Making in Family Living: Steps in Decision-Making Process; Kinds of decisions families make; The concept of Family Resources; The management Process;

Unit IV (6 hours)

Management of Family Resources: Time Management; Energy Management; Work Simplification; **The process of Family Finance Management:** The concept of Income Management; Analysis of Kinds of Income; Guidelines in money income management; Borrowing: the family's use of credit; Conflict Management in Families.

Unit V (6 hours)

The Family's Plans for the Future – Institutions Savings, Investments and the Estate: Institutions for Family Savings; Taxation in Family Plans; Planning the Family Estate; Insurance for the Family

References

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2. Ann Smith Rice, Suzanne M. Tucker . (200).Family Life Management, the University of Michigan: Macmillan
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11. Narayan, B., ed. (1987). Leadership & Management Effectiveness, New Delhi : Anmol Publishers.
12. Newman, W.H. Warren, E.K. and McGill, A.R.(1998). The Process of Management strategy, Action, Result, Prentice, Hall of India Pvt. Ltd.
13. Nickell and Dorsey J.M.(1983). Management in Family Living, Wiley Eastern Ltd., New Delhi.
14. Rustomji, M.K.(1983). Art of Management, Delhi, Macmillan India Ltd.
15. Ruth E. Deacon, Francille M. Firebaugh .(2010). Home Management: Context and Concepts the University of Wisconsin – Madison: Houghton Mifflin
16. Steidl and Bratton.(1967). Work in the Home, John Wiley and Sons. New York.

Pedagogy:

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

Course Designer: Dr.G.Mettilda Buvaneswari

SEMESTER V	SOCIAL ENTREPRENEURSHIP	Category	Course Code	Instructional Hours	Credits
		Skill Based Elective III	19USW5SBE3B	30	2

This course aims to make the students to understand the concepts of Entrepreneurship and Social Entrepreneurship with process, models and Challenges

CO Number	CO Statement	Knowledge Level
CO1	Define the concepts of Entrepreneurship and Social Entrepreneurship	K1
CO2	Explain the Process of Social Entrepreneurship, and Challenges	K2
CO3	Outline the Ethical Entrepreneurship	K2
CO4	Identify the Entrepreneurship Models in India	K3

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

Strong; M- Medium; L- Low

Unit I (6 hours) Foundations of Entrepreneurship:

Entrepreneur & Entrepreneurship – Meaning, Definition. Objectives, Types and Characteristics of Entrepreneur.

Unit II (6 hours) Social Entrepreneurship:

Social Entrepreneurship–Meaning, Definition, Characteristics of Social Entrepreneur, Difference between Business & Social Enterprise, Qualities & Skills of a Social Entrepreneur and Challenge in Social Entrepreneurship.

Unit III (6 hours) Social Entrepreneurship Process:

Sources of Social Entrepreneurship, Timmons Model of Entrepreneurship process and Social Entrepreneurship Framework.

Unit IV (6 hours) Ethical Entrepreneurship:

Ethical entrepreneurship: Meaning, Empirical Ethics, Entrepreneur and customer, Entrepreneur and Employee, Entrepreneur and Government.

Unit V (6 hours) Entrepreneurship Models in India:

Bangladesh Rural Advancement Committee (BRAC), The Grameen Bank (GB), The Self Employment Women's Association (SEWA).

References

Kickul, J and Lyons, S.T. (2012), Understanding Social Entrepreneurship - the relentless pursuit of mission in an ever changing world. Routledge.

Khanka, S.S. (2009)., Entrepreneurship in India- Perspective and practice. Akansha publishing house

Desai, V. (2008)., Entrepreneurial Development. Himalaya Publishing House

Pedagogy: Lecture, Peer Discussion, Seminar, PPT, Group Discussion, e-Content and Case Study.

Course Designer: Dr. G. Kanaga & Dr. T. Amirtha Mary

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

(Nationally Accredited with “A” Grade (III Cycle) by NAAC)
ISO 9001: 2015 Certified



PG & RESEARCH DEPARTMENT OF SOCIAL WORK

SYLLABUS – BACHELOR OF SOCIAL WORK

Programme Educational Objectives

Graduates will gain basic knowledge of social work, analyse the causes of social problems, identify scope of social work and equip themselves with skills of observation, reporting, Analytical thinking, organising, public relations etc.

Programme Outcome

- PO1** Apply the Knowledge of social work to understand the issues and problems that arise in the society
- PO2:** Identify challenges in Health sectors, family issues, industries, disability, Correctional settings, etc.
- PO3:** Apply professional social work skills, values and ethics
- PO4:** Link with the society by involving into community services **PO5:**
Utilize life skills to achieve personal and professional goals

PG & RESEARCH DEPARTMENT OF SOCIAL WORK
BACHELOR OF SOCIAL WORK PROGRAMME STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2020 - 2021 onwards)

Sem	Part	Course	Course Title	Course Code	Ins Hrs/ week	Credits	Exam Hours	Marks		
								Internal	External	Total
I	I	Language course I	IkkalaEllaikiyam	19ULT1	6	3	3	25	75	100
		Tamil/	Story, Novel, Hindi Literature – 1 & Grammer – I	19ULH1						
		Other languages	History of popular tales, Literature and Sanskrit story	19ULS1						
			Communication in French – I	19ULF1						
	II	English language course – I (ELC)	Functional Grammer for Effective Communication – I	19UE1	6	3	3	25	75	100
	III	Core course I	Introduction to Social Work	19USW1CC1	6	5	3	25	75	100
		Core course II	Structure of Indian Society and Indian Problems	19USW1CC2	6	5	3	25	75	100
		Allied Course I	Basics of Economics and Political System	19USW1AC1	4	3	3	25	75	100
	IV	Value Education	Universal Human Values	20UGVE	2	2	3	25	75	100
			Total		30	21				600
II	I	Language course II	EdaikalaEllakiyamumPuthi namum	19ULT2	6	3	3	25	75	100
		Tamil/	Prose, Drama, Hindi Literature - 2 & Grammer – II	19ULH2						
		Other languages	Poetry, Textual Grammer and Alakara	19ULS2						
			Communication in French – II	19ULF2						

	II	English language course II (ELC)	Functional Grammer for Effective Communication – II	19UE2	6	3	3	25	75	100
	III	Core course III	Methods of Social Work	19USW2CC3	6	5	3	25	75	100
		Core course IV	Human Growth and Development	19USW2CC4	6	5	3	25	75	100
		Allied Course II	Communication for Social workers	19USW2AC2	4	3	3	25	75	100
	IV	Environment al Studies	Environmental Studies	19UGES	2	2	3	25	75	100
	V	Extra Credit Course	Swayam Online Course	To be fixed later	As per UGC recommendation					
			Total		30	21				600
III	I	Language course III Tamil/ Other languages	KappiyamNadagamum Medieval, Modern Poetry and History of Hindi Literature – 3 Prose, Textual Grammer and Vakyarachana Communication in French - III	19ULT3						
				19ULH3	6	3	3	25	75	100
				19ULS3						
				19ULF3						
	II	English language course -III (ELC)	Reading & Writing for Effective Communication- I	19UE3	6	3	3	25	75	100
	III	Core course V	Introduction to Social Work Research and Statistics	19USW3CC5	6	5	3	25	75	100
		Core course VI	Field Work Practicum	19USW3CC6P	6	5	3	40	60	100
Allied Course III		Social Legislations	19USW3AC3	4	3	3	25	75	100	
IV	Non Major Elective I - for those who studied Tamil under Part I a) Basic Tamil for other language students b) Special	Human Rights/	19USW3NME1	2	2	3	25	75	100	

		Tamil for those who studied Tamil upto 10 th / +2 but opt for other languages in degree programme	Basic Tamil/ Special Tamil	19ULC3BT1 19ULC3ST1						
	V	Extra Credit Course	Swayam Online Course	To be fixed later	As per UGC recommendation					
			Total		30	21				600
IV	I	Language course IV Tamil/	PandayaEllakiyam	19ULT4	6	3	3	25	75	100
			Letter writing, General essays, Technical terms, Proverbs, Idioms and phrases, Hindi Literature - 4	19ULH4						
		Other languages	Drama, History of Drama literature	19ULS4						
			Communication in French - IV	19ULF4						
	II	English language course- IV (ELC)	Reading & Writing for Effective Communication- II	19UE4	6	3	3	25	75	100
	III	Core course VII	Social Welfare Administration	19USW4CC7	5	5	3	25	75	100
		Core course VIII	Field work Practicum	19USW4CC8P	5	5	3	40	60	100
Allied Course IV		Health Care Services	19USW4AC4	4	3	3	25	75	100	
IV	Non Major Elective - II - for those who studied Tamil under Part I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto 10 th / +2 but opt for other languages in degree programme	Women Rights and Laws Basic Tamil Special Tamil	19USW4NME2 19ULC4BT2 19ULC4ST2	2	2	3	25	75	100	

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

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PG & RESEARCH DEPARTMENT OF SOCIAL WORK

SYLLABUS – MASTER OF SOCIAL WORK

PROGRAMME OUTCOME

PO 1- To demonstrate knowledge on professional social work and apply the principles to the needs of the Government and Non-government organizations, Industries and Community development projects.

PO 2- To gain analytical skills in the fields of social work practice.

PO 3- To demonstrate Professional ethics, community living and Nation Building

PO 4- To design solution initiatives for complex problems that meet the specified needs with appropriate consideration for the needy individuals, groups and communities

PO 5- To enhance professional competence in social work practice.

PO6-ToacquireemploymentopportunityinGovernment,Non-governmentwelfare organization, health settings andindustries.

PO 7- To conduct scientific social research on various social issues.

**MASTER OF SOCIAL WORK PROGRAMME STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM**

(For the candidates admitted from the academic year 2019 - 2020 onwards)

Sem	Course details	Course title	Subject code	Ins hours / Week	Credits	Exam hrs	Marks		
							Int	Ext	Total
I	Core Course I	Introduction to social work	19PSW1CC1	6	4	3	25	75	100
	Core Course II	Social case work	19PSW1CC2	6	4	3	25	75	100
	Core Course III	Social Group Work	19PSW1CC3	6	4	3	25	75	100
	Core Course IV	Field work practicum	19PSW1CC4P	6	4	3	40	60	100
	Elective Course I	Human Resource Development	19PSW1EC1A /	6	4	3	25	75	100
NGO Management		19PSW1EC1B							
		TOTAL		30	20				500
II	Core Course V	Counselling : Theory and Practice	19PSW2CC5	6	5	3	25	75	100
	Core Course VI	Social work Research and Social Statistics	19PSW2CC6	6	5	3	25	75	100
	Core Course VII	Community Organization and Social Action	19PSW2CC7	6	5	3	25	75	100
	Core Course VIII	Field work practicum	19PSW2CC8P	6	5	3	40	60	100
	Elective Course II	Psychology for Social Workers	19PSW2EC2A	6	4	3	25	75	100

		Health and Hygiene	19PSW2EC2B						
	Extra Credit Course	Swayam Online Course	To be Fixed Later	As per UGC Recommendation					
		TOTAL		30	24				500
III	Core Course IX	Structure and Functions Social Work for Competitive Exams	19PSW3CC9	6	5	3	-	100	100
	Core Course X	Specialization –I Public Health	19PSW3CC10A	6	5	3	25	75	100
		Women welfare and Health	19PSW3CC10B						
		Human Resource Management	19PSW3CC10C						
		Rural and Tribal Community Development	19PSW3CC10D						
	Core Course XI	Specialization –II Medical Social work	19PSW3CC11A	6	5	3	25	75	100
		Child Rights and Child Protection	19PSW3CC11B						
		Industrial Relations and Labour Welfare	19PSW3CC11C						
		Urban Community Development	19PSW3CC11D						
	Core Course XII	Field work Practicum	19PSW3CC12P	6	5	3	40	60	100

	Elective Course III	Corporate Social Responsibility	19PSW3EC3A	6	4	3	25	75	100
		Skills for Social Workers	19PSW3EC3B						
	Extra Credit Course	Swayam Online Course	To be Fixed Later	As per UGC Recommendation					
		TOTAL		30	24				500
IV	Core Course XIII	Specialization III Psychiatric social work	19PSW4CC13A	5	5	3	25	75	100
		Welfare of the youth and Aged	19PSW4CC13B						
		Organisational Behaviour	19PSW4CC13C						
		Development Planning, Policy and Practice	19PSW4CC13D						
	Core Course XIV	Field work Practicum	19PSW4CC14P	5	5	3	40	60	100
	Elective course – IV	Disaster Management	19PSW4EC4A	5	4	3	25	75	100
		Youth and Marginalized Sections	19PSW4EC4B						
	Elective Course V	Block Placement	19PSW4EC5P	5	4	3	40	60	100
Research Project	Research Project Work	19PSWPW	10	4	3	Evaluation 80 Viva 20		100	
		TOTAL		30	22				500
GRAND TOTAL				120	90				2000

A. Medical and Psychiatric Social Work

Specialization Paper	Course	Subject Code	Title of the Paper
Specialization I*	CC	19PSW3CC10A	Public Health
Specialization II**	CC	19PSW3CC11A	Medical Social work
Specialization III***	CC	19PSW4CC13A	Psychiatric social work

B. Family and Child Welfare

Specialization Paper	Course	Subject Code	Title of the Paper
Specialization I*	CC	19PSW3CC10B	Women welfare and Health
Specialization II**	CC	19PSW3CC11B	Child Rights and Child Protection
Specialization III***	CC	19PSW4CC13B	Welfare of the youth and Aged

C. Human Resource Management

Specialization Paper	Course	Subject Code	Title of the Paper
Specialization I*	CC	19PSW3CC10C	Human Resource Management
Specialization II**	CC	19PSW3CC11C	Industrial relations and Labour welfare
Specialization III***	CC	19PSW4CC13C	Organizational Behaviour

D. Community Development

Specialization Paper	Course	Subject Code	Title of the Paper
Specialization I*	CC	19PSW3CC10D	Rural and Tribal Community Development
Specialization II**	CC	19PSW3CC11D	Urban Community Development
Specialization III***	CC	19PSW4CC13D	Development Planning, Policy and Practice

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PG & RESEARCH DEPARTMENT OF SOCIAL WORK

SYLLABUS – MASTER OF SOCIAL WORK

PROGRAMME OUTCOME

PO 1- To demonstrate knowledge on professional social work and apply the principles to the needs of the Government and Non-government organizations, Industries and Community development projects.

PO 2- To gain analytical skills in the fields of social work practice.

PO 3- To use Professional ethics, community living and Nation Building

PO 4- To design solution initiatives for complex problems that meet the specified needs with appropriate consideration for the needy individuals, groups and communities

PO 5- To enhance professional competence in social work practice.

PO 6- To acquire employment opportunity in Government, Non-government welfare organization, health settings and industries.

PO 7- To conduct scientific social research on various social issues.

MASTER OF SOCIAL WORK PROGRAMME STRUCTURE UNDER
CHOICE BASED CREDIT SYSTEM

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

Sem	Course Details	Course Title	Subject Code	Ins Hou rs/ Wee k	Credits	Exam Hrs	Marks		
							Int	Ext	Total
I	Core Course I	Introduction to Social Work	19PSW1CC1	6	4	3	25	75	100
	Core Course II	Social Case Work	19PSW1CC2	6	4	3	25	75	100
	Core Course III	Social Group Work	19PSW1CC3	6	4	3	25	75	100
	Core Course IV	Social Work Practicum	19PSW1CC4P	6	4	3	40	60	100
	Elective Course I	Human Resource Development / NGO Management	19PSW1EC1A / 19PSW1EC1B	6	4	3	25	75	100
		TOTAL		30	20				500
II	Core Course V	Social work Research and Social Statistics	19PSW2CC5	6	5	3	25	75	100
	Core Course VI	Community Organization and Social Action	19PSW2CC6	6	5	3	25	75	100
	Core Course VII	Social Work Practicum	19PSW2CC7P	6	5	3	40	60	100
	Elective Course II	Counselling : Theory and Practice/ Family Social Work	19PSW2EC2A/ 19PSW2EC2B	6	5	3	25	75	100
	Elective	Psychology for	19PSW2EC3A /	6	4	3	25	75	100

	Course III	Social Workers / Health and Hygiene	19PSW2EC3B						
	Extra Credit Course	Swayam Online Course	To be fixed later	As per UGC recommendation					
		TOTAL		30	24				500
III	Core Course VIII	Structure and Functions of Social Work for Competitive Exams	19PSW3CC8	6	5	3	-	100	100
	Core Course IX	Specialization I Public Health	19PSW3CC9A	6	5	3	25	75	100
		Women Health and Welfare	19PSW3CC9B						
		Human Resource Management	19PSW3CC9C						
		Rural and Tribal Community Development	19PSW3CC9D						
	Core Course X	Specialization II Medical Social work	19PSW3CC10A	6	5	3	25	75	100
		Child Rights and Child Protection	19PSW3CC10B						
		Labour Laws and Industrial Relations	19PSW3CC10C						
		Urban Community Development	19PSW3CC10D						
	Core Course XI	Social Work Practicum	19PSW3CC11P	6	5	3	40	60	100
Elective Course IV	Corporate Social Responsibility / Life Skills and Soft Skills for Social Workers	19PSW3EC4A / 19PSW3EC4B	6	4	3	25	75	100	

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

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



**DEPARTMENT
OF
BUSINESS ADMINISTRATION**
AUTONOMOUS SYLLABUS

MINUTES OF DEPARTMENT OF BUSINESS ADMINISTRATION

Members Present

1) Dr.J.Tamilselvi	Chairperson, Associate Professor & HOD
2) Dr. N. Senthilkumar	Subject Expert, Anna University, Chennai
3) Dr. Kavitha Shanmugam	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 FOURTH BOS MEET -04.01.2021:

1. ITEM NO. BOS/04/01

Confirmation of Minutes of Third BOS Meeting

The Chairperson apprised the Board regarding the Minutes of Third BOS. Since no comment has been received, this BOS has approved the Minutes of the Third BOS Meeting.

2. ITEM NO. BOS/04/02

To consider and approve the Curriculum and Syllabus for Business Administration (B.B.A.) for Fifth semester of 2019 – 2020 batch and onwards.

Suggestions made during the discussions:

- As per the suggestion given by the Members, CC IX with the subject code 19UBA5CC7 titled Entrepreneurial Development has been modified, Self Help Groups concepts, winning proposal for banks and Crowd sourcing has been included in the syllabus.
- Credits are readjusted for Major based elective I with the code of 19UBA5MBE1A titled Consumer Behaviour on the feedback as per the University Norms.
- As per suggestion given, Skill based elective II with the code of 19UBA5SBE2A titled New product development syllabus has been updated to cater the needs of the students.
- The members appreciated the contents of the Syllabus and it was resolved as under.

“Resolved and approved the Curriculum and Syllabus for Business Administration (B.B.A.)”

3. ITEM NO. BOS/04/03

To consider and approve the ratification made to add the Digital Marketing - 19UBA5CC10 as a core paper XII in Vt h semester course structure for Business Administration (2019 – 2020 Batch and onwards) and forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy.

“Resolved and approved the Curriculum and Syllabus for Business Administration (B.B.A.)”

4. ITEM NO. BOS/04/04

To approve Online course offered by SWAYAM as an Extra credit course in Semester II in the Programme structure of Business Administration (2020 – 2021 Batch and onwards) and forward to the academic council, Cauvery College for Women (Autonomous), Trichy.

With the above discussions the Chairperson expressed her deep sense of gratitude to all members for an Academic vibrant discussion on various matters.

“Resolved that to approve the ONLINE course for the students”

**(Chairman)
Board of Studies**

**BACHELOR OF BUSINESS ADMINISTRATION (B.B.A)
AUTONOMOUS SYLLABUS UNDER CBCS (2020 – 2021)**

SEM	PART	COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
							INT	EXT	
I	I	IkkalaIlakkiyam	19ULT1	6	3	3	25	75	100
		Story, Novel, Hindi Literature – I & Grammar – I	19ULH1						
		History of Popular Tales and Literature and Sanskrit Story	19ULS1						
		Communication in French – I	19ULF1						
	II	Functional Grammar for Effective Communication – I	19UE1	6	3	3	25	75	100
	III	Core Course I (CC) Fundamentals of Management	19UBA1CC1	5	5	3	25	75	100
		Core Course II (CC) Financial Accounting	19UBA1CC2	6	5	3	25	75	100
		Allied Course I Managerial Economics	19UBA1AC1	5	3	3	25	75	100
	IV	UGC JeevanKaushal Life Skills: Universal Human Values	20UGVE	2	2	3	25	75	100
	TOTAL				30	21			
II	I	IdaikkalaIlakkiyamum, Pudhinamum	19ULT2	6	3	3	25	75	100
		Prose, Drama, Hindi Literature – 2 & Grammar – II	19ULH2						
		Poetry Textual Grammar and Alakara	19ULS2						
		Communication in French – II	19ULF2						
	II	Functional Grammar for Effective Communication - II	19UE2	6	3	3	25	75	100
	III	Core Course III (CC) Elements of Marketing	19UBA2CC3	5	5	3	25	75	100
		Core Course IV (CC) Business Statistics	19UBA2CC4	6	5	3	25	75	100
		Allied Course II Business Environment	19UBA2AC2	5	3	3	25	75	100
	IV	Environmental Studies	19UGES	2	2	3	25	75	100
	V	Extra Credit Course: SWAYAM ONLINE COURSE	To be fixed later	As per UGC Recommendations					
TOTAL				30	21				600

**BACHELOR OF BUSINESS ADMINISTRATION (B.B.A)
AUTONOMOUS SYLLABUS UNDER CBCS (2019 – 2020)**

SEM	PART	COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
							INT	EXT	
V	III	Core Course IX (CC) Entrepreneurial Development	19UBA5CC7	5	5	3	25	75	100
		Core Course X (CC) Research methods in Management	19UBA5CC8	5	5	3	25	75	100
		Core Course XI (CC) Management Accounting	19UBA5CC9	5	5	3	25	75	100
		Core Course XII (CC) Digital Marketing	19UBA5CC10	5	5	3	25	75	100
		Major Based Elective - I Consumer Behaviour	19UBA5MBE1 A	4	3	3	25	75	100
		Managerial Communication	19UBA5MBE1 B						
	IV	Skill Based Elective – II New Product Development	19UBA5SBE2 A	2	2	3	25	75	100
		Business Ethics	19UBA5SBE2 B						
		Skill Based Elective – III Event Management	19UBA5SBE3 A	2	2	3	25	75	100
		Personality Development	19UBA5SBE3 B						
		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

CORE COURSE IX – ENTREPRENEURIAL DEVELOPMENT

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Core Course IX (CC) Entrepreneurial Development	19UBA5CC7	5	5	3	25	75	100

Objectives:

- To impart the basic knowledge of Entrepreneurial Development so that they may stand on their own, which is the need of the hour in a land of unemployment.
- To encourage the students to set up their own ventures and contribute to national economic development.

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 Entrepreneurial Development and to discuss the entrepreneurial skills to the students.	K1
CO2	Analyse the Entrepreneurial Environment and to plan for the growth of entrepreneurship in economic development.	K3
CO3	Design the course content and curriculum of EDP and to Evaluate the performance of Entrepreneurial Development programme.	K3
CO4	Analyse the Functioning of various EDP Institutions in India.	K3
CO5	Explain the concept of project and to identify the various sources of business idea.	K3
CO6	Formulate the projects and analyse its elements and to prepare the project report.	K3
CO7	Analyse the various incentives and subsidies for the business units located in backward area and to evaluate the empowerment of rural and women entrepreneurs.	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
CO6	S	S	L	S	L
CO7	S	S	M	S	S

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

SYLLABUS

Unit-I (14 Hours)

Entrepreneur – Evolution – Definition –Qualities of entrepreneurs –Types and function of entrepreneurs — Entrepreneurship – Nature – Characteristics – Barriers – Role of entrepreneurship in economic development -Intrapreneur –Distinction between entrepreneur and Intrapreneur.

UNIT-II (14 HOURS)

Entrepreneurial Environment - Factors affecting Entrepreneurial Environment-Entrepreneurial Motivation – Types, Nature, Importance of motivation- Motivating factors – Entrepreneurial Growth.

UNIT – III (15 HOURS)

Entrepreneurial Development Programme – Need for EDPs – Objectives, Role and Phases of EDP – Course Content and Curriculum –Performance of EDP-EDP Institutions in India and their functions – DIC – SIDO – NSIC – SIDCO – SISI – TCO- SIPCOT – ITCOT – NIESBUD.

UNIT – IV (14 HOURS)

Project Management – Concept of project- Sources of a business idea – Project Classification - Project Identification – Project formulation – Elements- Project Report – Project Appraisal - Sources of Finance - Self Help Groups – Submission winning proposals for banks - Crowd Sourcing.

UNIT-V (14 HOURS)

MSME - Steps for starting MSME – Government Policy for MSME - Government Schemes, Incentives and Subsidies for Entrepreneur – Benefits to Industrial Units Located in Backward Area – Industrial Estate - Rural Entrepreneurs – Women Entrepreneurs – Steps to encourage women entrepreneurs – Problems faced by rural and women entrepreneurs– Case Studies of Successful Entrepreneurs - Project Work.

Text Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	C.B. Gupta &N.P.Srinivasan	Entrepreneurial Development	Sultan Chand and Sons, New Delhi.	Revised Edition 2017.
2.	Khanka S.S	Entrepreneurial Development	S.ChandAnd Company Ltd, New Delhi.	Revised Edition2007

Books for Reference:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Vasant Desai	Dynamics of entrepreneurial development	Himalaya publishing House.	2009
2.	E.Gardon&K.Natrajan	Entrepreneurship Development	Himalaya publishing House.	2009

Pedagogy: Lecture, Power Point Presentation, Assignment, Seminar, Group projects

Course Designer: Dr.M.Neela,Associate Professor.

CORE COURSE X – RESEARCH METHODS IN MANAGEMENT

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Core Course X (CC) Research methods in Management	19UBA5CC8	5	5	3	25	75	100

Objectives:

- To gain thorough knowledge on the development of the research projects
- To acquire theoretical and practical background of research

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 Research and its ethics.	K1
CO2	Select and to identify the sources of research problem and to Formulate the research problem	K2
CO3	Discuss the stages in preparation of Research Design.	K3
CO4	Select the sampling techniques and to compare the probability and Non probability sampling methods.	K3
CO5	Formulate Research Hypothesis and to identify the sources of data collection and to analyse and interpret the data.	K3
CO6	Prepare Research Report and to outline the Research report	K3
CO7	Compile the Bibliography and to utilize the Plagiarism and publication rights.	K4

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
CO6	S	S	L	S	L
CO7	S	S	M	S	S

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

SYLLABUS

Unit-I (12 Hours)

Concept of research: meaning, objectives, purpose, criteria for good research, Type of Research - pure, applied, historical, analytical, descriptive and experimental research, Pilot Study – case study method -Research Ethics.

Unit-II (12 Hours)

Research problem- Meaning- Process and Formulation of Research Problem – Sources – Identification and Selection of Research Problem – Criteria of a good Research Problem -Research design - meaning – Stages in the preparation of Research Design – Exploratory, Descriptive and Causal Research Design- A Model Design.

Unit-III (10 Hours)

Sampling – meaning- Nature -Need – Determination of Sample Size - Advantages and disadvantages– Types - Probability - Non-probability - Hypothesis – Meaning –Characteristics – Types of Hypothesis – Type I Error & Type II Error.

Unit-IV (10 Hours)

Collection of Data – Sources - Primary and Secondary sources – Methods of Data Collection – Merits and Demerits – Construction of Questionnaire– Measurement - ScalePresentation –Editing - Coding and Tabulation –Analysis and Interpretation of Data.

Unit-V (12 Hours)

Research Report – Meaning – Types-Steps in Organization of Research Report – Significance of Report writing –Drafting report - content of research report – Bibliography – Plagiarism- publication rights.

Text Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	C.R.Kothari,	Research methodology	New Age International Publisher	2004
2.	N.Thanulingon	Research methodology	Himalaya Publication, Mumbai.	1998

Books for Reference:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Ahuja Ram	Research methods	Rawat publications; Jaipur,	2001
2.	Tirupathi, P. C.:	A textbook of research methodology insocial sciences	Sultan chand and sons	2014

Pedagogy: Lecture, Power Point Presentation, Assignment, Seminar, Group projects

Course Designer: Dr.M.Neela, Associate Professor.

CORE COURSE XI – MANAGEMENT ACCOUNTING

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Core Course XI (CC) Management Accounting	19UBA5CC9	5	5	3	25	75	100

Objectives:

- To gain knowledge in the preparation of financial statement analysis, marginal costing, budget, working capital, standard costing and
- Utilize the management tools and techniques to take appropriate financial decisions

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Illustrate the role of a Management Accountant in the present scenario	K1
CO2	Evaluate the financial statement analysis for strategic decision making of firm	K2
CO3	Examine the solvency, turnover/performance and Liquidity of a business by using live data	K2
CO4	Evaluate the magnitude and pattern of Sources and Application of fund under different head of account	K3
CO5	Show Budget for each managerial function and flexible budgets to exercise budgetary control over functions/level of activity of firm	K3
CO6	Use Standard costing system to analysis the causes of labour, material, overhead and sales margin variances between Standard and Actual cost	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
CO6	S	S	M	S	L

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

SYLLABUS

UNIT: I(15 Hours)

Management Accounting – Definition – Objectives – Nature and Scope of Management Accounting – Relationship between Financial Accounting – Cost Accounting and Management Accounting – Financial Statement Analysis – Comparative Statements – Common size Statement – Trend Analysis – Preparation of Income Statement and Balance Sheet with Ratios. Annual report Discussion.

UNIT: II(15 Hours)

Meaning – Concept of Fund and Funds flow statement – Construction of FFS, Cash flow analysis – Meaning and Concept – Comparison between fund flow and cash flow statement – Construction of cash flow statement.

UNIT: III (12 Hours)

Marginal Costing – Distinction between Absorption Costing and Marginal Costing – Cost Volume Profit (CVP) Analysis – Break Even Analysis – Margin of Safety.

UNIT: IV (15 Hours)

Budget and Budgetary Control – Sales, Production, Production Cost, Raw Material Cost, Cash, Master Budgets and Flexible Budget.

UNIT: V (13 Hours)

Working Capital – Types – Factors determining Working Capital – Estimate of Working Capital requirements – Standard Costing – Material and Labour Variance only.

Distribution of Marks: Theory 40% Problems 60%

Text Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Dr. Rajiv Goel & Manmohan	Management Accounting	International Book House Pvt Ltd	1st Edition, 2013
2.	Dr. S.N. Maheswari	A Textbook of Accounting for Management	Vikas Publishing House	3 rd Edition 2012

Books for Reference:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	R.S.N. Pillai & Bagavathi	Management Accounting	S. Chand	4 th Edition 1996
2.	Shashi K. Gupta & R.K. Sharma	Management Accounting Principles and Practice	Kalyani Publishers	13 th Revised Edition 2016
3.	M.Y. Khan & P.K. Jain	Management Accounting	Mc Graw Hill education	4 th Edition 2008
4.	I.M. Pandey	Management Accounting	Vikas Publication House Pvt Ltd	3 rd Edition 2010

Pedagogy: Lecture, Assignments and Quiz

Course Designer: Mrs. P. Thangamani, Assistant Professor.

CORE COURSE XII (CC) – DIGITAL MARKETING

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
CORE COURSE XII (CC) Digital Marketing	19UBA5CC10	5	5	3	25	75	100

Objectives:

- To facilitate the students to develop an overall understanding of digital marketing and online platforms and increase their job opportunities.
- Assessing the present social media presence and Industry bench marking.
- To inculcate the entrepreneurial qualities among the students with sufficient knowledge about online marketing channels for starting their own online business.
- Application of social media tools for marketing, advertising, networking and personal branding.

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 Digital Marketing	K1
CO2	Discuss the Digital Marketing Techniques such as Search Engine Optimization(SEO) & Search Engine Marketing (SEM), Content Marketing, Display Advertising.	K2
CO3	Apply the concept of social media marketing and the rise of online social networking sites.	K3
CO4	Utilize the social media platforms such as face book, twitter, insta gram, you tube.	K3
CO5	Identify the challenges and opportunities in the Digital Marketing and Creation of Website.	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	S	S

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

SYLLABUS

UNIT- 1: Introduction to Digital Marketing: (14 Hours)

Digital Marketing – Meaning – Definition - Concept - History of Digital Marketing-Importance of Digital Marketing – Scope – Characteristics - Merits and Demerits – Digital Marketing Strategies – Types of Digital Marketing – Innovative Ideas of Digital Marketing.

UNIT- 2: Digital Marketing Techniques: (15 Hours)

Digital Marketing Techniques – Display Advertising -Search Engine Optimization (SEO)-Email Marketing-Need for Emails, Email advertising, Mobile Marketing -Content Marketing – Web Advertising – Affiliate Advertising – Search Engine Marketing (SEM) Pay-Per-Click Advertising, Paid Search Engine Listing - Blogging and Classified Advertising.

UNIT-3: Social Media Marketing: (14 Hours)

Social Media Marketing – Meaning –Definition - The rise of online social networking sites – History of Social Networking sites – Evolution of Social Media – Functions of social networking sites – Benefits of Social Media Marketing – Limitations of social media marketing- Social Media Marketing Techniques.

UNIT-4: Social Media Platforms (15 Hours)

Social Media platforms –Meaning – scope – Advantages – Disadvantages– Engagement – Twitter – Face book – Instagram -Google+ - Linked in – You tube – Delicious, dig and reddit – Blogs - Types of users on social networks- Social Media and Target Audience-Sharing content on Social Media-Book marking websites: DO’s and Don’ts of Social media.

UNIT: 5 Future of Digital Marketing (10 Hours)

Challenges Faced by Digital Marketing – Measures for making effective Digital Marketing - Trends in Digital Marketing. - E-Malls - E-Storefront - E-Marketplace - E-Marketing Tools- Creating a Website, blogs and social media accounts.

Text Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Seema Gupta	Digital Marketing	Mc Graw Hill Education	2018
2.	Puneet Bhatia	Fundamentals of Digital Marketing	Pearson Publication	2018

Books for Reference:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Nitin C Kamat& Chinmay Nitin Kamat	Digital Social Media	Himalaya Publishing House	2018
2.	Tracy L.Tuten& Michael R.Solomon	Social Media Markeing	SAGE Publication.	2017

Pedagogy: Lecture, Power Point Presentation, Assignment, Seminar.

Course Designer: Dr.M.Neela, Associate Professor.

MAJOR BASED ELECTIVE I – CONSUMER BEHAVIOUR

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Major Based Elective - I Consumer Behaviour	19UBA5MBE1A	4	3	3	25	75	100

Objectives:

- To develop and understanding about the many aspects of consumer behaviour and its applications in marketing.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Learn the basic concepts of consumer behaviour	K1
CO2	Explain the buying patterns in both the consumer and the organizational markets and analyze their applicability in the real world buying situations.	K2
CO3	Equip the students to be better decision makers in the field of marketing management as well as to become better customers themselves.	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	L	S

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

SYLLABUS

UNIT-I

Definition- types of consumer - Scope and applications of Consumer Behaviour - consumer research process - Distinction between positivism and interpretivism. Consumer behavior and marketing management. Consumer behavior theories - TRA- TPB- TAM.

UNIT-II

Attitude and consumer behavior - Meaning of attitude - nature and characteristics of attitude - types of attitude - learning of attitude - sources of influence on attitude formation.

UNIT-III

Culture and consumer behaviour - Meaning of culture - Characteristics of culture - function of culture. Types of culture - Cross-cultural consumer analysis - cross cultural marketing objectives - Basic areas for cross-cultural marketing - problem in cross cultural marketing.

UNIT-IV

Social class and consumer behavior - Introduction social class categorization - social class life style and buying behavior - social class and market segmentation - social factors - social class and consumerbehavior.

UNIT-V

Consumerism – Reasons for consumerism – Legislations for consumer Protection – Redressal consumer disputes – consumer protection councils – powers of district formus – Reasons for consumer movement – Consumer movement in India.

Text Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Schiffman LG and Kanuk	Consumer Behaviour	Prentice Hall of India	1994
2.	Assael H.	Consumer Behaviour and marketing Action	Ohio, South Western	1995

Books for Reference:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Engle, J F	Consumer Behaviour	MacMillan	1993
2.	Hawkins, D I	Consumer Behaviour	Chicago, Dryden Press	1993
3.	Mowen, John C	Consumer Behaviour	MacMillan	1993

Pedagogy: Interactive Lectures, Presentations, Assignments.

Course Designer: A. Suganya, Assistant Professor.

MAJOR BASED ELECTIVE – I: MANAGERIAL COMMUNICATION

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Major Based Elective - I Managerial Communication	19UBA5MBE1B	4	3	3	25	75	100

Objectives:

- To make them know the significance and principles communication.
- To enable students to write reports and speeches on topics related to business.
- To develop the ability to research and write a documented paper and/or to give an oral presentation.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Identify and demonstrate the use of Managerial Communication	K1
CO2	Discuss the types of communication	K2
CO3	Plan effective and concise letters and memos	K2
CO4	Explain the listening and communication skills	K3
CO5	Prepare Formal and Informal Reports.	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
CO6	S	S	L	S	L
CO7	S	S	M	S	S

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

SYLLABUS

UNIT-I

Communication - meaning, definition and objectives –Communication Cycle-Principles-Types- Process of Communication – Essentials and importance of managerial Communication – Communication Barriers-Overcoming communication barriers.

UNIT-II

Business Letters-Kinds - Layout and Parts-Enquiry and Replay - Offers and Quotations -Orders - Execution and Cancellation - Complaint Letters - Claims and Adjustments.

UNIT-III

The layout of the letter - Enquiries and Replies - Sales letters - Complaints & Adjustments - Collection letters, Circular letters.

UNIT-IV

Agency Correspondence - Import & Export Correspondence. Importance of listening and communication, Principles of effective listening, Modern means of communication.

UNIT-V

Report Writing - Meaning, Importance of Reports, Types of reports, Characteristic of good report, selecting suitable types of reports. Preparation of Resume and Mock Interview.

TEXT BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1	M.S.Ramesh, C CPattanshetti&Madhumati M Kulkarnii	Effective Business English and Correspondence	R.Chand&Co	2003
2	R.C.Sharma, Krishna Mohan	Business Correspondence and Report Writing	Tata McGraw Hill Publishing Company Limited	3 rd Edition 2007

REFERENCE BOOKS

Sl. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1	Herta A Murphy,Herbert W Hildebrandt & Jane P Thomas	Effective Business Communication	McGraw Hill Education	7 th Edition 2017
2	Rajendra Pal &J.S.Korlahalli	Essentials of Business Communion	Sultan Chand & sons.	13 th Edition 2014

PEDAGOGY: Interactive Lectures, Presentations, Assignments

COURSE DESIGNER: A.SUGANYA

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	19UBA5SBE2A	2	2	3	25	75	100

Objectives:

- 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 designOrganizing 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 II – BUSINESS ETHICS

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Skill Based Elective – II Business Ethics	19UBA5SBE2B	2	2	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.

SKILL BASED ELECTIVE III – EVENT MANAGEMENT

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Skill Based Elective – III Event Management	19UBA5SBE3A	2	2	3	25	75	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 Purpose of Organizing Events and different Types of Events	K1
CO2	Acquire knowledge on an overview of Event Management.	K1
CO3	Explaining the Role and Qualities of Event Manager	K2
CO4	To Examine Preparing a Planning Schedule	K3
CO5	To obtain knowledge about Public Relations	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
CO6	S	S	L	S	L

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

SYLLABUS

UNIT- 1: (8 Hours)

Event – Meaning – Features of Events – Analysis of Event, Scope of Event, Purpose of Organizing Events – Types of Events

UNIT- 2: (8 Hours)

Event Management – Features of Event Management, Process and Importance of Event Management – Principles of Event Management.

UNIT-3: (8 Hours)

Decision Makers – Event Manager – The Role of Event Manager – Qualities of Event Manager – Technical Staff – Establishing of Policies and Procedure – Developing Record Keeping Systems.

UNIT-4: (8 Hours)

Preparing a Planning Schedule – Planning of Corporate Event, Job Responsibility of Corporate Events Organizer– Arrangements – Budgeting.

UNIT: 5 (8 Hours)

Introduction to Public Relations – Concept – Nature – Importance – Limitations – Media – Types of Media – Conducting events during normal situations through online and offline.

Text Book:

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	Savita Mohan	Event Management & Public Relations	Enkay Publishing House	2012

Books for Reference:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Swarup K. Goyal	Event Management & Public Relations	Adhyayan Publisher	2009
2.	R.K.Singh	Event Management	Aman Publication. New Delhi	2011
3	Mark Sonder	Event Entertainment and Production	CSEP Publisher: Wiley & Sons	2004
4	Dr. Joe Goldblatt	Special Events	CSEP Publisher: Wiley & Sons	2013

Pedagogy: Lecture, Assignments, Seminar and Quiz.

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

SKILL BASED ELECTIVE III – PERSONALITY DEVELOPMENT

COURSE TITLE	SUBJECT CODE	HRS/ WEEK	CREDITS	EXAM HRS	MARKS		TOTAL
					INT	EXT	
Skill Based Elective – III Personality Development	19UBA5SBE3B	2	2	3	25	75	100

Objectives:

- To make the students groom their personality and prove themselves as good Samaritans of the society.
- To understand about the individual or in-group class presentations pertaining to the application of concepts.
- To learn the theories or issues in human Development.

Course Outcomes:

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

CO Number	CO Statement	Knowledge Level
CO1	Identify the individual or in group class presentation pertaining to the application of the concept.	K1
CO2	Discuss the research and write about the relevant topics.	K2
CO3	Design and complete a research project that can take the form of a development Interview, an observation or assessment through service learning	K3
CO4	Develop and maintain a reflection.	K4

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	L	S
CO4	S	S	S	S	M

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

SYLLABUS

UNIT- 1:INTRODUCTION TO PERSONALITY DEVELOPMENT(9 Hours)

The concept of personality-dimensions of Personality-Theories of Freud and Erickson-Significance of personality development. The concept of success and failure: What is success? –Hurdles in achieving success-overcoming Hurdles-Factors responsible for Success-What is Failure? -Causes of failure, SWOT analysis

UNIT- 2:ATTITUDE AND MOTIVATION (8 Hours)

Attitude-Concept-Significance-Factors affecting Attitudes-Positive Attitude-Advantages-Negative Attitude-Disadvantages-Ways to develop positive Attitude-Differences between personalities having positive and negative attitudes. Concept of Motivation-Significance-Internal and external Motives-Importance of self-Motivation-Factors leading to demotivation.

UNIT-3:SELF-ESTEEM (9 Hours)

Term Self-Esteem-Symptoms-Advantages-Do's and Don'ts to develop positive self-esteem-low self-Esteem-Symptoms-Personality having low Self-esteem-Positive and negative Self-esteem. Interpersonal Relationships-Defining the difference between aggressive, submissive and assertive behaviours-Lateral thinking

UNIT-4: OTHER ASPECTS OF PERSONALITY DEVELOPMENT(8 Hours)

Body Language-Problem Solving-Conflict and stress Management-Decision making Skills- Leadership and qualities of a successful Leader-Character Building-Team Work-Time Management- Work Ethics-Good manners and Etiquette

UNIT: EMPLOYABILITY QUOTIENT (8 Hours)

Resume building-The art of participating in group Discussion-Facing the personal (HR and Technical) Interview-Frequently asked Questions-Psychometric Analysis-Mock interview sessions.

Text Book:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Hurlock, E.B	Personality Development	New Delhi: TATA McGraw.Hill	28 th Reprint, 2006
2	Stephen P. Robins and Timothy A. Judge	Organizational Behavior	Prentice hall	16 th Edition, 2014

Books for Reference:

S. No.	Author(s)	Title of the Book	Publisher	Year of Publication
1.	Andrews, Sudhir	How to succeed at Interviews	New Delhi: TATA McGraw.Hill	21 st Reprint
2.	Heller, Robert	Effective Leadership. Essential manager series	DK Publishing	2002
3	Pravesh Kumar	All about Self-Motivation	New Delhi. Goodwill Publishing house	2005

Pedagogy: Lecture, Assignments, Seminar and Quiz.

Course Designer: Mrs.P. Thangamani, Assistant Professor.



**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 06.01.2021 WEDNESDAY AT 11.00 A.M. THE MEMBERS CONSIDERED AND APPROVED THE CURRICULAM AND FIFTH SEMESTER SYLLABUS OF B.COM. & B.COM. CA.

PG & REPARTMENT OF COMMERCE HAS PLANNED TO INTRODUCE B.COM PROFESSIONAL ACCOUNTING FROM THE ACADEMIC YEAR 2021 – 2022 ONWARDS, HEREWITH SEEKS THE APPROVAL OF COURSE STRUCTURE AND SYLLABUS OF I SEMESTER.

THE CHAIRMAN WELCOMED THE MEMBERS FOR ATTENDING THE FOURTH BOARD OF STUDIES MEET.

The following members attended the virtual meeting:

- | | |
|-------------------------------------|--|
| 1. Prof. Dr. N.SAVITHRI | Chairperson & Head |
| 2. Dr. T. PALANEESWARI
Fireworks | University Nominee, The Standard
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. Ms. 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 AS FOLLOWS:

1. ITEM NO. : 1

To Consider and to Approve the Curriculum and Syllabus of Fifth Semester of B.Com., & B.Com.CA.

2. ITEM NO. : 2

To Consider and include SWAYAM Online Course for an Extra Credit as per UGC norms in the IV Semester Course Structure of B.Com., B.Com.CA. and M.Com.

3. ITEM NO. : 3

To Consider and to Approve the Curriculum and Syllabus of First Semester of B.Com. (Professional Accounting).

4. ITEM NO. : 4

In the Course Structure of B.Com., & B.Com CA, in the SBE – III – B – Paper Group Project (with Internship) has been changed and ratification to be needed to change the Title as “Skills for Competitive Examinations”.

5. ITEM NO. : 5

To consider and approve the changes made in the Syllabus of B.Com. CA, II Semester, Core Course III titled “Modern Marketing”.

6. ITEM NO. : 6

To consider and to include the Professional Skills Course which is to be replaced with Soft Skills Development course.

7. ITEM NO. : 7

To consider and to ratify changes in the assessment pattern of II M.Com., III Semester, Core Course Paper Titled “Commerce for Competitive Examinations”. Earlier the compositions of marks were Internal 25 and External 75 which is being now converted as 100 marks as External.

8. ITEM NO. : 8

To Consider and to Approve, the Multidisciplinary Extra Credit Course offered by PG & Research Department of Commerce in Collaboration with School of Management Studies of TNOU, Titled “Certificate in Entrepreneurship Development”.

At the outset, the above Agenda were discussed by the Members of Board of Studies.

1. ITEM NO. : 1

To Consider and to Approve the Curriculum and Syllabus of Fifth Semester of B.Com and B.Com. CA.

“Resolved to consider and to approve the Curriculum and Syllabus of Fifth Semester of B.Com and B.Com. CA.”

2. ITEM NO. : 2

The Committee Members discussed and approved to include SWAYAM Online Course.

“Resolved to consider and approve the changes in the course Structure of B.Com., B.Com. CA and M.Com.”

3. ITEM NO. : 3

To Consider and to Approve the Curriculum and Syllabus of First Semester of B.Com Professional Accounting

“Resolved to consider and to approve the curriculum and syllabus of First Semester of B.Com. (Professional Accounting)”.

4. ITEM NO. : 4

In the Course Structure of B.Com., & B.Com CA., in the SBE – III – B – Paper Group Project (with Internship) has been changed and ratification to be needed to change the Title as “Skills for Competitive Examinations”.

“Ratified that to Consider Course Structure of B.Com & B.Com. CA relating to SBE – III – B - Paper”.

5. ITEM NO. : 5

To consider and approve the changes made in the Syllabus of B.Com. CA, II Semester, Core Course - III titled “Modern Marketing”.

“Ratified that to consider the changes made in the Syllabus of B.Com. CA, II Semester, Core Course - III titled “Modern Marketing”.

6. ITEM NO. : 6

To consider and to ratify the Professional Skills Course which is to be replaced for Soft Skills Development course.

“Ratified that to consider and to include the “Professional Skills Course” which is to be replaced for “Soft Skills Development course”.

7. ITEM NO. : 7

To consider and to ratify changes in the Assessment pattern of II M.Com., III Semester, Core Course, Paper Titled “Commerce for Competitive Examinations”. Earlier the compositions of marks were Internal 25 and External 75 which is being now converted as 100 marks as External.

“Ratified that to consider the Assessment pattern of II M.Com., III Semester, Core Course, Paper Titled “Commerce for Competitive Examinations”. Earlier the compositions of marks were Internal 25 and External 75 which is being now converted as 100 marks as External”.

8. ITEM NO. : 8

To Consider and to Approve, the Multidisciplinary Extra Credit Course offered by PG & Research Department of Commerce in Collaboration with School of Management Studies of TNOU, Titled Certificate in Entrepreneurship Development.

“Resolved that to consider the Multidisciplinary Extra Credit Course offered by PG & Research Department of Commerce in Collaboration with School of Management Studies of TNOU, Titled Certificate in Entrepreneurship Development”.

Chairman

Members of Board of Studies



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

V	III	Core Course - IX (CC)	Corporate Accounting	19UCO5CC8	5	5	3	25	75	100
		Core Course - X (CC)	Auditing	19UCO5CC9	5	5	3	25	75	100
		Core Course - XI (CC)	Entrepreneurship & Small Business Management	19UCO5CC10	5	5	3	25	75	100
		Core Course - XII (CC)	Financial Management	19UCO5CC11	5	5	3	25	75	100
		Major Based Elective – I	A. E-Commerce	19UCO5MBE1A	4	3	3	25	75	100
		B. E- Retailing	19UCO5MBE1B							
	IV	Skill Based Elective - II	A. Business Correspondence and Reporting	19UCO5SBE2A	2	2	3	25	75	100
			B. Advertising and Sales Promotion	19UCO5SBE2B						
		Skill Based Elective – III	A. Personality Development	19UCO5SBE3A	2	2	3	25	75	100
			B. Skills for Competitive Exam	19UCO5SBE3B						
		UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100
	V	Extra Credit Course	Swayam Online Course			1	As per UGC norms			
		Total			30	29				

CORE COURSE – III
MODERN MARKETING
2019 – 2020 Onwards

Semester – II	Modern Marketing	Hours/Week - 6	
Core Course – III		Credits - 5	
Course Code - 19UCC2CC3		Internal 25	External 75

Course Objective

- To acquaint the basic knowledge of marketing and equip them to contribute the emerging challenges of marketing.

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	Explain the basic concepts of marketing	K1,K2
CO2	Interpret about market segmentation, marketing mix and buyer behavior	K2
CO3	Build knowledge about product planning and development.	K3
CO4	Analyze recent trends in marketing.	K4

Mapping with Programme Outcomes

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

S – Strong; M – Medium; L – Low

Syllabus

Unit – I Introduction (18 Hours)

Definition of Market and Marketing, Types of market - Types of good - Evolution of marketing – Difference between selling and marketing – Modern concepts of marketing - Nature and importance of marketing- Functions of marketing. Service marketing – Meaning - Characteristics – Difference between goods and services – 7 P’s of service marketing mix.

Unit – II Consumer Behaviour and Market Segmentation (18 Hours)

Consumer Vs. Customer- Importance of consumer behaviour – Buying process –Factor influencing consumer behaviour- Theories of buyer behaviour-7 O’s frame work. Market segmentation – Criteria’s of effective segmentation – Characteristics and benefits– Strategies opted for market segmentation.

Unit – III Product and Pricing (18 Hours)

Elements of marketing Mix – Product Policy New product development – Product life cycle – Branding and Packaging – Pricing – Factors affecting pricing – Kinds of pricing.

Unit – IV Channels of Distribution and Promotion**(18 Hours)**

Channels of distribution – Importance – Factor affecting choice of distribution – Channel members - Promotional Programme – Sales promotions – Advertising – Personal selling.

Unit – V E-Marketing**(18****Hours)**

Recent trends in marketing – E – Marketing – E – Retailing – Relationship marketing – Mobile marketing – Green marketing – Test marketing – Social media marketing – Guerilla marketing Digital marketing Neuro marketing – Plano gram marketing.

Text Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	R.S.N.Pillai & Bagavathi	Modern Marketing	S. Chand & Co	2010
2.	N. Rajan Nair , Sanjith R Nair	Marketing	ultan Chand & Sons	2015

Reference Book

S.No.	Authors	Title	Publishers	Year of Publication
1.	S.A.Sherlekar, R.Krishnamoorthy	Marketing Management	Himalaya Publishing house	2010
2.	Dhruv Grewal	Marketing	Tata McGraw Hill India	2018
3.	Philip Kotler	Marketing Management	Sultan Chand&Sons	2015

Pedagogy

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

Course Designer

Ms. D. Indumathi – Assistant Professor, Department of Commerce



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18
DEPARTMENT OF COMMERCE
B.Com. PROGRAMME STRUCTURE
(For the candidates admitted from the academic year 2020 – 2021 onwards)

II Semester

II	I	Language Course - II (LC)	இடைக்கால இலக்கியமும் புதினமும்	19ULT2	6	3	3	25	75	100
			Communication in French - II	19ULF2						
			Poetry Textual Grammar and Alankara	19ULS2						
			Prose, Drama, Hindi Literature - 2 & Grammar - II	19ULH2						
	II	English Language Course - II (ELC)	Functional Grammar For Effective Communication - II	19UE2	6	3	3	25	75	100
	III	Core Course - III (CC)	Financial Accounting - II	19UCO2CC3	6	5	3	25	75	100
		Core Course - IV(CC)	Fundamentals of Marketing	19UCO2CC4	6	5	3	25	75	100
		Allied Course - II (AC)	Business Economics- II	19UCO2AC2	4	3	3	25	75	100
	IV		Environmental Studies	19UGES	2	2	3	25	75	100
	V	Extra Credit Course	Swayam Online Course			1	As per UGC norms			
	Total			30	21					



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

III Semester

Semester	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		
							Internal	External	Total
III	Core Course – IX (CC)	Advanced Corporate Accounting	19PCO3CC9	6	5	3	25	75	100
	Core Course – X (CC)	Business Research Methods – I	19PCO3CC10	6	5	3	25	75	100
	Core Course – XI (CC)	Commerce for Competitive Examinations	19PCO3CC11	6	5	3	-	-	100
	Core Course – XII (CC)	R Programming Practicals	19PCO3CC1P	6	5	3	40	60	100
	Elective Course – III (EC)	Digital Marketing	19PCO3EC3A	6	4	3	25	75	100
Advertisement and Sales Promotion		19PCO3EC3B							
IV	Extra Credit Course	Swayam Online Course			1	As per UGC Norms			
		Total		30	24				



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18
DEPARTMENT OF COMMERCE
M.Com. – PROGRAMME STRUCTURE
(For the candidates admitted from the academic year 2020 – 2021 onwards)

II Semester

Semester	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		
							Internal	External	Total
II	Core Course – V (CC)	Quantitative Techniques for Business	19PCO2CC5	6	5	3	25	75	100
	Core Course – VI (CC)	Logistics & Supply Chain Management	19PCO2CC6	6	5	3	25	75	100
	Core Course – VII (CC)	Big Data Analytics	19PCO2CC7	6	5	3	25	75	100
	Core Course – VIII (CC)	Security Analysis & Portfolio Management	19PCO2CC8	6	5	3	25	75	100
	Elective Course – II (EC)	Retail Management	19PCO2EC2A	6	4	3	25	75	100
International Trade Finance		19PCO2EC2B							
	Extra Credit Course (III)	Swayam Online Course			1	As per UGC Norms			
		Total		30	24				



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

V	III	Core Course - IX (CC)	Accounting for Managerial Decisions	19UCC5CC8	5	5	3	25	75	100
		Core Course - X (CC)	R for Data Analysis	19UCC5CC9	5	5	3	25	75	100
		Core Course - XI (CC)	Management Information System	19UCC5CC10	5	5	3	25	75	100
		Core Course - XII (CC)	R Programming Practicals	19UCC5CC2P	5	5	3	40	60	100
		Major Based Elective - I	A. Entrepreneurial Development	19UCC5MBE1A	4	3	3	25	75	100
	B. E-Retailing		19UCC5MBE1B							
	IV	Skill Based Elective - II	A. Business Correspondence & Reporting	19UCC5SBE2A	2	2	3	25	75	100
			B. Advertising & Sales Promotion	19UCC5SBE2B						
		Skill Based Elective - III	A. Personality Development	19UCC5SBE3A	2	2	3	25	75	100
			B. Skills for Competitive Exam	19UCC5SBE3B						
		UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100
	V	Extra Credit Course	Swayam Online Course			1	As per UGC norms			
		Total			30	29				



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18
DEPARTMENT OF COMMERCE
B.Com. COMPUTER APPLICATIONS – PROGRAMME STRUCTURE
(For the candidates admitted from the academic year 2020 – 2021 onwards)

II Semester

II	I	Language Course - II (LC)	இடைக்கால இலக்கியமும் புதினமும்	19ULT2	6	3	3	25	75	100	
			Communication in French - II	19ULF2							
			Poetry Textual Grammar and Alakara	19ULS2							
			Prose, Drama, Hindi Literature - 2 & Grammar - II	19ULH2							
	II	II	English Language Course- II (ELC)	Functional Grammar For Effective Communication - II	19UE2	6	3	3	25	75	100
	III	III	Core Course - III (CC)	Modern Marketing	19UCC2CC3	6	5	3	25	75	100
	III	III	Core Course - IV(CC)	Web Designing	19UCC2CC4	6	5	3	25	75	100
	III	III	Allied Course - II (AC)	HTML Practicals	19UCC2AC1P	4	3	3	40	60	100
	IV	IV		Environmental Studies	19UGES	2	2	3	25	75	100
	V	V	Extra Credit Course	Swayam Online Course			1	As per UGC norms			
Total					30	21					



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY – 18
DEPARTMENT OF COMMERCE
B.Com.(PROFESSIONAL ACCOUNTING) – PROGRAMME STRUCTURE
(For the candidates admitted from the academic year 2021 – 2022 onwards)

I Semester

Semester	Part	Course	Title	Subject Code	Hours	Credit	Exam Hours	Marks		Total	
								Internal	External		
I	I	Language Course - I (LC)	இக்கால இலக்கியம்	19ULT1	6	3	3	25	75	100	
			Communication in French - I	19ULF1							
			History of Popular Tales Literature and Sanskrit Story	19ULS1							
			Story, Novel, Hindi Literature - I & Grammar - I	19ULH1							
	II	English Language Course - I (ELC)	Functional Grammar for Effective Communication - I	19UE1	6	3	3	25	75	100	
	III	Core Course - I (CC)	Accountancy and Book Keeping – I	21UCP1CC1	6	5	3	25	75	100	
			Core Course - II (CC)	Business Regulatory Framework	21UCP1CC2	6	5	3	25	75	100
			Allied Course - I (AC)	Business Mathematics	21UCP1AC1	4	3	3	25	75	100
	IV	UGC – Jeevan Kaushal Life Skills	Universal Human Values	20UGVE	2	2	3	25	75	100	
			Total			30	21				

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

PG & Research Department of Mathematics

Minutes for the Fourth Meeting of the BOS on 06.01.2021

ITEM NO. BOS / 04 / 01

The curriculum and syllabus for B.Sc. Mathematics were discussed and the following changes were recommended,

Board of Studies Members Suggested

- In UG 5th Semester Core Course “Abstract Algebra “ Unit 3, the order of the topics Homomorphism and Isomorphism should be rearranged .
- In Course Structure keeping syllabus and chapters split up should be brought into notice.

ITEM NO. BOS / 04/ 02

The curriculum and syllabus for B.Sc., Mathematics with Computer Application (2021 onwards) BCA Allied Foundation of Mathematics for I Semester and Biotechnology Allied Biostatistics for V Semester were discussed and the following changes were recommended.

Board of Studies members suggested

- For B.Sc., Mathematics with Computer Application (2021 onwards) I & II Semester Course structure and syllabus will be framed.
- For B.Sc., Mathematics with Computer Application (2021 onwards) I Semester Core course II Office Automation with Internet Basics and MS office lab should be removed and Allied course Statistics will be kept.
- For BCA Fast track course in Allied Syllabus will be framed
- For Biotechnology Allied Biostatistics for V Semester , In Unit 4 instead of Moments, kurtosis and skewness, ANOVA one way and two way classification will be kept.

ITEM NO. BOS / 04 / 03

For PG III Semester Core Course Real Analysis II, Chapter and Section should be changed.

ITEM NO. BOS / 04 / 04

For PG II Semester Core Course Analytical Skills for Competitive Examinations total marks 100 can be considered without split up of Internals and External.

ITEM NO. BOS / 04 / 05

For First year UG II Semester Core Course “Analytical Geometry 3D and Vector Calculus” Unit I & II can be kept from Analytical Geometry of 3D and Unit III, IV, V should be kept from Vector Calculus.

ITEM NO. BOS / 04 / 06

To include online course offered by SWAYAM as an extra credit in II Semester in the

Program Structure of B.Sc Mathematics (2020-2021 batch onwards)

ITEM NO. BOS / 04 / 07

UGC Jeevan Kaushal Life Skills “professional skills” and SWAYAM as an Extra Credit should be included V Semester in the Program Structure of B.Sc Mathematics (2019-2020 Batch)

ITEM NO. BOS / 04 / 08

Board of Studies Members Suggested

- Motivational talk & seminars for UG students will be followed
- Reference Book table format should be brought into notice.
- Mini Projects for UG and Publications for PG will be advised.

The meeting was concluded with a vote of thanks to the chair.

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
PG AND RESEARCH DEPARTMENT OF MATHEMATICS
B.Sc MATHEMATICS COURSE STRUCTURE
(For the candidates admitted in the year 2019-2020)

Sem	Part	Course	Title	Subject Code	Ins.	Credit	Exam	Marks		Total	
					Hrs		Hours	Int	Ext		
V	III	Core Course – VII (CC)	Abstract Algebra	19UMA5CC7	6	5	3	25	75	100	
		Core Course – VIII (CC)	Real Analysis	19UMA5CC8	6	5	3	25	75	100	
		Core Course – IX(CC)	Statics	19UMA5CC9	5	4	3	25	75	100	
		Core Course – X (CC)	Operations Research	19UMA5CC10	5	4	3	25	75	100	
		Major Based Elective-II	Fuzzy Set Theory and its Applications	19UMA5MBE2A	4	3	3	25	75	100	
	Astronomy		19UMA5MBE2B								
	IV	Skill Based Elective-I	Introduction to MATLAB	19UMA5SBE1A	2	2	3	25	75	100	
			Statistical Tools and Techniques - SPSS	19UMA5SBE1B							
			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	25	-	-	-	700	

**CORE COURSE-VII (CC)
ABSTRACT ALGEBRA
2019-2020 Onwards**

Semester – V	ABSTRACT ALGEBRA	Hours/Week – 6	
CORE COURSE-VII		Credits – 5	
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.

Course Outcomes

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

CO No.	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 Outcome:

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 COURSE-VII (CC)
ABSTRACT ALGEBRA
2019-2020 Onwards**

SYLLABUS:

UNIT – I **(17 Hours)**

Groups:

Introduction – Definition and Examples – Elementary Properties of a Group – Equivalent Definition of a Group – Permutation Groups

UNIT –II **(18 Hours)**

Subgroups – Cyclic groups – Order of an element – Cosets and Lagrange’s Theorem.

UNIT –III **(18 Hours)**

Normal subgroups and Quotient groups – Homomorphisms – Isomorphism

UNIT – IV**(19 Hours)****Rings:**

Definition and examples – Elementary properties of rings – Isomorphism – Types of rings - Characteristics of Ring –Subrings – Ideals- Quotient rings.

UNIT – V**(18 Hours)**

Maximal and Prime Ideals – Homomorphism of Rings – Field of quotients of an integral domain – Ordered integral domain – Unique factorization domain (U.F.D) – Euclidean domain – Every P.I.D is a U.F.D.

Text 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

Chapters and Sections

S.NO.	UNIT	CHAPTER	SECTIONS
1.	I	3	3.0 -3.4
2.	II	3	3.5-3.8
3.	III	3	3.9-3.11
4.	IV	4	4.1-4.8
5.	V	4	4.9-4.15

Reference Books

S.No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	T.K. Manicavachagam Pillai, T. Natarajan, K.S. Ganapathy	Algebra	S. Viswanathan Pvt Limited, Chennai	2004
2	M.L.Santiago	Modern Algebra	Arul Publications	1988
3	M.L.Santiago	Modern Algebra	TataMcGraw Hill	2001

Web links:

1. <https://youtu.be/DNRYVMS-EoA>
2. <https://youtu.be/hp7bpkNL790>
3. <https://youtu.be/vYKdh5oQ4Zw>
4. <https://youtu.be/BVf5FFibaaQ>
5. <https://youtu.be/TZKGrii7DNs>

Pedagogy

Group Discussion, Quiz, Seminar, Assignment, E-Content.

CORE COURSE – VIII (CC)
REAL ANALYSIS
2019 – 2020 Onwards

Semester - V	REAL ANALYSIS	Hours/Week – 6	
Core Course – VIII		Credits – 5	
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.

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 continuity and uniform continuity on real line R	K2
CO3	Apply the differentiability and continuity in Inverse function theorem and Darboux theorem	K3
CO4	Compute various mathematical proofs of basic results in real analysis.	K3
CO5	Classify the basic concepts of Riemann integration	K3

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

CORE COURSE – VIII (CC)
REAL ANALYSIS
2019 – 2020 Onwards

SYLLABUS:

Unit I

(16 Hours)

Real Numbers

Introduction – The field axioms - Theorems about field properties–Order in R- Absolute value –

Completeness – Some important subsets of \mathbb{R} –Representation of real numbers as a points on a straight line- Intervals- Countable and uncountable sets.

Unit II (20 Hours)

Limits and Continuity

Limits - Continuous functions –Types of discontinuities –Algebra of continuous functions – Boundedness of continuous functions – Intermediate value theorem- Inverse function theorem - Uniform continuity.

Unit III (16 Hours)

Derivatives

Introduction -Derivability and Continuity –Algebra of derivatives – Inverse function theorem for derivatives – Darboux’s theorem.

Unit IV (18 Hours)

Mean Value Theorems

Rolle’s Theorem –Lagrange’s mean value theorem –Cauchy’s mean value theorem - Taylor’s theorem - Taylor’s series- Power series expansions of some standard functions.

Unit V (20 Hours)

Riemann Integrability

Introduction –Partition and Riemann (or Darboux) sums-Some Properties of Darboux Sums- Upper and lower Riemann integrals. Riemann integral – Another equivalent definition of integrability and integral- A second definition of Riemann integrability - summation of series- Necessary and sufficient condition for integrability – Particular classes of bounded integrable functions- Properties of Integrable functions – Integrability of the sum, difference, product and quotient of Integral functions –Integrability

of the modulus of a bounded integrable functions -Definition of $\int_a^b f(x)dx$, if $b \leq a$ - Inequalities for

an integral – Functions defined by definite integrals- Fundamental Theorem of integral calculus - Generalized mean value theorem- Abel’s lemma –Second mean value theorem.

Text Book:

S.No	AUTHORS	TITLE	PUB LISHERS	YEAR OF PUBLICATION
1	M.K,Singal & Asha Rani Singal	A First Course in Real Analysis	R.Chand & Co.,	2018
2	Shanthi Narayan & M.D.Raisinghania	Elements of Real Analysis,	S. Chand & Co	2007

Chapters and Sections:

S.NO.	UNIT	CHAPTER	SECTIONS
1	I	1 [1]	1-10
2	II	5 [1]	1-8
3	III	6 [1]	1-5
4	IV	8 [1]	1 -6
5	V	13 [2]	13.1-13.18

Reference Books:

S.NO.	AUTHORS	TITLE OF THE BOOK	PUBLISHER S	YEAR OF PUBLICATION
1	Richard R. Goldberg	Methods of Real Analysis	CBS Publishers & Distributors Pvt. Ltd Delhi	2019

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 – IX (CC)**STATICS**

2019-2020 Onwards

Semester – V	STATICS	Hours/Week – 5	
Core Course IX - (CC)		Credits – 4	
Course Code – 19UMA5CC9		Internal 25	External 75

Objectives

- * 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 No.	CO Statement	Knowledge Level
CO1	Explain the basic concepts of force, equilibrium and the resultant of two forces.	K2
CO2	Classify friction and relate limiting equilibrium on a rough inclined plane.	K3
CO3	Compute moment of a force.	K3
CO4	Reduce coplanar force into a couple and a force.	K4
CO5	Ascertain the different aspects of strings and application of common catenary.	K4
CO6	Determine the principle of Virtual Work for applying the system of bodies in equilibrium.	K4

Mapping with Programme Outcome:

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
CO6	S	S	S	M	S

S-Strong, M-Medium, L-Low

CORE COURSE –IX (CC)

STATICS

2019-2020 Onwards

SYLLABUS:

UNIT – I (16 Hours)

(a) Forces:

Newton's laws of motion-Resultant of two forces on a particle.

(b) Equilibrium of a particle:

Equilibrium of a particle –Limiting equilibrium of a particle on an inclined plane.

UNIT –II (16 Hours)

Forces on a rigid body:

Moment of a force – Equivalent systems of forces- Parallel forces – Forces along the sides of a Triangle – Couples.

UNIT –III (15 Hours)

(a) Coplanar Forces:

Resultant of several coplanar forces-Equation of the line of action of the resultant-

Equilibrium of a rigid body under three coplanar forces.

(b) A specific Reduction of forces:

Reduction of coplanar forces into a force & a couple – Problems involving frictional forces.

UNIT – IV (14 Hours)

Virtual Work:

Virtual Work- Principle of Virtual Work – applied to a body or a system of bodies in equilibrium –Equation of Virtual Work –Simple Problems.

UNIT – V:**(14 Hours)**

Hanging Strings

Strings - Equilibrium of Strings under gravity – Common Catenary – Suspension bridge

Text Books

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	P.Duraipandiyan Laxmi Duraipandiyan Muthamizh Jayapragasam	Mechanics (Vector Treatment)	S.Chand & Company Pvt Ltd	2010

Chapters and Sections

S.NO.	UNIT	CHAPTER	SECTIONS
1.	I	2 & 3	2.1,2.2 and 3.1,3.2
2.	II	4	4.1-4.6(Omit 4.2)
3.	III	4 &5	4.7-4.9 and 5.1,5.2
4.	IV	8	8.1
5.	V	9	9.1 and 9.2

Reference Books

S.No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	M.K.Venkataraman	Statics	Agasthiyar Publications	2002
2	A.V.Dharmapadham	Statics	S. Viswanathan Publishers Pvt Ltd	2006

Web links:

1. https://youtu.be/FdJF_4uZkSQ
2. https://youtu.be/JJX3-af_JQw
3. <https://youtu.be/YqtrfQ4H7V8>
4. <https://youtu.be/OBwk996hg5E>
5. <https://youtu.be/xP1lpCIe1VM>

Pedagogy

Power point presentations, Group Discussion, Seminar, Quiz , Assignment, Brain storming, E-content, Lecture.

CORE COURSE –X (CC)
OPERATIONS RESEARCH
2019-2020 ONWARDS

Semester - V	OPERATIONS RESEARCH	Hours/Week - 5	
CORE COURSE - X		Credits - 4	
Course Code - 19UMA5CC10		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 Sequencing and Replacement 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 –X (CC)
OPERATIONS RESEARCH
2019-2020 ONWARDS

SYLLABUS:

UNIT I

(15 Hours)

Operations Research - An Overview: Introduction – Origin and Development of O.R- Nature and Features of O.R-Scientific Method in O.R- Modelling in O.R-Advantages and Limitations of Models – General Solution Methods for O.R models- Methodology of O.R- O.R and Decision Making – Applications of O.R - Opportunities and shortcomings of O.R.

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 – Fundamental Properties of Solutions – The Computational Procedure – Use of Artificial Variables – Degeneracy in Linear Programming.

UNIT II

(15 Hours)

Transportation Problem :Introduction - LP formulation of the TP – 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 AP –Special cases in AP – The Travelling Salesmen problem.

UNIT III

(15 Hours)

Sequencing Problem: Introduction- Problem of sequencing- Basic terms used in Sequencing- Processing of n jobs through Two Machines - Processing of n jobs through k Machines - Processing of 2 jobs through k Machine.

Replacement Problem and System Reliability: Introduction- Replacement of Equipment/ Asset that deteriorates gradually - Replacement of Equipment that fails suddenly.

UNIT IV

(15 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 & CPM.

UNIT V

(15 Hours)

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.

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	1	1.1-1.11
	2	2.1-2.4
	3	3.1-3.5
	4	4.1-4.5
II	10	10.1-10.3,10.8-10.13
	11	11.1-11.4,11.7
III	12	12.1-12.6
	18	18.1-18.3
IV	25	25.1-25.8
V	19	19.1-19.11

Reference Book:

S.NO.	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1	Hamdy A. Taha	Operations Research	Prentice Hall of India	2002
2	Richard Bronson	Theory and Problems of Operations Research	Tata McGraw Hill Publishing Company	2001

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 (MBE)
FUZZY SET THEORY AND ITS APPLICATIONS
2019-2020 Onwards

Semester – V	FUZZY SET THEORY AND ITS APPLICATIONS	Hours/Week – 4	
Major Based Elective II		Credits – 3	
Course Code – 19UMA5MBE2A		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 Outcomes

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

CO No.	CO Statement	Knowledge Level
CO1	Explain the basic concepts of Fuzzy set theory and extension principle.	K2
CO2	Classify the operations on Fuzzy sets and give examples.	K3
CO3	Examine the concepts of Fuzzy numbers	K4
CO4	Distinguish Binary Fuzzy Relation and Fuzzy Morphisms	K4
CO5	Assess the details of Fuzzy concepts to compute Fuzzy decision and Fuzzy Linear Programming Program.	K5

Mapping with Programme Outcome:

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

S-Strong, M-Medium, L-Low

MAJOR BASED ELECTIVE - II (MBE)
FUZZY SET THEORY AND ITS APPLICATIONS
2019-2020 Onwards

SYLLABUS:

UNIT – I

(11 Hours)

a. From Classical (Crisp) Sets To Fuzzy Sets :

Fuzzy sets: Basic types – Fuzzy sets: Basic Concepts

b. Fuzzy Sets Verses Crisp Sets:

Additional Properties of α – cuts-Extension Principle for fuzzy sets .

UNIT –II**(11 Hours)****Operations On Fuzzy Sets:**

Types of operations– Fuzzy complements- Fuzzy Intersections: t-Norms – Fuzzy Unions :t-Co norms - Combinations of Operations.

UNIT –III**(12 Hours)****Fuzzy Arithmetic:**

Fuzzy numbers - Linguistic variables -Arithmetic operations on intervals –Arithmetic operations on Fuzzy numbers.

UNIT – IV**(13 Hours)****Fuzzy Relations:**

Binary Fuzzy Relations – Binary Relations on a Single Set – Fuzzy Equivalence Relations – Fuzzy Compatibility Relations –Fuzzy Ordering Relations – Fuzzy Morphisms.

UNIT – V**(13 Hours)****a. Pattern Recognition:**

Introduction – Fuzzy Clustering – Fuzzy Pattern Recognition – Fuzzy Image Processing.

b. Fuzzy Decision Making:

Individual decision making – Multi-person Decision Making- Fuzzy Ranking methods – Fuzzy Linear programming.

Text Books

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	George J. Klir and Bo Yuan	Fuzzy sets and Fuzzy Logic Theory and Applications	Prentice Hall of India,	2001

Chapters and Sections

S.NO.	UNIT	CHAPTER	SECTIONS
1.	I	1	1.3,1.4
		2	2.1,2.3(omit 2.2)
2.	II	3	3.1-3.5
3.	III	4	4.1-4.4
4.	IV	5	5.3-5.8
5.	V	13	13.1-13.4
		15	15.2,15.3,15.6,15.7

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	Springer	2001
2	M. Ganesh	Introduction to Fuzzy sets and Fuzzy logic	PHI Learning Private Limited	2006
3	Timothy J.Ross	Fuzzy logic with Engineering Applications	John Wiley and Sons, INC.	2005

Web links:

1. <https://youtu.be/fpojnXFp9dk>
2. <https://youtu.be/o-2O4fmIu3E>
3. <https://youtu.be/nXKFN98K6Uc>
4. https://youtu.be/NuH29tu_w8
5. <https://youtu.be/WqC7UKk2KcY>

Pedagogy

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

**MAJOR BASED ELECTIVE - II (MBE)
ASTRONOMY**

2019-2020 Onwards

Semester – V	ASTRONOMY	Hours/Week – 4	
MAJOR BASED ELECTIVE COURSE (MBE) – II		Credits – 3	
Course Code –19UMA5MBE2B		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 No.	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	Ascertain Kepler's laws, Anomalies, Kepler's equation, Kinds of years.	K4
CO5	Discuss lunar and solar eclipses and ecliptic limits.	K3

Mapping with Programme Outcome:

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
CO6	S	S	S	M	S

S-Strong, M-Medium, L-Low

MAJOR BASED ELECTIVE COURSE – II (MBE)

ASTRONOMY

2019-2020 Onwards

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. Kumaravelu and Susheela Kumaravelu	Astronomy	SKV Publications	2013

Chapters and Sections

S.NO.	UNIT	CHAPTER	SECTIONS
1.	I	1	1 – 38
		2	39 - 79
2.	II	2	80-86
		3	87 – 101, 106 – 116
3.	III	4	117-134
		5	135 – 144
4.	IV	6	146-149
		7	158 – 172, 175-189
5.	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/ZS2FvljQXsk>

Pedagogy

Power point presentations, Group Discussion, Seminar, Quiz, Assignment, E-content, Lecture.

SKILL BASED ELECTIVE - I (SBE)**INTRODUCTION TO MATLAB****2019 – 2020 Onwards**

Semester - V	INTRODUCTION TO MATLAB	Hours/Week – 2	
Skill Based Elective - I		Credits – 2	
Course Code - 19UMA5SBE1A		Internal 25	External 75

Objectives

- To impart knowledge in concepts and tools of MATLAB.
- To equip the students with mathematical concepts.
- To apply those techniques and solve the problems in MATLAB.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Use MATLAB effectively to analyze and visualize data	K2
CO2	Apply numeric techniques to solve engineering-related problems	K2
CO3	Create and control simple plot	K2
CO4	Create a user-interface graphics objects in MATLAB	K3
CO5	Understanding fundamental data structures	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 - I (SBE)**INTRODUCTION TO MATLAB****2019 – 2020 Onwards****SYLLABUS:****UNIT I****(6 Hours)**

Starting MATLAB: Introduction – MATLAB Version – Starting MATLAB – MATLAB Variables – Special Variables – Arithmetic operators in MATLAB – Order of Precedence of MATLAB

Operators - Formatting commands in MATLAB – Advantages of MATLAB – Disadvantages of MATLAB

Common In-Built MATLAB functions: Introduction - Commonly used MATLAB Math functions - Commonly used MATLAB Trigonometric functions - Commonly used MATLAB Rounding functions - Coordinate functions in MATLAB – Specifiers in MATLAB – MATLAB functions for Characters and Strings - Keywords in MATLAB.

UNIT II

(6 Hours)

Writing programs in M-files: Introduction - Opening an M-file, writing a program in an M-file, Saving the program written in an M-file - Executing the program written in MATLAB – Making the MATLAB Program More Interactive - Use of Input, Disp and Fprint Commands

Creating an array in MATLAB: Introduction - Creating a one dimensional Array – Accessing the elements of the Array – Accessing a Block of the element in the Array – Array Construction with Constant Spacing – Two dimensional Arrays – The Zeros, Ones and Eye Commands – Array Manipulation – Built-in Function for Array Handling – Some Other Operations with Array

UNIT III

(6 Hours)

Two dimensional plot: Introduction - Plot command – Optional Elements in Plot Command - Hold on and Hold off command – Colordef Command – Title Command – Grid Command – Label Command – Text Command - Gtext command – Formatting the text on the graph – Legend Command – Fplot Command – Ezplot Command – Axis Command – Subplot Command – Other two dimensional plots – Special graphs.

UNIT IV

(6 Hours)

Three dimensional plot: Introduction – Three Dimensional Line Plot - Three Dimensional Mesh and Surface plot – Contour plot – Meshc plot – Meshz plot – Surf plot – Surf plot – Waterfall plot - Contour3 plot – Ribbon plot – Sphere plot – Cylinder plot - Bar3 plot - Pie3 plot – Stem3 plot

Relational and Logical Operators: Introduction - Relational operators in MATLAB – Logical operators in MATLAB.

UNIT V

(6 Hours)

Conditional statements: Introduction - Control flow statements in MATLAB – Try-catch statement- Lasterr – End Statement - Break and continue Command

Functions: Introduction – Format of a MATLAB function - Rules for Writing Function files – How to Call a User-defined Function – Properties of Function files – Concept of Local and Global variables – Persistent Memory – Function inside a Function – Inline Function

Text Books:

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1	Jaydeep Chakravorthy	Introduction to MATLAB Programming, Toolbox and Simulink	Universities Press (India) Private Limited	2018

Chapters and Sections:

UNIT	CHAPTER	SECTIONS
I	1	1.1 - 1.10
	2	2.1 – 2.8
II	3	3.1 – 3.7
	4	4.1 – 4.10
III	6	6.1 – 6.18
IV	7	7.1 – 7.16
	8	8.1 – 8.3
V	9	9.1 – 9.6
	10	10.1 – 10.9

Reference Book:

S.NO.	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1	Delores M Etter, David C Kuncicky, Holly Moore	Introduction to MATLAB	Dorling Kindersley (India) Pvt Ltd	2008
2	Brain R. Hunt, Ronald L. Lipsman, Jonathan M. Rosenberg	A Guide to MATLAB for Beginners and Experienced Users	Cambridge University Press	2013

Web links

1. <https://youtu.be/qGiKv3-02vw>
2. <https://youtu.be/O41BWhXFu8E>
3. https://youtu.be/T_ekAD7U-wU
4. <https://in.mathworks.com/products/matlab.html>

Pedagogy

Power point presentations, Group Discussions, Seminar, Quiz, Assignment

SKILL BASED ELECTIVE- I (SBE)
STATISTICAL TOOLS AND TECHNIQUES - SPSS

2019-2020 Onwards

Semester – V	STATISTICAL TOOLS AND TECHNIQUES - SPSS	Hours/Week – 2	
Skill Based Elective- I		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 (SBE) STATISTICAL TOOLS AND TECHNIQUES - SPSS 2019-2020 Onwards

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.

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
PG AND RESEARCH DEPARTMENT OF MATHEMATICS
B.Sc MATHEMATICS COURSE STRUCTURE
(For the candidates admitted from the Academic year 2020-2021 onwards)

Sem	Part	Course	Title	Subject Code	Ins.	Credit	Exam	Marks		Total		
								Int	Ext			
II	I	Language Course – II (LC) - Tamil*/Other Languages +#	இடைக்கால இலக்கியமும் இ புதினமும்	19ULT2/ 19ULH2/ 19ULF2/ 19ULS2	6	4	3	25	75	100		
			Prose, Drama, Hindi Literature – 2 & Grammar - II									
			Poetry, Textual Grammar and Alakara									
			Communication in French –II									
	II	English Language Course – II(ELC)	Functional Grammar for Effective Communication –II	19UE2	6	4	3	25	75	100		
	III	Core Course – III (CC)	Analytical Geometry and Vector Calculus	19UMA2CC3	6	5	3	25	75	100		
				First Allied Course – II (AP)	Mathematical Statistics- II (Practical)	19UMA2AC1 P	5	3	3	25	75	100
						First Allied Course – III (AC)	Mathematical Statistics-III	19UMA2AC2	5	3	3	25
	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 Recommendations							
				TOTAL	30	21	-	-	-	600		

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
PG AND RESEARCH DEPARTMENT OF MATHEMATICS
M. Sc MATHEMATICS COURSE STRUCTURE
(For the candidates admitted in the year 2019-2020)

SEM	Course	Course Title	Subject code	Ins. Hrs / Week	Credit	Exam Hrs	Marks		Total
							Int.	Ext.	
III	Core Course – X (CC)	Real Analysis – II	19PMA3CC10	6	5	3	25	75	100
	Core Course – XI (CC)	Measure and Integration	19PMA3CC11	6	5	3	25	75	100
	Core Course – XII (CC)	Analytical skills for competitive examinations	19PMA3CC12	6	5	3	-	100	100
	Elective Course – II (EC)	Computational Numerical Analysis	19PMA3EC2A	6	3	3	25	75	100
			Fluid Dynamics						
	Elective Course – III (EC)	Probability Theory and Machine learning	19PMA3EC3A	6	3	3	25	75	100
			Stochastic Processes						
Extra Credit Course	SWAYAM ONLINE COURSE	To be fixed later	As per UGC Norms						
TOTAL				30	21				500

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
PG AND RESEARCH DEPARTMENT OF MATHEMATICS
M. Sc MATHEMATICS COURSE STRUCTURE
(For the candidates admitted in the year 2020-2021)

SEM	Course	Course Title	Subject code	Ins. Hrs / Week	Credit	Exam Hrs	Marks		Total
							Int.	Ext.	
II	Core Course – VI (CC)	Algebra- II	19PMA2CC6	6	5	3	25	75	100
	Core Course – VII (CC)	Real Analysis - I	19PMA2CC7	6	5	3	25	75	100
	Core Course – VIII (CC)	Linear Algebra	19PMA2CC8	6	5	3	25	75	100
	Core Course – IX (CC)	Topology	19PMA2CC9	6	5	3	25	75	100
	Elective Course – I (EC)	Partial Differential Equations	19PMA2EC1A	6	3	3	25	75	100
		Difference Equations	19PMA2EC1B						
Extra Credit Course	SWAYAM ONLINE COURSE	To be fixed later	As per UGC Norms						
TOTAL				30	23				500

RATIFIED UG SYLLABUS
CORE COURSE – III (CC)
ANALYTICAL GEOMETRY AND VECTOR CALCULUS
2020 – 2021 Onwards

Semester - II	ANALYTICAL GEOMETRY AND VECTOR CALCULUS	Hours/Week – 6	
Core Course – III (CC)		Credits – 5	
Course Code - 19UMA2CC3		Internal 25	External 75

Objectives

- To understand the concepts and properties of analytical geometry
- To understand the concepts of plane, straight line and sphere
- To familiarize the students with the principles and practices of vector calculus
- To familiarize the students with vector integration

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Explain the coordinates in space, equation of a plane.	K3
CO2	Describe the concepts of straight lines, coplanar lines and Sphere.	K3
CO3	Explain the concept of Vector Differentiation	K3
CO4	Solve the problems of Gauss Divergence Theorem, Stokes Theorem-Green's Theorem	K3
CO5	Examine the concepts of Vector integration for finding scalar potential.	K4

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 – III (CC)
ANALYTICAL GEOMETRY AND VECTOR CALCULUS
2020 – 2021 Onwards

SYLLABUS:

Unit I: (18 HOURS)

Coordinate System: Introduction-Rectangular Cartesian Coordinates-Distance between two Points-Direction Cosines

Planes: Equation of a Plane – Angle Between two Planes – Angle Bisectors of two Planes -

Unit II: (18 HOURS)

Straight Lines: Equation of a Straight Line – A Plane and a Line – Equations of Two Skew Lines in a Simple form

The Sphere: Introduction – Equation of a Sphere – Tangent Line and Tangent Plane – Section of a Sphere

Unit III: (18 HOURS)

Vector Differentiation: Introduction – Vector Algebra- Differentiation of Vectors – Gradient - Divergence and Curl.

Unit IV: (18 HOURS)

Vector Integration - Line integrals-Normal Surface Integral $\int_S \vec{F} \cdot \hat{n} dS$ -Flux across a Surface-Volume

Integral $\int_V F \cdot dv$

Unit V: (18 HOURS)

Gauss's Divergence Theorem $\int_S \vec{F} \cdot \hat{n} dS = \int_V \text{div } \vec{F} dv$ -Stoke's theorem $\int_C \vec{F} \cdot \hat{n} d\vec{r} = \int_S \text{curl } \vec{F} \cdot \hat{n} dS$ -

Green's theorem-Stoke's theorem in space- Stoke's theorem in Cartesian form

Text Books:

S.NO.	AUTHORS	TITLE	PUBLISHERS
1	S. Arumugam and A. Thangapandi Isaac	Analytical Geometry 3D & Vector Calculus	New Gamma Publishing House, 2011
2	M.L.Khanna	Vector Calculus	Jai Prakash Nath and Co.,

Chapters and Sections:

UNIT	CHAPTER	SECTIONS
I	I [1]	1.0 - 1.3
	II [1]	2.1 - 2.3
II	III [1]	3.1 - 3.3
	IV [1]	4.0 - 4.3
III	V [1]	5.0 - 5.4
IV	III [2]	1 - 4
V	III [2]	5 - 8

Reference Books:

S.NO.	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1	P.Duraipandian, Laxmi Duraipandian and D.Muhilan	Analytical Geometry Three Dimensional	Emerald Publishers	1984
2	H.D.Pandey, M.Q.Khan and B.N.Gupta	A Textbook of Analytical Geometry and Vector Analysis	Wisdom Press	2011
3	P.Duraipandiyan and Laksmi Duraipandian	Vector Analysis	Emerald Publishers	1986

Web links

1. <https://youtu.be/a2mt2L0e06Y>
2. <https://youtu.be/Os1nnqzw29Y>
3. <https://youtu.be/4GJiz6jxOac>
4. <https://youtu.be/TYYhBhF4biU>
5. <https://youtu.be/pfGFwIX-yAk>

Pedagogy

Power point presentations, Group Discussions, Seminar, Quiz, Assignment.

CORE COURSE – VII (CC)
BIOSTATISTICS
2019-2020 Onwards

Semester - V	BIOSTATISTICS	Hours/Week – 5	
CORE COURSE – VII (CC)		Credits – 5	
Course Code –19UBT5CC7		Internal 25	External 75

Objectives

- To study the basic concepts of statistics and sampling design
- To equip analytical thinking to solve biological problems

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 biostatistics, functions and limitations	K3
CO2	Classify the data and sampling design	K3
CO3	Compute the measures of central tendency and measures of dispersion	K3
CO4	Apply the concepts of skewness, moments, kurtosis, correlation and regression to solve the problems.	K4
CO5	Examine the various testing of hypothesis and also analysis of variance based on one-way classification and two-way classification	K4

Mapping with Programme Outcomes

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

S-Strong, M-Medium, L-Low

SYLLABUS
2019-2020 Onwards

(15 Hours)

UNIT I

Introduction to biostatistics - definition, statistical methods, biological measurement, kind of biological data, functions of statistics and limitation of statistics - Collection of data, sampling and sampling design.

UNIT II

(15 Hours)

Tabulation and Frequency distribution, types of representations graphic-bar diagrams, pie diagrams and curves

UNIT III

(15 Hours)

Measures of central tendency- Mean, Median, Mode, Geometric mean, Harmonic mean -

Measures of dispersion and variability changes- Mean deviation, standard deviation, coefficient of variation

UNIT IV

(15 Hours)

Analysis Skewness, Moments and Kurtosis - Meaning - test of skewness, characteristics of dispersion and skewness. Measures of skewness, objectives - Karl Pearson's coefficient of skewness, Bowley's Coefficient of skewness- Correlation and regression

UNIT V

(15 Hours)

Testing of hypothesis for small samples-Students' T -Test- Chi square test-F-test or Fisher's F test – Analysis of Variance: Introduction – The Technique of Analysis of Variance – One-way Classification – Two-way Classification.

Text Book:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	P.N. Arora & P.K. Malhan	Biostatistics	Himalaya Publishing house	2008
2	Suranjan Saha	Mathematics and Statistics	New Central Book Agency (P) LTD	2009

Reference Books:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	R.S.N. Pillai & V.Bagavathi	Statistics Theory and Practice	S.Chand	2016
2	Bernard Rosner	Fundamentals of Biostatistics	Lengage learning	2006
3	Stephen Bernstein & Ruth Bernstein	Elements of Statistics	Tata McGraw – Hill Edition 2005	2005
4	Veer Bala Rastogi	Fundamentals of Biostatistics	Ane Books India	2006
5	Samuel Delvin	Biostatistics	Sarup & Sons	2007

6	John E. Freund	Mathematical Statistics	Pearson Education Asia	2002
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Pedagogy

Power Point Presentation, Group Discussion, Seminar, Assignment

Web Links

https://www.youtube.com/watch?v=_e4mwlqCQrc

<https://www.youtube.com/watch?v=AdH5vfobH5E>

<https://www.youtube.com/watch?v=fNLeogEjMmM>

<https://www.youtube.com/watch?v=0zZYBALbZgg>

RATIFIED PG SYLLABUS

CORE COURSE – X (CC)

Title of the Course: REAL ANALYSIS – II

L	T	P	C
90	6	-	5

Course Code: 19PMA3CC10

Objectives

- To study the powerful tool of maxima-minima in calculus using mean value theorems.
- To study the concept of convergence of sequences and series of functions.
- To acquire the knowledge of the theory of multivariable calculus.

Syllabus

UNIT I

Differentiation of single variable: Derivatives – The chain rule – local extrema – Rolle's theorem – Mean Value Theorem – Taylor's formula – Derivatives of vector – valued functions – Functions of Bounded variation and rectifiable curves – Total variation – Functions of bounded variation – Equivalence of paths – Change of parameter.

UNIT II

Riemann-Stieltjes integral: Definition – linear properties of the integral – Necessary conditions for the existence - First fundamental theorem of Integral calculus - Mean Value Theorems for integrals – Second fundamental theorem of Integral calculus- Change of variable in a Riemann integral – Second Mean value Theorem for Riemann.

integrals

UNIT III

Sequence and series of functions – Point wise convergence – Uniform convergence – Uniform convergence and integration – Uniform convergence and Differentiation -Sufficient conditions for uniform convergence of a series.

UNIT IV

Functions of Severable variables – Directional derivative –Total derivative – Jacobian – Chain rule –Mean Value Theorem – Taylor's formula.

UNIT V

Inverse function theorem – Implicit function theorem – Extremum problems with side conditions.

Text Book

Tom M. Apostol, Mathematical Analysis, 2nd edition, Narosa Publishing House, 2002.

Chapters and Sections

UNIT I: Chapter 5 – Sections 5.1 – 5.13

Chapter 6 – Sections 6.1 – 6.12

UNIT II: Chapter 7 – Sections 7.1 – 7.22

UNIT III: Chapter 9 - Sections 9.1 – 9.15

UNIT IV: Chapter 12 – Sections 12.1 – 12.14

UNIT V: Chapter 13 – Sections 13.1 – 13.7

Reference Books

1. Robert G. Bartle and Donald R. Sherbert, Introduction to Real Analysis, John Wiley & Sons Private Limited, 2007.
2. Walter Rudin, Principles of Mathematical Analysis, McGraw Hill Publishing Company, 1976.
3. H.L. Royden, Real Analysis, PHI Learning Private Limited, 2009.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO 1	Apply the concepts of derivatives, the mean-value theorem in various problems.	K3
CO 2	Classify the functions of bounded variations and rectifiable paths.	K3
CO 3	Ascertain the notion of Riemann-Stieltjes integral.	K4
CO 4	Diagnose the concept of convergence of sequences and series of functions.	K4
CO 5	Discriminate the fundamentals of multivariable calculus, directional derivative, total derivative of functions and jacobian matrix.	K4
CO 6	Evaluate extremum problems using implicit function theorem.	K5

Mapping with Programme Outcomes

Cos / POs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	M	M	S	S
CO2	S	S	M	M	S	S
CO3	S	S	M	S	S	S
CO4	S	S	S	S	S	S
CO5	S	S	S	M	S	S
CO6	S	S	M	S	S	S

S – Strong, M – Medium, L – Low.

**CAUVERY COLLEGE FOR WOMEN
(AUTONOMOUS)
PG DEPARTMENT OF PHYSICS**





MINUTES OF THE VIRTUAL BOARD OF STUDIES MEETING OF DEPARTMENT OF PHYSICS, CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS) HELD ON MONDAY, JAN 04, 2021 @ 10.00 A.M.

The following members attended the meeting:

a) Dr. G. Maheswari	Chairperson & Head
b) Dr. R. Nagalakshmi	Subject Expert
c) Prof. S. Rajasekar	Subject Expert
d) Mrs. A. Santhakumari	Industrial Expert
e) Mrs. C. Mercy Gnana Malar	Alumna
f) Dr. S. Gowri	Member
g) Dr. R. Meenakshi	Member
h) Dr. R. Gayathri	Member
i) Ms. S. Priya	Member
j) Ms. D. Devi	Member
k) Ms. A. Mary Girija	Member
l) Dr. K. Kannagi	Member
m) Ms. N. Manopradha	Member
n) Ms. RA.Kiruthika	Member
o) Dr. B. Anitha	Member
p) Ms. J. Aarthi	Member
q) Dr. M. Kavimani	Member
r) Ms. T. Noorunnisha	Member
s) Ms. R. Mekala	Member

The leave of absence was granted to Dr. T. R. Seshadri, Subject Expert, Delhi University, Delhi.

The Agenda for the meeting was as follows:

1. ITEM NO. BOS/04/01

To include Online course offered by SWAYAM as an extra credit course in Semester-V in the Programme Structure of B.Sc Physics (2019-2020 batch and onwards) and forward to the Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli.

2. ITEM NO. BOS/04/02

To Consider and approve the Syllabus of Core Course, Major Based Elective-I, Skill Based Elective-II and Skill Based Elective-III of B.Sc., Physics Programme (2019-2020 batch and onwards) for Semester-V and recommend to Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli.

3. ITEM NO. BOS/04/03

Ratification to change the Assessment Criteria for Core Course IX-Physics for Competitive Examination with Course Code 19PPH3CC9 in Semester-III for M.Sc Physics (2019-2020 batch and onwards) and forward to the Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli.

4. ITEM NO.BOS/04/04

To include Online Course offered by SWAYAM as an extra credit course in Semester-II in the Programme Structure of B.Sc and M.Sc Physics (2020-2021 batch and onwards) and forward to the Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli.

5. ITEM NO.BOS/04/05

Appreciation of Board of studies members who contributed to prepare the syllabus.

6. ITEM NO. BOS/04/06

Any other item with the permission of chair.

Dr. G. Maheswari, Chairperson & Head, PG Department of Physics extended the warm welcome to the members. Discussions based on the agenda were carried out.

ITEM NO. BOS/04/01

To include Online course offered by SWAYAM as an extra credit course in Semester-V in the Programme Structure of B.Sc Physics (2019-2020 batch and onwards) and forward to the Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli.

- In Semester-V, Online course offered by SWAYAM as an extra credit course has been added in the programme Structure of B.Sc Physics (2019-2020 batch and onwards) and forward to the Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli.

“Resolved that Online course offered by SWAYAM as an extra credit course in Semester -V in the programme Structure of B.Sc Physics (2019-2020 batch and onwards) be approved & recommend to Academic Council, Cauvery College for Women for further action”.

ITEM NO.BOS/04/02

To Consider and approve the syllabus of Core Course, Major Based Elective-I and Skill Based Elective-II and Skill Based Elective-III of B.Sc., Physics Programme (2019-2020 batch and onwards) for Semester-V 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-I, Skill Based Elective-II and Skill Based Elective-III of B.Sc., Physics Programme (2019-2020 batch and onwards) for Semester-V with some minor modifications.

Suggestions made during the Discussion:

- Few Topics in Core-Course VI-Atomic and Nuclear Physics in B.Sc Physics Programme were changed as per the suggestion given by the subject expert Dr.N. Nagalakshmi.

“Resolved that the syllabus of Core Course, Major Based Elective-I and Skill Based Elective-II and Skill Based Elective-III of B.Sc., Physics Programme (2019-2020 batch and onwards) for Semester-V be approved & recommend to Academic Council, Cauvery College for Women (Autonomous) for further action”.

ITEM NO.BOS/04/03

Ratification to change the Assessment Criteria for Core Course IX- Physics for Competitive Examination with Course Code 19PPH3CC9 in Semester-III for M.Sc Physics (2019-2020 batch and onwards) and forward to the Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli.

- The Assessment Criteria of Internal Marks 25 has been excluded and changed to External marks of 100 for Core Course IX- Physics for Competitive Examination with Course Code 19PPH3CC9 in Semester III for M.Sc Physics (2019-2020 batch and onwards)

“Resolved that Ratification to change the Assessment Criteria for Core Course IX-Physics for Competitive Examination with Course Code 19PPH3CC9 in Semester-III for M.Sc Physics (2019-2020 batch and onwards) be approved & recommend to Academic Council, Cauvery College for Women (Autonomous) for further action”.

ITEM NO.BOS/04/04

To include Online Course offered by SWAYAM as an extra credit course in Semester-II in the Programme Structure of B.Sc and M.Sc Physics (2020-2021 batch and onwards) and forward to the Academic Council, Cauvery College for Women (Autonomous), Tiruchirappalli.

- The Online Course offered by SWAYAM has been included as an extra credit course in Semester-II in the Programme Structure of B.Sc and M.Sc Physics (2020-2021 batch and onwards)

“Resolved that Online Course offered by SWAYAM as an extra credit course in Semester-II in the Programme Structure of B.Sc and M.Sc Physics (2020-2021 batch and onwards) be approved & recommend to Academic Council, Cauvery College for Women (Autonomous) for further action”

ITEM NO.BOS/04/05

Appreciation of Board of studies members who contributed to prepare the syllabus

The chairperson reported the members about the efforts of all the members of Board of studies to prepare the syllabus of Semester-V for B.Sc., Physics for the academic year 2019-2020 onwards.

It was resolved as under,

“Resolved that the Appreciation of Board of studies members who contributed to prepare the syllabus be noted”

There being no other matter, the meeting was concluded with a vote of thanks to the chair.

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
B.SC., PHYSICS COURSE STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2019-2020 onwards)

Sem	Part	Course	Title	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 COURSE STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2020-2021 onwards)

Sem	Part	Course	Title	Course code	Inst Hrs/ week	Credit	Exam Hrs	Marks		Total
								Int	Ext	
II	I	Language Course II (LC)	இடைக்கால இலக்கியமும் புதினமும்	19ULT2	6	3	3	25	75	100
			Prose,Dramma,Hindi Literature -2 & Grammer –II	19ULH2						
			Poetry Textual Grammar&Alakara	19ULS2						
			Communication in French-II	19ULF2						
	II	English Language Course II (ELC)	Functional Grammar for Effective Communication-II	19UE2	6	3	3	25	75	100
	III	Core Course-II (CC)	Mechanics & Relativity	19UPH2CC2	6	5	3	25	75	100
		Core Practical –II (CP)	Physics Practical–II	19UPH2CC2P	3	3	3	40	60	100
		First Allied Course- II (AC)	Mathematics – II	19UPH1AC2	3	3	3	25	75	100
		First Allied Course- III(AC)	Mathematics – III	19UPH2AC3	4	3	3	25	75	100
	IV	Environmental Studies	Environmental Studies	19UGES	2	2	3	25	75	100
V	Extra Credit Course	Swayam Online Course	To be fixed later	As per UGC Recommendation						
Total					30	22				700

Semester-V	OPTICS	Hours/Week-5	
Core Course – V		Credits-5	
Course Code-19UPH5CC5		Internal 25	External 75

Objectives

- To understand the basic ideas of geometric optics
- To gain knowledge of the working of optical instruments.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO 1	Outline the behaviour of light.	K2
CO 2	Explain the various types of aberration.	K2
CO 3	Demonstrate basic optical phenomena like interference, diffraction and polarization.	K2
CO 4	Predict optical elements and set-up basic experiments.	K3
CO 5	Apply the concepts of light.	K3

Mapping with Programme Outcomes

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

S – Strong; **M** – Medium; **L** – Low

CORE COURSE – V

OPTICS

Syllabus

UNIT -I : Geometrical Optics

18 hrs

Matrix method in ray optics - Effect of translation, refraction - Thick and thin lens formulae
Unit planes-Nodal planes-System of two thin lenses.

Lens aberrations - Spherical aberrations of a single surface -Astigmatism - Curvature of field-Distortion -Abbe's sine condition - Chromatic aberrations.

UNIT- II : Interference

12 hrs

Fresnel's biprism, Fresnel's mirrors and Lloyd's single mirror experiments Achromatic fringes-Interference in thin films(from reflected and transmitted light) -Fringes in wedge shaped films -Reflective and antireflective coatings - Michelson's interferometer - Determination of wavelength and refractive index.

UNIT- III : Diffraction

15 hrs

Rectilinear propagation of light - Zone plate - Fresnel diffraction - Diffraction at circular aperture, circular disc and a straight edge - Fraunhofer diffraction - Diffraction at a single and double slit - Missing orders in double slit - Theory of diffraction grating - Determination of wavelength - Dispersive power - Rayleigh's criterion and resolving power of a prism, grating, telescope and microscope

UNIT- IV: Polarization

15 hrs

Plane of polarization -Polarization by reflection - Brewster's law -Pile of plates- Polarization by refraction - Malu's law -Double refraction - Nicol prism - Huygen's explanation of double refraction - Elliptically and circularly polarized light -Quarter and half wave plates - Production and determination of plane, elliptically and circularly polarized light - Optical activity - Fresnel's theory-Specific rotation-Laurent's half shade polarimeter

UNIT – V: Optical Instruments

15 hrs

Microscopes – Simple Microscope (Magnifying glass) – Compound Microscope – Ultra-Microscope – Eyepieces - Huygen's Eyepiece - Ramsden's Eyepiese — Comparison of Eyepieces – Telescope – Refracting astronomical telescope – Abbe Refractometer – Pulfrich refractometer -Photographic Camera – Prism binoculars.

Textbooks

S.No.	Author name	Title of the book	Publishers	Year of Publication	Edition
1.	Ajoy Ghatak	Optics	Tata McGraw Hill Co. (For Matrix methods)	2010	6 th Edition
2.	Dr. N. Subramaniam, Brijlal and Dr.M.N. Avathanulu	Optics	S. Chand & Co. Pvt.Ltd., New Delhi	2016 (Reprint)	25 th Revised Edition

Reference books

S.No.	Author name	Title of the book	Publishers	Year of Publication	Edition
1	S.L.Kakani, K.C. Bhandari	A Text Book of Optics	S.Chand and Sons, New Delhi.	2002	2 nd Edition

Pedagogy

Lecture, Seminar, Interaction, Assignment, Debate, power point presentation.

Course Designer

Ms.D.Devi

Semester-V	ATOMIC AND NUCLEAR PHYSICS	Hours/Week-5	
Core Course - VI		Credits-5	
Course Code-19UPH5CC6		Internal 25	External 75

Objectives

- To acquire the knowledge of Atomic Physics.
- To familiarize the concepts of nuclear Physics

Course Outcome

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

Co Number	CO statement	Knowledge level
CO 1	Outline the knowledge of basic properties of Cathode rays and Tue rays. Calculate the values of e/m and Critical potential.	K2
CO 2	Extend the concept of vector atom model to draw the electronic configuration of atoms and the Periodic classification.	K2
CO 3	Apply the Quantum mechanical principles in Spectral transitions (Lande's g factor)	K3
CO 4	Utilize the interaction of particle and matter to Solve the problem in nuclear physics.	K3
CO 5	Analyze nuclear radio activities and Apply the concepts of radio isotopes in general field.	K4

Mapping with programme outcome

CO's	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	M
CO2	S	S	M	M	M
CO3	S	S	M	M	M
CO4	S	S	M	M	M
CO5	S	S	M	M	S

S–Strong; M–Medium; L–Low

CORE COURSE – VI ATOMIC AND NUCLEAR PHYSICS

Syllabus

Unit -I: Cathode Rays and Tue Rays.

15 hrs

Cathode rays – properties – e/m of cathode rays – Milliken's oil drop method – Positive rays – Properties – e/m of Positive rays: Thomson's parabola method – Aston's Bain's bridge - Determination of critical Potential – Franck and Hertz's experiment - Davi's and Goucher method.

Unit- II: Vector Atom model

15 hrs

Various quantum numbers, L-S and j-j Couplings – Pauli's exclusion principle – electronic

configuration of elements and periodic classification – magnetic dipole moment of electron due to orbital and spin motion – Bohr magneton Stern and Gerlach experiment.

Unit - III: Fine structure of special lines

15 hrs

Special terms and notations – selection rules- intensity rule and internal rule – Fine structure of sodium D lines – Alkali spectra – Fine structure in Alkali spectra – spectrum of Helium – Zeeman effect - Larmor's theorem – Debye's quantum mechanical explanation of the normal Zeeman effect – Anomalous Zeeman effect – theoretical explanation - Lande's 'g' factor and explanation of splitting of D1 and D2 lines of sodium.

Unit - IV: Structure of Nuclei and Radioactivity

15 hrs

Basic properties of nuclei- Composition – Charge – Size - Rutherford's experiment for estimation of nuclear size- density of nucleus- Mass defect and Binding energy- Packing fraction- BE/A vs A plot, stability of nuclei (N Vs Z plot) and problems. Radioactive disintegration concept of natural and artificial radioactivity- Properties of α , β , γ -rays laws of radioactive decay-half-life- mean life (derivation not required)- units of radioactivity-successive disintegration and equilibria - radioisotopes.

Unit - V: Particle accelerators and detectors

15 hrs

Linear accelerators- Cyclotron - Betatron - GM counter - Ionisation chamber

Nuclear Reactions: Types of Reactions and Conservation Laws - Concept of Compound and Direct Reaction - Q value equation and solution of the Q equation – problems - Fusion and fission definitions and qualitative discussion with examples.

Text Books

S.No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1	N.Subrahmanyam and Brijlal and seshan.	Atomic and nuclear Physics	S.Chand	2007	Revised edition
2	R.Murugesan Kiruthiga Sivaprasath	Modern Physics	S.Chand	2011	Revised edition
3	Beiser. Shobhit mahajan S.Rai Choudhury	Perspectives of Modern Physics	Tata McGraw Hill	2009	6 th edition

Reference Books

S.No.	Authors	Title of the book	Publishers	Year of Publication	Edition
1	S.N. Ghosal	Atomic physics	S.chand	2007	Revised edition
2	S.N. Ghosal	Nuclear physics	S.chand	2008	Reprint

Pedagogy

Lecture with Discussion, Power point presentation, Group discussion and Seminars.

Course designer

Ms.S.Priya

Semester-V	ANALOG ELECTRONICS	Hours/Week-6	
Core Course - VII		Credits-5	
Course Code-19UPH5CC7		Internal 25	External 75

Objectives

- To acquire a diversified knowledge on semiconductors and diodes
- To impart the knowledge about the transistor characteristics in different configurations and different types of biasing
- To grasp the basic ideas of feedback and its application in amplifiers and oscillators

Course Outcome

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

CO number	CO statement	Knowledge level
CO1	Explain semiconductors, Rectifiers, and different types of diodes	K2
CO2	Outline the idea of field effect transistors and special semiconductor diodes	K2
CO3	Identify the operation of transistor and its characteristics	K3
CO5	Construct the various mathematical operations of operational amplifier	K3
CO4	Analyze the amplitude and frequency response characteristics of common amplification circuits.	K4

Mapping with Program Outcomes

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

S-Strong; M-Medium; L-Low

CORE COURSE – VII ANALOG ELECTRONICS

Syllabus

UNIT-I Semiconductors and Diodes

16hrs

Intrinsic and Extrinsic semiconductor-n-type semiconductor-p-type semiconductor-pn junction diode-Biasing of pn junction-Volt Ampere characteristics of pn junction -Rectifier-Half wave rectifier- full wave rectifier and full wave bridge rectifier-Zener diode-Characteristics of zener diode-Zener as a voltage stabiliser-Light Emitting Diode (LED)-Photo diode-LED-Tunnel diode-Varactor diode.

UNIT-II Transistors

16hrs

Circuit Analysis: Kirchoff's Current law (KCL)-Kirchoff's Voltage law (KVL)-Thevenin's theorem- Norton's theorem.

Transistor-Naming the transistor terminals-Transistor Action-Transistor Connections-Common Base connection- Common Emitter connection-Transistor load line analysis-

Operating point-Faithful amplification-Transistor Biasing- stabilization-stability factor- Methods of transistor biasing- Base resistor method-Voltage divider bias method.

UNIT-III Amplifiers, Oscillators and Multivibrators

22hrs

Single stage Transistor amplifier-Practical Circuit of transistor Amplifier- D.C and A.C Equivalent circuits-Power amplifiers-Classification of Power Amplifiers-Expression for Collector Efficiency-Efficiency of Class A and Class B amplifiers- Push- pull amplifiers Feedback-Negative voltage feedback in amplifier-Principle-Gain-Emitter Follower-Sinusoidal Oscillator-Types-Oscillatory Circuit- Positive feedback amplifier-Essentials-Barkhausen criterion-Colpitt's oscillator- Hartley oscillator -Phase shift oscillator-Wein bridge oscillator. Multivibrators-Types of Multivibrators-Astable multivibrator-Monostable multivibrator-bistable multivibrator.

UNIT-IV Special Semiconductor devices

18hrs

Types of Field Effect Transistor-Junction Field Effect Transistor (JFET)-Difference between JFET and Bipolar Transistor-Metal Oxide Semiconductor FET (MOSFET)-Types of MOSFET- Silicon Controlled Rectifier (SCR)-V-I Characteristics of SCR-SCR as a switch-Triac-Diac-Unijunction Transistor (UJT)-UJT relaxation oscillator.

UNIT-V Operational Amplifiers

18hrs

Op-amp characteristics-Common mode rejection ratio (CMRR)-Inverting and Non inverting amplifier-Adder, Subtractor, Integrator, Differentiator-Voltage follower-Op-amp comparator-Log & antilog amplifier- Filters-low, high pass and band pass filters.

Text Books

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	V.K. Mehta & Rohit Mehta	Principles of Electronics	S.Chand.	2012	11 th edition
2.	D.Chattopadhyay, P.C. Raxshit, B. Sara and Purkait	Foundations of electronics	New Age International	2006	7 th edition
3.	V. Vijayendran	Introduction to Integrated Electronics	S. Viswanathan	2010	6 th edition
4.	S. Salivahanan N. Suresh Kumar	Electronic Devices and Circuits	McGraw Hill Education	2011	2 nd edition

Reference Books

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Theraja. B.L	Basic electronics solid state	S.Chand	2012	Reprint (2012)
2.	Millman and Halkias	Integrated Electronics	Tata Mc	2008	48 th Reprint

Pedagogy

Lecture, Lecture with discussion, Technical quiz, Assignment

Course Designer

Ms. J. Aarthi

Semester-V	PHYSICS PRACTICAL - V	Hours/Week-3	
Core Practical –V		Credits-3	
Course Code-19UPH5CC5P		Internal 40	External 60

Objectives

- To apply the theoretical knowledge of spectral, electrical and physical aspects of materials through hands on learning experience.
- To impart the creative skills among the industrial applications

Course Outcomes

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

Co Number	CO statement	Knowledge level
CO 1	Verify the Optical and Spectral Properties of prism and Grating	K1
CO 2	Apply the fundamental laws to determine the properties of the given material	K1
CO 3	Construct and Apply the principles of semiconductor Devices as vibrators, Amplifiers and Oscillators	K2,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	S

S-Strong;M-Medium; L-Low

Syllabus

List of Experiments:

- Spectrometer – Grating - dispersive power.
- Spectrometer - Cauchy's constants.
- Field along the axis of a coil – determination of M.
- Koenig's method – Uniform bending.
- M and H - Absolute determination using deflection and vibration magnetometer.
- Regulated power supply using Zener diode - Percentage of regulation.
- Single stage - RC coupled amplifier – Transistor.
- FET Characteristics.
- Emitter follower .
- Astable Multivibrator.
- AND, OR and NOT gates using discrete components
- Op - Amp -Adder and Subtractor.

Text Books

S.No.	Authors	Title of the book	Year of Publication	Publishers	Edition
1	Dr. S. Somasundaram,	Practical Physics,	2012	Apsara publications, Tiruchirapalli	Reprint
2	Department of Physics	Practical Physics, (B.Sc. Physics Main),	1998	St. Joseph's College, Tiruchirapalli	Reprint

Reference Books

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S.No.	Authors	Title of the book	Year of Publication	Publishers	Edition
1	S. Srinivasan,	A Text Book of Practical physics	2005	S. Sultan Chand	Reprint
2	R. Sasikumar	Practical Physics	2011	PHI Learning Pvt. Ltd New Delhi,	Reprint

Pedagogy

Demonstration and practical sessions

Course Designers

1. Ms.S.Priya
2. Ms.A.Mary Girija

Semester-V	MATERIAL SCIENCE	Hours/Week-5	
Major Based Elective –I		Credits-5	
Course Code-19UPH5MBE1A		Internal 25	External 75

Objectives

- To develop the knowledge in material science and to understand the chemical structure and bonding between the molecules
- To gain cognition on the defects in materials
- To acquire the knowledge about the materials and its mechanical properties

Course Outcomes

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

CO Number	CO statement	Knowledge level
CO1	Define the different types of crystal structure and bonding in solids, and the physical ramifications of these differences. Give a type of bond, be able to explain its physical origin as well as strength	K1
CO2	Explain out the different kinds of technological properties of materials	K2
CO3	Classify the new materials in the material engineering and to understand their role in materials behavior	K2
CO4	Identify the materials defects and given a simple set on explaining the non – destructive testing in materials	K3
CO5	Explain the nuclear materials and uses of the materials in the space	K4

Mapping with Programme Outcomes

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

S – Strong; M – Medium; L – Low

Major Based Elective –I A

MATERIAL SCIENCE

Syllabus

UNIT – I: Crystal Structure and Chemical Bonds

15 hrs

Introduction to crystals – Classification of crystal system – Introduction to Bravais lattice – Lattice planes and Miller indices – Interplanar spacing in a cubic lattice – Cubic lattice – SC – BCC – FCC – Sodium chloride and Diamond crystal structure – Bonding of solids (Ionic, Covalent, Metallic, Hydrogen and Vander Waal)

UNIT – II: Technological Properties

14 hrs

Introduction to material science – Classification of engineering materials – Structure – Property

relationships in materials - Stability and metastability – Selection of materials – Weldability – Machineability – Formability – Castability .

UNIT – III: New Materials and Phase Transformation in Materials **11 hrs**

Metallic glass – Fiber reinforced materials – Metal matrix composites – SAW materials – Biomaterials – Ceramics.

Nucleation and Growth - solidification - Allotropic transformation- isothermal transformation - martensitic transformation - phase transformation in alloy steels.

UNIT –IV: Mechanical Properties and Non Destructive Testing **20 hrs**

Fundamental Properties – Fatigue – Creep – Testing technique – Tensile – Compression – Hardness - Stress – Rupture – Elastic deformation – Fracture – Plastic deformation slip – Critical shear stress - Metals forming process – Deformation of crystals and polycrystalline materials.

Surface defect detection by NDT – Equipments using in NDT – Metallurgical microscope – Electron microscope – Scanning Electron Microscope(SEM) – Tunneling Electron Microscope (TEM) – Coolidge X-RAY tube – Production of ultrasonic waves – Magnetostriction ultrasonic generator – Piezo electric ultrasonic generator.

UNIT –V Materials for Nuclear and Space Applications **15 hrs**

Nuclear fuels - fuel cladding- moderators, control materials -coolants - shielding materials - Space programme - structural material and their properties - system requirements - extreme high temperature materials - materials for thermal protection - pressure vessels - lubrication.

Text Books

S.No	Authors	Title of the Book	Publishers	Year of publication	of Edition
1.	M.Arumugam	Material Science	Anuradha agencies, Kombakonam	2009	1 st edition
2.	V.Raghavan	Material Science and Engineering	Prentice Hall	1993	5 th edition
3.	S.K. Hayra Choudhury	Materials Science and Processes	Indian Book Distributing Co	1991	1 st edition

Reference Books

S.No	Authors	Title of the Book	Publishers	Year of publication	of Edition
1.	S.O.Pillai	Solid State Physics	New Age International Private Limited	2005	6 th edition

Pedagogy

Chalk and talk, power point presentation, assignment, seminar, interaction, problem solving

Course Designer:

Ms.T.Noorunnisha

Semester-V	LASER PHYSICS	Hours/Week-5	
Major Based Elective –I		Credits-5	
Course Code-19UPH5MBE1B		Internal 25	External 75

Objectives

- To gain knowledge in the basic of lasers, enhance comprehension in the principles of lasers
- To familiarize with the diverse applications of lasers.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Define the interaction of radiation with matter	K1
CO2	Explain the basic principle of laser	K2
CO3	Characterize the different types of laser	K2
CO4	Summarize Properties of laser	K2
CO5	Apply the laser principle in various field	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 -IB LASER PHYSICS

Syllabus

UNIT I: Interaction of Radiation with Matter 15hrs

Introduction to electromagnetic radiation- wavelength- wave number- frequency- interaction of light with atoms and molecules-absorption- emission-kinetics of optical absorption-stimulated and spontaneous emission- intensity of spectral lines- line broadening mechanism.

UNIT II: Basic Principles of Laser 15hrs

Principle of lasers- population inversion-conditions of lasing action, characteristics of a laser coherence-monochromaticity- divergence- intensity- Einstein's co-efficients-laser pumping- two and three level laser systems.

UNIT III: Types of Lasers 15hrs

Solid state lasers-the ruby laser- Nd: YAG Laser- semiconductor lasers- features of semiconductor lasers- diode lasers,-gas laser: He-Ne laser- CO₂ laser -liquid lasers: dye lasers and chemical lasers.

UNIT IV: Control of Laser Properties and Production 15hrs

Laser pumping-resonators- vibrational modes of resonators\ - number of modes/unit-volume- open resonators-control resonators- Q factor-losses in the cavity-threshold condition-quantum yield-mode locking (active and passive).

UNIT V: Applications of Lasers 15hrs

Laser cutting – Welding – Drilling – Hologram – Recording and reconstruction of hologram - Lasers in Surgery – Lasers in ophthalmology – Lasers in cancer treatment -Optic fibre communication – Total internal reflection – Block diagram of fibre optic communication system – Advantages of fibre optic communication.

Text Books

S.No.	Authors	Title of the book	Year of Publication	Publisher name	Edition
1	B.B.Laud	Laser and Nonlinear Optics	2011	New Age Interational	3 rd Edition
2	K.Thyagarajan and A.K.Ghatak	Lasers Theory and Applications	1986	Plenum Press	2 nd Edition

Reference books

S. No.	Author name	Title of the book	Year of Publication	Publisher	Edition
1	Seigman	Lasers	1986	Oxford University Press	3 rd Edition
2	O.Seelto	Principles of Laser	2010	Springer Publication	5 th Edition

Pedagogy

Chalk and talk, Power Point Presentation, Group discussion and Seminars, Animation video and Quiz

Course Designer:

Dr.R.Gayathri

Semester-V	PHYSICS CONCEPTS THROUGH SIMULATION	Hours/Week-2	
Skill Based Elective - II		Credits-2	
Course Code-19UPH5SBE2A		Internal 25	External 75

Objectives

- To provide a basic skills in animation and Photoshop
- To Create a physics oriented animations using Flash package
- To expose the Photoshop tools to prepare physics oriented objects

Course Outcome

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

CO Number	CO statement	Knowledge level
CO1	Demonstrate the frame by frame animation using flash	K2
CO2	Explain the basic ideas of working with images	K2
CO3	Identify the basic Photoshop tool used in preparing the physics oriented objects	K3
CO5	Construct the animation of physics oriented objects using flash	K3
CO4	Construct the basic circuit diagram of physics using photoshop	K3

Mapping with Program 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; L-Low

Skill Based Elective – II A PHYSICS CONCEPTS THROUGH SIMULATION

Syllabus

Unit I: Introduction to Flash

4 Hours

Creating a document in Flash–Menu bar–stage and the paste board–tools panel–properties panel–library panel–timeline–motion editor panel–Defining Drawing modes–Exploring Drawing tools

Unit II: Working with an Animation**6 Hours**

Working with frames and key frames in Flash–Working with layers and layer folders Flash–Creating a frame by frame Animation–Creating a shape Tween–Creating a motion Tween–Editing the motion path of a tweened objects.

Unit III: Introducing Photoshop**6 Hours**

Introduction –menu bar - options bar – Creating a new document–Changing resolution and document size of an image–Modifying images: rotating–straightening–cropping–adjusting canvas size– creating and editing smart objects–working with shape and pen tools.

Unit IV: Working with layers and Text**6 Hours**

Layers–Creating new layer–creating a new layer from a selection–creating a layer group–Hiding and showing layers–Merging Layers–Aligning and Distributing layers–Deleting layers. Creating a Text–Creating point Text–Creating paragraph Text–Creating Text on a path–Formatting text using the options Bar and the character panel–Working with Text–Wrapping Text–Checking for spelling mistakes–Rasterizing type layers.

Unit V: working with painting tool and Exercises**8 Hours**

Working with painting tools: Using Gradient Tool–Brush Tool–Mixer brush tool–color replacement tool–clone stamp tool–pattern stamp tool

Exercises: Animation using Flash: create and animate Simple pendulum, light dispersion of prism and atom model– Circuit diagram using Photoshop: Draw circuit diagram of Series resonance circuit, Zener diode, Transistor connection.

Text Books

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Kogent Learning Solutions	Flash CS6 in simple Steps	Dreamtech Press	2013	Revised Edition
2.	DT Editorial Services	Photoshop CS6 in Simple Steps	Dreamtech Press	2018	New Edition

Reference Books

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Daven Brown and et.al.,	Web Development for the Designer	Macmillan	1997	First Edition

Pedagogy

Lecture with practical demonstration

Course Designer

Ms. J. Aarthis

Semester-V	CELL PHONE SERVICING	Hours/Week-2	
Skill Based Elective - II		Credits-2	
Course Code-19UPH5SBE2B		Internal 25	External 75

Objectives

- To learn the basic cellular technologies of mobile communication
- To identify the causes of various problems in mobile phone and to learn the trouble shooting process
- To provide a basic skills in servicing the mobile phone

Course Outcome

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

CO Number	CO statement	Knowledge level
CO1	Explain the fundamentals of cell phone	K2
CO2	Outline the chip level information of cell phone	K2
CO3	Identify the causes of problems in cell phone	K3
CO5	Identify the Problems in the cell phone and diagnose them	K3
CO4	Examine the basic concepts and tools used in servicing of Mobile phones	K3

Mapping with Program Outcomes

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

S-Strong; M-Medium; L-Low

Skill Based Elective – II B CELL PHONE SERVICING

Syllabus

Unit I: Principles of Cell Phone

6 Hours

Introduction-Cell Phone Network Technologies-Working of Global system for Mobile communication (GSM)/Code Division Multiple Access (CDMA) - 4G Long Term Evaluation (LTE)-Advanced LTE–Information of Cell sites & Base Station-Operating system of smart Phones (Android, IOS, Windows) – General Packet Radio Service(GPRS)-Mobile software (pc suite)

Unit II: Chip Level Study**6 Hours**

Block Diagrams–Chip level information–Ball Grid Array (BGA) – Surface Mount Technology (SMT)–Surface mount Device (SMD)–Soldering–De–Soldering–Identification of IC’s–Assembling and Disassembling of mobile phones

Unit III: Trouble Shooting I**6 Hours**

Causes and Trouble shooting of Problems in a smart Phone–Hardware Problems–Network Problems–Display Problems–Touch Problems–Charging Problems–Battery Problems

Unit IV: Trouble Shooting II**6 Hours**

Over heating problems–Sound Problems–Keypad Problems–Simcard Problems–Hand set problems–Testing of Battery, Display, Antenna, Network, Simcard.

Unit V: Repairing Tools, Testing, Software and Downloads**6 Hours**

Internal parts of a mobile phone –Mobile phone repairing tools and Equipments–Disassembling and assembling the cell phone

Software unlocking and Flashing–Information related IMEI–Downloads of logos and Ring tones–Blue tooth

Text Books

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Jochen Schiller	Mobile Communication	Pearson Education	2004	Second Edition
2.	M. Lotia and Pradeep Nair	Modern Mobile Phone Repair: Using computer software and Service Devices	BPB Publications	2015	First Edition
3.	Manahar Lotia	Modern Mobile Phone Introduction & Servicing	BPB Publications	2000	–

Pedagogy

Power point Presentation, Lecture, and Demonstration

Course Designer

Ms. J. Aarthi

Semester-V	WEB DESIGNING	Hours/Week-2	
Skill Based Elective - III		Credits-2	
Course Code-19UPH5SBE3A		Internal 25	External 75

Objectives

- To understand the basic concepts in web designing
- To develop a web page.

Course Outcome

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

CO Number	CO statement	Knowledge level
CO1	Discuss the basic ideas of create the web page	K2
CO2	Demonstrate the structure and working in a website programme	K2
CO3	Develop the Animating web pages	K3
CO4	Illustrate formatting and linking website pages	K3
CO5	Utilization of website	K3

Mapping with Program Outcomes

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

S-Strong; **M**-Medium; **L**-Low

Skill Based Elective – III A

WEB DESIGNING

Syllabus

UNIT-I: Creating a web page

6 hrs

Web organization – finding web sites and web pages – display HTML source code – create HTML website folders – view a web page – modify a web page – format text with HTML tags.

UNIT-II: Working in a website programme

6 hrs

Structure of website – centre text – add horizontal line to a web page – changing font face – create hyperlinks on web pages – create a bulleted list – create a numbered list – create multi pages for a website.

UNIT-III: Animating web pages

6 hrs

Change text colour – change back ground colour – experiment with website colours – change hyperlink colours – acquire and insert graphics – align graphics relative to text – format a graphic as a hyper link –change graphic border.

UNIT-IV: Formatting and linking website pages

6 hrs

Exploring the interface of website design and management software – design a new website – view a website – add pages to website – format web pages – link pages in a linear structure.

UNIT-V: Publishing the website

6 hrs

Presentation, interaction and information design – change background graphics and other properties of pages in a website – test hyperlinks and page properties –prepare and publish website.

Text Books

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	Weixel, Fulton, Barkslade, Morse	Multimedia Basics	Eswar Press	2004	-

Reference Books

S.No	Authors	Title of the book	Publishers	Year of Publication	Edition
1.	R. N. Srivastava	Web Technology	Global Academic Publishers & Distributors	2011	First edition
2.	Daniel Gray	Web Design Fundamentals Hand Book	Sun Rise Printers Shahdara, Delhi	2000	First edition

Pedagogy

Lecture with discussion, Power Point presentation, Technical quiz

Course Designer

Dr. B. Anitha

Semester-V	ELECTRICAL WIRING	Hours/Week-2	
Skill Based Elective - III		Credits-2	
Course Code-19UPH5SBE3B		Internal 25	External 75

Objectives

- To understand the basic ideas of electricity
- To impart knowledge on electrical wiring and their appliances.

Course Outcome

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

CO Number	CO statement	Knowledge level
CO1	Recall the basic ideas of Electricity and Electric power generation	K1
CO2	Describe the wiring system and its types	K2
CO3	Illustrate Electrical Measuring instruments	K2
CO4	Explain different types of Electrical appliances	K2
CO5	Apply Safety Precaution in everyday life	K3

Mapping with Program Outcomes

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

S-Strong; M-Medium; L-Low

Skill Based Elective – III B ELECTRICAL WIRING

Syllabus

UNIT - 1: Electricity and Electric power generation

7 hrs

Basic principles – Practical unit of electricity – International system (S.I) of units –Current, Volt, Resistance – Ohm’s law measurements – Electric power generation by Thermal, hydro, atomic and nuclear methods – Backup power suppliers (Invertors and Generators)

UNIT – II: Wiring System**7 hrs**

Types of wiring – Series and Parallel Connections – AC and DC Conductors – Inductor, Capacitor and transformer – Distribution methods – Single phase and three phase – ISI Rules – Megger testing – Earthing.

UNIT – III: Electrical Measuring Instruments**5 hrs**

Moving coil instruments – Voltmeter – Ammeter – Wattmeter– Kilowatt meter– Frequency meter– Multimeter.

UNIT – IV: Electrical Appliances**5 hrs**

Electric fan – Refrigerator – Air Conditioner – Air cooler– Iron box–Water Heater –Washing machine.

UNIT – V: Safety Precaution**6 hrs**

Electric shock– Precautions to avoid electric shock– Rescue steps in electric Shock – methods of resuscitation – Testing the insulation – Electric Line Circuit Breaker (ELCB).

Text Books

S.No.	Author name	Title of the book	Publisher name	Year of Publication	Edition
1.	A.L. Anwani and I. Anwani,	Basic Electrical Engineering	DhanpatRai and Co (P) Ltd., Delhi	2014	19 th edition
2.	William D.Cooper	Electrical Instuments and Measurement Techniques	PHI Pvt Co., New Delhi	1997	-
3.	V.K Mehta Rohit Mehta	Principles of Eelectronics	S. Chand Publishing	2014	7 th edition

Reference Books

S.No	Author name	Title of the book	Publisher name	Year of Publication	Edition
1.	B.L.Theraja	Textbook of Electrical Technology	S.Chand	2005	-
2.	Timothy J. Maloney	Electricity: Fundamental concepts and Applications	Delmar Publisher Inc	1992	-
3.	S.P.Bali	Consumer Electronics	Pearson Education, India	2005	-

Pedagogy

Chalk and talk,Lecture, Seminar, Assignment, Power point presentation

Course Designer

Dr. B. Anitha

CAUVERY COLEGE FOR WOMEN (AUTONOMOUS)
M.SC PHYSICS COURSE STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2019-2020)

Sem	Course	Title	Course Code	Ins. Hrs / Week	Credit	Exam Hrs	Marks		Total
							Int	Ext	
III	Core Course -II	Statistical Mechanics	19PPH3CC7	6	5	3	25	75	100
	Core Course-VIII	Solid State Physics	19PPH3CC8	6	5	3	25	75	100
	Core Course – IX	Physics for competitive examinations	19PPH3CC9	5	5	3	-	100	100
	Core Practical - III	Physics Practical – III (General and Electronics)	19PPH3CC3 P	8	4	3	40	60	100
	Elective Course -III	Crystal Growth and Thin Film Physics	19PPH3EC3 A	5	5	3	25	75	100
		Material Characterization and Measurement Techniques	19PPH3EC3 B						
	Extra Credit Course	SWAYAM online course	To be fixed Later	As per UGC Recommendations					
TOTAL				30	24	-	-	-	500

CAUVERY COLEGE FOR WOMEN (AUTONOMOUS)
M.SC PHYSICS COURSE STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2020-2021)

Sem	Course	Title	Course Code	Ins. Hrs / Week	Credit	Exam Hrs	Marks		Total
							In t	Ex t	
II	Core course –V	Electromagnetic Theory	19PPH2CC 5	6	5	3	25	75	100
	Core course –VI	Quantum Mechanics – II	19PPH2CC 6	6	5	3	25	75	100
	Core Practical – II	Physics Practical – II (Microprocessor and C++ Programming)	19PPH2CC 2P	8	4	3	40	60	100
	Elective Course –I	Microprocessor and Microcontroller	19PPH2EC 1A	5	5	3	25	75	100
		Non- Destructive Evaluation Techniques	19PPH2EC 1B						
	Elective Course –II	Numerical Methods and C++ Programming	19PPH2EC 2A	5	5	3	25	75	100
		Biomechanics and Bio Physics	19PPH2EC 2B						
	Extra Credit Course	A Brief Course on Superconductivity	To be fixed later	As per UGC Recommendations					
TOTAL				30	24	-	-	-	500



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS) TRICHY-18
PG DEPARTMENT OF CHEMISTRY
MINUTES OF BOARD OF STUDIES

The Virtual Board of Studies Meeting for the Department of Chemistry held on Tuesday, 05.01.2021 at 10.30 A.M via Google Meet.

The board of studies members considered and approved the curriculum and syllabus of III UG Chemistry Programme V semester.

The following members attended the meeting:

- | | |
|------------------------------------|---|
| t) Mrs. P. Pungayee Alias Amirtham | Chairperson & Head |
| u) Dr. R. Thiruneelakandan | University Nominee, Anna University |
| v) Dr. P. Prabhu | Subject Experts, Madras University |
| w) Dr. V. Padmini | Subject Experts, Madurai Kamaraj University |
| x) Ms. U. D. Lingeswari | Member Alumna |
| y) Dr. G. Sivasankari | Member |
| z) Mrs. A. Sharmila | Member |
| aa) Mrs. P. Thamizhini | Member |
| bb) Dr. V. Sangu | Member |
| cc) Dr. K. Shenbagam | Member |
| dd) Mrs. N. Anusuya | Member |
| ee) Dr. C. Rajarajeswari | Member |
| ff) Dr. R. Subha | Member |
| gg) Dr. K. Uma Sivakami | Member |
| hh) Ms. S. Jeevitha | Member |

The following had expressed their inability to attend the meeting due to their preoccupation:

1. Ms. T. Indhumathi Industrial person

Minutes of the meeting of FOURTH BoS MEET- 05.01.2021

The Chairman, BOS of the Chemistry welcome the members of BOS for IV Board of studies meeting and thanked each one of them for sparing their valuable time to attend the meeting.

1. ITEM NO. BoS/04/01

To include Online course offered by SWAYAM as an extra credit course in Semester V in the program structure of B.Sc., Chemistry (2019 – 2020 batch onwards) and forward to the Academic Council, Cauvery College for Women (Autonomous), Trichy.

2. ITEM NO. BoS/04/02

To include Online course offered by SWAYAM as an extra credit course in Semester II in the program structure of B.Sc., Chemistry (2020 – 2021 batch onwards) and forward to the Academic Council, Cauvery College for Women (Autonomous), Trichy.

3. ITEM NO. BoS/04/03

To consider and approve the syllabus of Core Course, Major Based Elective I and Skill Based Elective II and Skill Based Elective III of B.Sc., Chemistry (2019 – 2020 batch onwards) for V semester and recommended to the Academic Council, Cauvery College for Women (Autonomous), Trichy.

4. ITEM NO. BoS/04/04

Ratification to Change the Assessment Criteria for Core Course VII -Chemistry for Competitive Examinations with course code -19PCH3CC7 in Semester III for M.Sc., Chemistry (2019 – 2020 batch onwards) and forward to the Academic Council, Cauvery College for Women (Autonomous), Trichy.

5. ITEM NO. BoS/04/05

Ratification of minor change in the syllabus of Core practical II – Organic Chemistry Practical-I with course code 19UCH2CC2P in II Semester for B.Sc., Chemistry (2020 – 2021 batch and onwards) and forward to the Academic Council, Cauvery College for Women (Autonomous), Trichy.

Meeting ends with vote of thanks by the chairman of BoS.

The following Resolutions were passed by the BoS members.

Resolution No. BoS/04/01

- To consider and approve the Swayam Online Course as an Extra credit course as per UGC recommendation in the V semester Syllabus of B.Sc., Chemistry (2019 – 2020 batch onwards) and recommend to the Academic Council. The course content, hours, exam pattern and credits would be followed as per UGC recommendations.

“Resolved that the Online Swayam course to be approved and recommended to the Academic Council, Cauvery College for Women (Autonomous), Trichy for further action.”

Resolution No. BoS/04/02

- To consider and approve the Swayam Online Course as an Extra credit course in the II semester Syllabus of B.Sc., Chemistry (2020 – 2021 batch onwards) and recommend to the Academic Council.

“Resolved that the Online Swayam course to be approved and recommended to Academic

Council, Cauvery College for Women (Autonomous), Trichy for further action.”

Resolution No. BoS/04/03

To consider and approve V Semester Syllabus for B.Sc., Chemistry

Suggestions made by the Panel members during the discussion:

- To rearrange the topics in Unit -I of Core Course -Physical chemistry - I (19UCH5CC5)
- To change the topics of Unit-I & Unit -V of Chemistry of Consumer product (19UCH5SBE2A)
- To include extra credit course as a choice for Swayam Online Course
- To choose subject related to Swayam Online Course as an extra credit course for PG programme and to choose non subject relevant Swayam Online course for UG programme.
- Appreciation to the syllabus of the skill based elective paper.

“Resolution: The members pointed out some minor modification in course content. The major based elective papers and skill based elective papers also well accepted by the board members”.

Resolution No. BoS/04/05

- The ratification to change in Assessment Criteria for Core Course VII - Chemistry for Competitive Examinations with course code -19PCH3CC7 in III Semester of M.Sc., Chemistry Programme from 2019-2020 batch onwards.

“It is unanimously Resolved III to implement III the changes in valuation process as only external evaluation for the Core Course VII -Chemistry for Competitive Examaminations with course code -19PCH3CC7 in III Semester of M.Sc., Chemistry Programme from 2019-2020 batch onwards and recommended to the Academic Council, Cauvery College for Women (Autonomous), Trichy for further action.”

Resolution No. BoS/04/05

- The ratification to minor change in syllabus and scheme of **Core practical II: Organic Chemistry – I with the course code 19UCH3CC2P UGC** in Semester II of B.Sc., Chemistry Programmes from 2020-2021 batch onwards.

“It was resolved only to demonstrate quantitative analysis experiments along with Organic preparation and Physical constant experiments in Core practical II: Organic Chemistry – I with the course code 19UCH3CC2P for B.Sc., Chemistry (2020 – 2021 onwards) and recommended to Academic Council, Cauvery College for Women (Autonomous), Trichy for further action.

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	19UCH5MBE1A	5	5	3	25	75	100
	Chemistry of Biomolecules		19UCH5MBE1B							
	IV	Skill Based Elective-II	Chemistry of Consumer Products	19UCH5SBE2A	2	2	3	25	75	100
			Dye Chemistry	19UCH5SBE2B						
		Skill Based Elective-III	Water Treatment Technology	UCH5SBE3A	2	2	3	25	75	100
			Biofuels	UCH5SBE3B						
	Soft Skills Development	Soft Skills Development	19UGSD	2	2	3	25	75	100	
	V	Swayam Online Course	As per UGC Recommendations	*	*	*	*	*	*	
	Total					30	29			800

**CORE COURSE-V
INORGANIC CHEMISTRY-I
2019-2020 ONWARDS**

Semester-V	INORGANIC CHEMISTRY-I	Hours/Week-5	
Core Course-V		Credit-5	
Course Code-19UCH5CC5		Internal	External
		25	75

Objectives

- To understand the concept of metallurgy
- To understand the basics and theories of coordination compounds.
- To study biologically important coordination compounds.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Explain the process of metallurgy.	K1
CO2	Recognize the basic concepts of co-ordination chemistry.	K1
CO3	Compare the theories of bonding in coordination compounds.	K2
CO4	Relate the stability of metal complexes.	K3
CO5	Interpret the biological importance of coordination complexes.	K3

Mapping with Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	S	M
CO2	M	M	S	M	S
CO3	M	M	M	S	S
CO4	M	M	S	S	M
CO5	M	M	M	M	M

S- Strong; M- Medium

**CORE COURSE-V
INORGANIC CHEMISTRY-I
2019 -2020 ONWARDS**

Semester –V	INORGANIC CHEMISTRY –I	Hours/Week-5	
Core Course-V		Credit:5	
Course Code - 19UCH5CC5		Internal	External
		25	75

Unit – I Metallurgy (15 Hrs)

Metallurgy - minerals and ores - process - ore dressing - gravity separation - froth flotation - magnetic separation - chemical separation- calcination - roasting. Extraction of metal - chemical reduction - auto reduction - electrolytic reduction - metal displacement- refining methods - Van Arkel method - electrolytic refining - vapour phase refining-ion exchange method. Thermodynamic principles of metallurgy-Ellingham diagram - observations - applications.

Unit - II Coordination Compounds –I (15 Hrs)

Introduction - types of ligands- coordination number - nomenclature of coordination compounds – isomerism - structural isomerism - stereo isomerism - bonding theories - Werner's theory - Sidgwick's concept of coordination - Valence bond theory – postulates of VBT- geometries of tetrahedral - square planar and octahedral complexes - limitations.

Unit - III Coordination Compounds –II (15 Hrs)

Crystal field theory - shapes of d orbitals- assumptions- splitting of d-orbitals in octahedral, tetrahedral and square-planar complexes -crystal field stabilization energy- factors affecting magnitude of $10Dq$ - merits and demerits of crystal-field theory – spectro chemical series – Jahn -Teller effect– MOT – octahedral complexes.

Unit - IV Stability and Magnetic Properties of Metal Complex (15 Hrs)

Stability of metal complexes- thermodynamic stability and kinetic stability-factors affecting the stability of metal complexes- chelate effect - determination of composition of complex by Job's method - mole ratio method -properties of metal complexes-types of magnetic behavior-spin-only formula - calculation of magnetic moments - experimental determination of magnetic susceptibility - Gouy method.

Unit -V Reactivity of Metal Complexes and Bio-Inorganic Chemistry (15 Hrs)

Reactivity of metal complexes-labile and inert complexes- ligand substitution reactions - SN_1 and SN_2 substitution reactions of square planar complexes - Trans effect – Theories - applications. Bioinorganic chemistry - essential elements - biological significance of Na, K, Mg, Ca, Fe, Co, Ni, Cu, Zn and Cl – metallo porphyrin's – structure - functions of hemoglobin- myoglobin - chlorophyll.

Text Books

S.No.	Author Name	Year of Publication	Title of the Book	Publisher Name
1	Puri B.R., Sharma L.R, Kalia K.K.	1993	Principles of Inorganic Chemistry (23 rd edition)	Shoban Lal Nagin Chand & Co., New Delhi
2	Gopalan R.	2012	Text Book of Inorganic Chemistry (2 nd edition)	Hyderabad, Universities Press, India
3	Soni P.L.	1993	Text Book of Inorganic Chemistry (20 th revised edition)	Sultan Chand & Sons
4	Gilreath,	1985	Fundamental Concepts of Inorganic Chemistry (18 th Printing)	McGraw Hill International Book Company

Reference Books

S.No.	Author Name	Year of Publication	Title of the Book	Publisher Name
1	Madan R.D	2000	Modern Inorganic Chemistry (2 nd edition)	S. Chand & Company Ltd.,
2	Wahid U.Malik Tuli G.D, Madan R.D	2001	Selected topics in inorganic Chemistry (7 th edition)	S.Chand and Company Ltd.,
3	Cotton F.A	2004	Advanced Inorganic Chemistry (6 th edition)	John Wiley & Sons, Pvt. Ltd.,
4	Huheey J.E.	1993	Inorganic Chemistry (4 th edition)	Pearson Education. Inc.,

Pedagogy

Lecture, Lecture with discussion, Demonstrations, Group discussion, Debate, Seminar, Quiz, Video clippings, Flip learning, and E-Content

Course Designers

Dr. V. Sangu, Assistant Professor, Department of Chemistry

Ms. P. Thamizhini, Assistant Professor, Department of Chemistry

CORE COURSE - VI
ORGANIC CHEMISTRY –I
2019-2020 ONWARDS

Semester -V	ORGANIC CHEMISTRY –I	Hours/Week-5	
Core Course-VI		Credit:5	
Course Code - 19UCH5CC6		Internal	External
		25	75

Objectives

- This course helps to learn the reactions of carboxylic acids, amines, carbonyl compounds and Heterocyclic compounds.
- To know the requirement of the oxidizing and reducing agents for synthesis

Course Outcomes

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

CO	CO Statement	Knowledge level
CO 1	Identify different types of carboxylic acids and to compare their relative strength	K1
CO 2	Discuss about reactions of carbonyl compounds	K2
CO 3	Explain various heterocyclic compounds and dyes	K2
CO 4	Utilization appropriate reagents for oxidization and reduction	K3
CO 5	Analyze the basicity and stability of aliphatic and aromatic amines	K4

Mapping with Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5
CO 1	S	S	M	S	M
CO2	S	S	M	S	S
CO3	S	S	S	M	S
CO4	S	S	S	S	M
CO5	S	S	S	S	M

S-Strong M-Medium

**CORE COURSE - VI
ORGANIC CHEMISTRY –I
2019-2020 ONWARDS**

Unit –I Carboxylic Acid and Their Derivatives (15 Hrs)

Aliphatic acids: Saturated monocarboxylic acid – resonance structure – relative strength of carboxylic acids (effect of substituents). Reactive methylene compounds: Preparation-properties - uses of ethylacetoacetate and diethyl malonate. Aromatic acids: Monocarboxylic acids – general methods of preparation - properties and reactions of benzoic acid and salicylic acid. Dicarboxylic acid: Preparation - properties - uses of phthalic acid and terephthalic acid.

Unit -II Chemistry of Nitrogen Compounds (15 Hrs)

Amines: aliphatic and aromatic amines - classification – general methods of preparation-properties and reaction - separation of mixture of amines. Basicity of amines - effect of substituents - distinction between primary, secondary and tertiary amine. Aliphatic diazo compounds: Preparation - properties of diazomethane. Diazonium compounds: Benzene diazonium chloride – structure - reactions - synthetic applications of diazo coupling reaction.

Unit –III Carbonyl Compounds - Aldehydes and Ketones (15 Hrs)

Structure - acidity of α -hydrogen – methods of preparation- physical properties - chemical properties - nucleophilic addition - acid- base catalyzed reaction –. addition reactions – sodium bisulphate- hydrogen cyanide- ammonium ion. Oxidation reaction – Oxidation of aldehydes and ketones. Reduction reaction – reduction to alcohol and alkane using Grignard reagent and LiAlH_4 . Aldol condensation - Benzoin condensation - Cannizzaro reaction - Reformatsky and Wittig reaction.

Unit – IV Heterocyclic Compounds and Dyes (15 Hrs)

Heterocyclic Compounds: Nomenclature – Chemistry of furan- thiophene - pyrrole and pyridine. Fused ring heterocyclic compounds: Quinolone - isoquinoline and indole. Dyes: Introduction – colour and constitution - classification based on structure - application. Preparation and applications of the following dyes – methyl orange- congo red- malachite green and indigo.

Unit - V Oxidation and Reduction (15 Hrs)

Oxidation: Osmium tetroxide – chromyl chloride – ozone – DDQ –dioxiranes - lead tetraacetate - selenium dioxide – Dess - Martin reagent. Reduction: Catalytic hydrogenation using Wilkinson catalyst – reduction with LiAlH_4 - NaBH_4 – $\text{AlH}[\text{O t-Bu}]_3$ - NaCNBH_3 and $\text{NH}_2\text{-NH}_2$.

Text Books

S.No.	Author Name	Year of Publication	Title of the Book	Publisher Name
1	Bahl, B.S. and Bahl, A.	2010	Advanced Organic Chemistry (12 th edition)	Sultan Chand & Co., New Delhi.
2	Soni P.L.	2006	Text Book of Inorganic Chemistry	S. Chand & Co., New Delhi
3	Bhupinder Mehta and Manju Mehta	2015	Organic Chemistry	Prentice Hall of India Pvt Ltd., New Delhi.

Reference Books

S.No.	Author Name	Year of Publication	Title of the Book	Publisher Name
1	Finar I.L.	1996	Organic Chemistry, Volume 1&2 (6 th edition)	Addison Wesley Longman Ltd., England
2	Morrison R.T. and Boyd R.N. and Bhattacharjee S. K.	2011	Organic Chemistry (7 th edition),	Pearson India
3	Tewari,K.S, Vishil N.K and Mehotra S.N.	2001	A text book of Organic Chemistry (1 st edition)	Vikas Publishing House Pvt Ltd., New Delhi
4	Pine S.H.,	1987	Organic Chemistry (5 th edition)	McGraw – Hill International Book Company, NewDelhi
5.	Seyhan N. Ege	2005	Organic Chemistry (5 th edition)	Houghton Mifflin Co.,New York

Pedagogy

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

Course Designer

Ms.Pungayee Alias Amirtham, Assistant Professor and Head, Department of Chemistry

Ms.A.Sharmila, Assistant Professor, Department of Chemistry

**CORE COURSE - VII
PHYSICAL CHEMISTRY –I
2019-2020 ONWARDS**

Semester -V	PHYSICAL CHEMISTRY – I	Hours/Week-6	
Core Course-VII		Credit:5	
Course Code - 19UCH5CC7		Internal	External
		25	75

Objectives

- After studying this course students can understand photochemical process and types of electronic transitions, behaviors of dilute solutions and colligative properties, colloids, adsorption phenomena, phase rule and its significances.

Course Outcomes

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

CO	CO Statement	Knowledge Level
CO1	Evaluate quantum yield and Identify types of electronic transition in organic molecules.	K4
CO2	Find equilibrium constant and enthalpy of equilibrium reaction at different temperature,	K1
CO3	Analyze thermodynamic conditions favoring chemical equilibrium.	K2
CO4	Discuss physical and chemical adsorption phenomenon	K2
CO5	Explain phase rule and law of dilute solution to predict composition, molecular weight	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 - VII
PHYSICAL CHEMISTRY –I
2019-2020 ONWARDS

Unit - I Electronic Spectroscopy and Photochemistry (18 Hrs)

Molecular spectra - Energy levels of molecular orbitals - electronic spectroscopy - selection rules - types of electronic transitions - concept of chromophore and auxochrome. Photochemistry: Difference between thermal and photochemical processes- laws of photochemistry - Grothus-Draper's law and Stark-Einstein's law of photochemical equivalence - quantum yield-photochemical reaction mechanism- hydrogen- chlorine, hydrogen- bromine reaction - energy transfer processes - Jablonski diagram- qualitative description of fluorescence, phosphorescence and photosensitized reactions.

Unit - II Chemical Equilibrium, Zeroth and Third Law Thermodynamics (18 Hrs)

Law of mass action - thermodynamic treatment - Van't Hoff reaction isotherm, temperature dependence of the equilibrium constant - Van't Hoff equation, integrated form of Van't Hoff equation - homogeneous and heterogeneous systems (NH_3 , PCl_5 and CaCO_3) - relationship between K_p and K_c - Factors affecting chemical equilibrium - Le - Chatlier principle (Haber's and Contact processes) - Zeroth law of thermodynamics - absolute temperature scale - statement of third law - Nernst heat theorem.

Unit -III Dilute Solutions (18 Hrs)

Ideal solutions, Raoult's law - ideally dilute solutions- Henry's law – non-ideal solutions - vapour pressure - temperature curves – azeotropes – hydrochloric acid- water system- ethanol-water systems and fractional distillation - partially miscible liquids - phenol-water, tri methylamine-water, nicotine-water system- effect of impurity on consulate temperature - immiscible liquids and steam distillation - Nernst distribution law - applications of distribution law. Colligative Properties - relation between molecular weight and elevation in boiling point - depression in freezing point - osmosis - osmotic pressure – determination of osmotic pressure of a non-volatile solute from osmotic pressure - abnormal colligative properties – Van't Hoff factor.

Unit - IV Surface Chemistry (18 Hrs)

Definition of colloids - solids in liquids (Sols) – preparation – purification - properties – kinetic, optical and electrical - stability of colloids - Hardy Schule law - protective colloids - liquids in liquids (emulsions) – preparation - properties - uses - liquids in solids (gels) – preparation- properties - uses - adsorption - physical adsorption - chemisorption- Freundlich and Langmuir adsorption isotherms - applications of adsorption.

Unit – V Phase Rule (18 Hrs)

Concept of phase- component - degrees of freedom - Gibb's phase rule - phase equilibrium - one component system – water system and sulphur system – two component system –

solid liquid equilibrium. Simple eutectic diagram of Pb-Ag system- simple eutectic diagram- desilverisation of lead – compound formation with congruent melting point – (Mg-Zn) - incongruent melting point (Na-K) – NaCl –water system-freezing mixtures.

Text Books

S.No.	Author Name	Year of Publication	Title of the Book	Publisher Name
1	Puri B. R. ,Sharma L. R. and Pathania M. S.	2013	Principles of Physical Chemistry	Shoban Lal Nagin Chand & Co., New Delhi
2	Glasstone S and Lewis D	2014	Elements of Physical Chemistry	Mac Millon Ltd, London
3	Banwell C.N	1994	Fundamentals of Molecular Spectroscopy	Mc GrawHill Education , Noida

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 (23 rd edition)	Shoban Lal Nagin Chand & Co.New Delhi.
2.	Maron and Prutton	1969	Physical Chemistry	Mac Millan, London
3.	Atkins P.W.	1994	Physical Chemistry (5 th edition)	Oxford University Press
4.	Gabor a Sobarjai and Yimin Li	2010	Introduction to Surface Chemistry and Catalysis (2 nd edition)	John Wiley & Sons, New Jersey

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. K. Shenbagam, Assistant Professor, Department of Chemistry

**CORE PRACTICAL –V
PHYSICAL CHEMISTRY (p)
2019-2020 ONWARDS**

Semester-V	PHYSICAL CHEMISTRY (P)	Hours/Week-3	
Core Practical V (CP)		Credit-3	
Course Code-19UCH5CC5P		Internal 40	External 60

Objectives

- To learn the methods of finding CST, TT, Molecular weight and rate constant
- To understand the fundamentals of conductometric and potentiometric titrations.

Course outcomes

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

CO	CO Statement	Knowledge Level
CO 1	Construct the phase diagram	K3
CO 2	Relate the effect of impurity on phenol water System	K2
CO 3	Identify the molecular weight of unknown compound	K3
CO 4	Examine the concentration of ions using Potentiometer	K4
CO 5	Inspect the concentration of ions using Conductometer	K4

Mapping with program outcomes

COs/POs	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	S	S	M	S
CO3	S	S	M	S
CO4	S	S	S	S
CO 5	S	S	S	S

S-Strong ; M- Medium

CORE PRACTICAL –V
PHYSICAL CHEMISTRY (p)
2019-2020 ONWARDS

1. Determination of rate constant for acid catalyzed ester hydrolysis.
2. Critical Solution Temperature - Phenol-Water system
3. Effect of impurity (NaCl) on Critical Solution Temperature
4. Rast Method – Determination of molecular weight of unknown solute
5. Transition temperature of a salt hydrate – determination of molecular weight
6. Phase Diagram of simple eutectic system
7. Adsorption of acetic acid on activated charcoal, verification of Freundlich isotherm.
8. Conductometric Acid-Base Titration - (HCl vs NaOH).
9. Potentiometric Redox Titration – (FAS vs KMnO_4).
10. Determination of equivalent conductance of a strong electrolyte (NaCl/KCl).

MARK DISTRIBUTION :

Internal : 40

Ext. Evaluation :60

Record :5

Procedure Writing with formula : 10

Practicals :45

Text Books

S.No.	Author Name	Year of Publication	Title of the Book	Publisher Name
1	Yadav J. B	2001	Organic Analytical Chemistry- Theory and Practice Chemistry (20 th edition)	GOEL Publishing House
2	Levitt B. P	1985	Findlay's Practical Physical Chemistry (9 th edition)	Longman
3	Gurtur J. N and Kapoor R	1997	Advanced Experimental Chemistry (Volume 1)	S. Chand and Co.,
4	Shoemaker and Gerland	2009	Advanced Physical Chemistry Experiments	McGraw – Hill Higher Education

Reference Books

S.No.	Author Name	Year of Publication	Title of the Book	Publisher Name
1	Gurtur J.R and Kapoor R	1997	Advanced Experimental Chemistry	S. Chand and Co. Ltd., New Delhi

Pedagogy: Hands on training
Course Designer

Dr. K. Shenbagam, Assistant Professor, Department of Chemistry.

**MAJOR BASED ELECTIVE -I
ANALYTICAL CHEMISTRY
2019-2020 ONWARDS**

Semester –V	ANALYTICAL CHEMISTRY	Hours/Week-5	
Major Based Elective –I		Credit:5	
Course Code - 19UCH5MBE1A		Internal	External
		25	75

Objectives

- This course is to make students aware about the SI Units, concentration terms, various analytical methods, types of errors in chemical analysis, statistical tests of data and safe usage of chemicals and its waste and role of analysis by chromatography.

Course Outcomes

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

CO	CO Statement	Knowledge level
CO 1	Acquire the knowledge of the qualitative and quantitative analysis	K2
CO 2	To know the storage and handling of various chemicals and first aid procedures	K3
CO 3	Examine about SI units	K3
CO 4	Interpret the fundamental concepts and role in separation of different types of chromatography.	K3
CO 5	Predict the applications of data analysis	K3

Mapping with Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	L	S
CO2	S	S	M	L	S
CO3	S	M	S	S	S
CO4	S	M	M	M	S
CO5	S	S	S	S	S

S-Strong; M-Medium; L- Low

**MAJOR BASED ELECTIVE -I
ANALYTICAL CHEMISTRY
2019-2020 ONWARDS**

Unit-I Scope and Importance of Analytical Chemistry (15 Hrs)

Introduction to analytical chemistry- role of analytical chemistry in sciences. Chemical analysis: qualitative analysis - quantitative analysis – major- minor and trace constituents. Quantitative methods of analysis - steps in typical quantitative analysis. Types of analysis – Complete analysis- partial analysis and assay of ingredients - responsibility of analytical chemist and analyst.

Unit - II Laboratory Hygiene and Safety (15 Hrs)

Storage and handling of chemicals: corrosion-flammable- explosive-toxic-carcinogenic and poisonous chemicals - simple first aid procedures for accidents involving acids-alkalis-bromine - burns and cut by glass - precautions to avoid poisoning-treatment for specific poisons - safe limits - laboratory safety measures - waste disposal-fume disposal - precautions for avoiding accidents.

Unit – III Gravimetric Methods of Analysis (15 Hrs)

Precipitation – saturation - super saturation - nucleation - crystal growth. Properties of precipitates- particle size - colloidal state; types of precipitates- crystalline - curdy and gelatinous precipitates. Inorganic precipitants - organic precipitants - advantages - disadvantages. Uses of inorganic precipitants: dilute sulfuric acid for barium and potassium chromate for lead. Uses of organic precipitants: Dimethyl glyoxime for Nickel and 8-hydroxy quinoline for Aluminium

Unit - IV Chromatography (15 Hrs)

Theory and practice: Introduction- the chromatography (elution time and volume) capacity factor - column efficiency – resolution - sample preparation - classification of chromatographic methods: Principles of differential migration-description of chromatographic process-distribution coefficients - modes of chromatography- basic principles – applications of column- thin layer and paper chromatography.

Unit – V Errors in Chemical Analysis (15 Hrs)

Mean- median- mode- range precision and accuracy- methods of expressing precision and accuracy: mean deviation- relative mean deviation- and standard deviation. Errors - absolute error - relative error. Determinate errors- classification of determinate errors - minimization - indeterminate error - normal frequency distribution curve.

Text Books

S. No.	Author Name	Year of Publication	Title of the Book	Publisher Name
1	Gopalan R. Subramanian P.S. and Rengarajan K	1993	Elements of analytical chemistry (2 nd edition)	S. Chand & Company, New Delhi
2	Gurdeep R Chatwal and Sham K. Anand	2005	Instrumental methods of chemical Analysis	Himalaya publishing house
3	Douglas A. Skoog and Donald M. West	2014	Fundamentals of Analytical Chemistry	OWL (Online Web Learning)
4	Adion A. and Gordus Schaum	1985	Outline of Analytical Chemistry	Tata McGraw-Hill

Reference Books

S. No.	Author Name	Year of Publication	Title of the Book	Publisher Name
1	Vogel A.I.	2000	Text Book of Quantitative Inorganic analysis	The English Language Book Society
2	Douglas A. Skoog, Donald M. West and F. J. Holler	1985	Fundamentals of Analytical chemistry (7 th edition)	Harcourt College Publishers
3	Mendham J., Denny R. C., Barnes J.D and Thomas M. Vogel's	1995	Test book of Quantitative Chemical analysis (6 th edition)	Pearson education
	Fifield, F.W. and Kealey, D.	2000	Principles and Practice of	Wiley Online library

			Analytical Chemistry (7 th edition)	
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Pedagogy

E-content, Lecture, Power point presentation, Seminar, Assignment, Quiz, Group Discussion, Video/ Animation.

Course Designer

Dr. G. Sivasankari, Assistant Professor, Department of Chemistry.

Ms. N. Anusuya, Assistant Professor, Department of Chemistry.

**MAJOR BASED ELECTIVE -I
CHEMISTRY OF BIOMOLECULES
2019-2020 ONWARDS**

Semester –V	CHEMISTRY OF BIOMOLECULES	Hours/Week-5	
Major Based Elective-I		Credit:5	
Course Code- 19UCH5MBE1B		Internal	External
		25	75

Objectives

- The course encompasses deals with detail study of definition, classification, structure and cellular functions of its biomolecules carbohydrates, lipids, proteins and nucleic acids.

Course Outcomes

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

CO	CO Statement	Knowledge level
CO 1	Gain the knowledge of the carbohydrates	K2
CO 2	Acquires the information's about amino acids and proteins	K2
CO 3	To know the components of lipids and its function	K3
CO 4	Procures the knowledge of nucleic acids	K3
CO 5	Predict the applications of vitamins and enzymes	K3

Mapping with Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	L	S
CO2	S	S	M	L	S
CO3	S	M	S	S	S
CO4	S	M	M	M	S
CO5	S	S	S	S	S

S-Strong; M-Medium; L- Low

MAJOR BASED ELECTIVE -I
CHEMISTRY OF BIOMOLECULES
2019-2020 ONWARDS

Unit - I Carbohydrates **(15 Hrs)**

Carbohydrates-definition-classification - stereo isomeric forms – structure - functions - reactions of biologically important carbohydrates -mono saccharide glucose-fructose-mannose – galactose - disaccharides-sucrose-lactose-maltose-structure - storage polysaccharides-starch-glycogen celluloses-hemicellulose-lignin-chitin and peptidoglycans.

Unit - II Amino Acids and Proteins **(15 Hrs)**

Amino acid-peptide and proteins-essential - non-essential amino acids-building blocks of proteins-classification-structure - properties of amino acids-peptide bonds-biologically important peptides-structure-primary-secondary-tertiary and quaternary-biological functions of proteins-basic techniques in protein chemistry.

Unit – III Lipids **(15 Hrs)**

Lipids-definition - nomenclature-fatty acids - types-structure - biological functions of various class of lipids-triacyl glycerol-phospholipids- glycolipids - terpenoid lipids-including steroids-alkyl glyceryl ethers -wax.

Unit - IV Nucleic Acids **(15 Hrs)**

Nucleic acids-genetic material-building blocks of nucleic acids-purines and pyrimidines-nucleosides-nucleotides- DNA- double helix structure-properties-function-chromosomal organization-RNA structure and functions of m-RNA-t-RNA and r-RNA

Unit - V Enzymes and Vitamins **(15 Hrs)**

Enzymes-biocatalysts of cells-classification of enzymes-Michaelis-Menten kinetics-enzyme assay - units - active site - mechanism of enzyme action-inhibitors-allosteric enzymes - vitamins and coenzymes - structure - functions of thiamine-riboflavin-nicotinic acid-pantothenic acid- pyridoxine - lipoic acid - biotin-folic acid-ascorbic acid and vitamin A.

Text Books

S.No.	Author Name	Year of Publication	Title of the Book	Publisher Name
1	Bahl, B.S. and Bahl, A.	2010	Advanced Organic Chemistry, (12th edition)	Sultan Chand & Co. New Delhi
2	Bhupinder Mehta and Manju Mehta	2015	Organic Chemistry	Prentice Hall of India Pvt Ltd., New Delhi

Reference Books

S. No.	Author Name	Year of Publication	Title of the book	Publisher Name
1	Alexander J , Julian L , Martin R , Keith R and James D. W	2016	Molecular Biology of the Cell (3 rd Edition)	Garland Taylor and Francis
2	Frank D. Gunstone, John L. Harwood, and Albert J. Dijkstra	2013	The Lipid Handbook (3 rd Edition)	CRC Press.
3	Thisbe K. Lindhorst	2012	Essentials of Carbohydrate Chemistry and Biochemistry (6 th Edition)	Wiley-VCH

Pedagogy

E-content, Lecture, Power point presentation, Seminar, Assignment, Quiz, Group Discussion, Video/ Animation.

Course Designers

Dr. C. Rajarajeswari, Assistant Professor, Department of Chemistry.

Dr. K. Uma Sivakami, Assistant Professor, Department of Chemistry.

**SKILL BASED ELECTIVE-II
CHEMISTRY OF CONSUMER PRODUCTS
2019-2020 ONWARDS**

Semester-V	CHEMISTRY OF CONSUMER PRODUCTS	Hours/Week-2	
Skill Based Elective-II		Credit-2	
Course Code- 19UCH5SBE2A		Internal	External
		25	75

Objectives

- This course helps to learn the preparative methods of consumer products
- To know the preparation and properties of soaps and detergents

Course Outcomes

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

CO	CO Statement	Knowledge Level
CO1	Designing the synthesis of soaps, detergents, cosmetics and cream	K1
CO 2	Discuss about different kinds of shampoos	K2
CO3	Evaluation of products and packing regulations	K3
CO 4	Utilize appropriate ingredient for making soaps and detergents	K3
CO 5	Analyze the right product and drug license	K4

Mapping with Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5
CO 1	S	S	M	S	M
CO2	S	S	M	S	S
CO3	S	S	S	M	S
CO4	S	S	S	S	M
CO5	S	S	S	S	M

S-Strong M-Medium

SKILL BASED ELECTIVE-II
CHEMISTRY OF CONSUMER PRODUCTS
2019-2020 ONWARDS

Unit - I Soaps (6Hrs)

Saponification of oils and fats - manufacture of soaps - formulation of toilet soaps - medicated soaps-herbal soaps - soft soaps - shaving soaps and creams - functions. ISI specifications - testing procedures/limits.

Unit - II Detergents (6 Hrs)

Anionic detergents - manufacture of linear alkyl benzene – sulphonation - preparation of acid slurry-liquid detergents- foam boosters. Cationic detergents - Non-ionic detergents - manufacture of ethylene oxide condensates. Comparison of soaps and detergents - biodegradation- environmental effects.

Unit - III Shampoos (6Hrs)

Manufacture – ingredients - functions - different kinds of shampoos – antidandruff - anti-lice - herbal and baby shampoos - ISI specifications - testing procedures and limits.

Unit - IV Cosmetics (6 Hrs)

Face- skin powders - snow and face creams – ingredients – functions - anti perspirants – sun screen preparations- UV absorbers - skin bleaching agents – depilatories - Vitamin oil - nail polishes - nail polish removers - article removers – lipsticks – rouges - eyebrow pencils - ingredients and functions –hazards - ISI specifications.

Unit - V Product Analysis (6 Hrs)

Leading firms - brand names - choosing the right product - packing regulations – marketing -licensing – drug license – legal aspects - GMP – ISO 9000/12000 – consumer education – testing of the product – advertisements.

Text books

S.No.	Author Name	Year of Publication	Title of the Book	Publisher Name
1	Sawyer. W	2001	Experimental cosmetics	Dover publishers, Newyork
2	Kafaro . S	1995	Wasteless chemical processing	Min publishers

Reference Book

S.No.	Author Name	Year of Publication	Title of the Book	Publisher Name
1	Gohala Rao .S	1990	Outlines of chemical technology	East west press

Pedagogy

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

Course Designer

Ms.Pungayee Alias Amirtham, Assistant Professor and Head, Department of Chemistry

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

**SKILL BASED ELECTIVE-II
DYE CHEMISTRY
2019-2020 ONWARDS**

Semester-VI	DYE CHEMISTRY	Hours/Week-2	
Skill based Elective – II		Credit-2	
Course Code-19UCH5SBE2B		Internal 25	External 75

Objectives

- To learn the scientific and chemical principles underlying dyes, dyeing processes.
- Synthesis and applications of dyes and treatment of effluents

Course Outcomes

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

CO Number	CO statement	Knowledge level
CO1	Overview to dyes with their classifications	K2
CO2	Explicate the synthesis of dyes and their applications	K2
CO3	Describe the process of bleaching and dyeing	K2
CO4	Illustrate the various processes after dyeing	K3
CO5	Interpretation of effluent treatment, estimation of metals and dyeing assisting agents.	K3

Mapping with Programme Outcome

COs/POs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	M
CO2	S	S	S	M	M
CO3	S	S	S	M	M
CO4	S	S	S	M	M
CO5	S	S	S	M	M

S- Strong, M-Medium

SKILL BASED ELECTIVE-II
DYE CHEMISTRY
2019-2020 ONWARDS

Unit - I Introduction and classification of dyes **(6 Hrs)**

Definition – dye – colour - natural and synthetic dyes - colour and chemical constitution of dyes - chromophore- auxochrome - bathochromic effect and hypso chromic effect – classification - acid-base – azo - vat and reactive dyes.

Unit - II Synthesis and Applications of Dyes **(6 Hrs)**

Difference between dyes and pigment – theories of colour - Witt theory and Modern theory. cataloguing of dyes with examples - application and structure – dye - fiber interactions - ionic-covalent - Van der Waals-hydrogen bonding interactions.

Unit - III Bleaching and Dyeing **(6 Hrs)**

Bleaching of cotton fabrics - peroxide bleaching - hypochlorite bleaching - dyeing methods – (direct, top, stock) - yarn dyeing - silk dyeing of cotton with vat dyes -dyeing of wool with acid dyes - dyeing of polyester with disperse dyes.

Unit - IV Post Processes of Dyeing **(6 Hrs)**

Stripping of dyes - low temperature dyeing - sizing - sizing agents – applications – desizing –scouring - mercerizing – coloration – finishing - types of finishing – mechanical and chemical finishing on cotton, wool and silk – shrinking - brightening - process of mercerizing - anti-crease and anti-shrink finishing – water proofing - optical brightening agents.

Unit - V Treatment of Effluent **(6 Hrs)**

Textile effluent – characteristics - effect of untreated effluent - degradability of wastes - effluent treatment plants - aerated lagoon - photo oxidation process - metal ion estimations - copper – nickel –chromium - dyeing assisting agents - NaOH, Na₂CO₃, Al₂(SO₄)₃, Cr₂(SO₄)₃.

Text Books

S. No.	Author Name	Year of publication	Title of the Book	Publisher Name
1	Sharma B.K	1997	Industrial Chemistry	Goel Publishing Co Publishing Co
2	Jain and Jain	1995	Engineering Chemistry	Dhanpat Rai & Sons
3	Bagavathi Sundari K	2006	Applied Chemistry	MJP Publishers, Chennai
4	Arora S	2011	Textile chemistry	Abhishek Publications

Reference Books

S. No.	Author Name	Year of publication	Title of the Book	Publisher Name
1	Thankamma Jacob A	1979	A text Book of Applied Chemistry (1 st edition)	Mc Millan India Ltd
2	Chakraborty J.N	2010	Fundamentals and practices in colouration of Textiles and practices in colouration of Textiles	Woodhead publishing India.
3	Rajbir Singh	2002	Synthetic dyes	Mittal Publications
4	Trotman, S.R. and Trotman, E.R.	1946	Dyeing and chemical Technology of Textile fibres (5 th edition)	Charles and Griffin & Co Ltd

Pedagogy

E-content, Lecture Power point presentation Seminar, Assignment, Quiz, Group Discussion, Video / Animation.

Course Designer

Dr. K. Uma Sivakami, Assistant Professor, Department of Chemistry

**SKILL BASED ELECTIVE-III
WATER TREATMENT TECHNOLOGY
2019-2020 ONWARDS**

Semester V	WATER TREATMENT TECHNOLOGY	Hours / Week 2	
Skill Based Elective-III		Credit 2	
Course code 19UCH5SBE3A		Internal 25	External 75

Objectives

- To obtain the knowledge about the history of water crisis
- To identify the qualitative and quantitative parameters of water
- To attain the proper designing of water/ wastewater treatment
- To identify the materials for recycling of water

Course outcomes

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

CO Number	CO statement	Knowledge
CO1	Design of a water or wastewater component for industries	K2
CO2	Describe the biological methods for removal of water contaminants	K2
CO3	Prediction of water contaminants from its sources	K3
CO4	Evaluate the regulations for drinking water quality and effluent quality	K5
CO5	Compile the regulations limits with Indian Standards	K6

Mapping with Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	S	S	S
CO3	S	S	M	S	M
CO4	S	S	S	S	M
CO5	S	S	S	S	S

S- Strong, M-Medium

SKILL BASED ELECTIVE-III
WATER TREATMENT TECHNOLOGY
2019-2020 ONWARDS

Unit - I Regulation Limits of Water (6 Hrs)

Water- types - soft & hard water - determination of hard water - water resources of India- status of water quality in India - WHO permissible limits - agencies of water quality testing- TWAD – pollution control boards (state and central) – water protection act.

Unit - II Water Quality Parameters (6 Hrs)

Water quality parameters - physical and chemical characteristics – turbidity – color – temperature - chemical constituents – taste – acidity – alkalinity - CO₂ – hardness – pH – methods of testing of heavy metal ions – dyes – organic compounds and inorganic anions in water.

Unit - III Water Treatment Plant (6 Hrs)

Elementary ideas - primary treatment- screening – equalization – coagulation - secondary treatment- trickling filter - activated sludge process - aerobic and anaerobic treatment - sludge treatment and disposal.

Unit - IV Tertiary Treatment (6 Hrs)

Tertiary treatment – evaporation - reverse osmosis – electro dialysis - ion exchange – bio filter - adsorption and absorption – applications - drinking water treatment process - industrial and domestic effluents – pesticides – health hazards - control measures

Unit - V Bioremediation Techniques (6 Hrs)

Bioremediation technique - soil and ground water remediation - in-situ - ex-situ - contaminants removal and treatment - factors influencing bioremediation - optimization of remediation – biogas - application design - biodegradation of chlorinated compounds such as PCBs and PCE.

Text books

S.No.	Author Name	Year of Publication	Title of the Book	Publisher Name
1.	Sharma,B.K	2001	An Introduction to Environmental pollution	Krishna Prakashan media
2	Rao M.N and Datta A.K	2007	Wastewater treatment	Oxford and IBH publishers
3	Goel P.K	2002	Handbook of water and wastewater treatment techniques	Butterworth Hienman
4	Manivasagam P	2003	Industrial effluents	L&T publishers

Reference Books

S.No.	Author Name	Year of Publication	Title of the book	Publisher Name
1	Mark Hammer	1975	Water and Wastewater Technology	Pearson
2	Sharma B.K.	2014	Environmental chemistry	Krishanan pumblications
3	Trivedi R.K.	2010	Enviornmental protection act	BPB publications

Pedagogy

Lecture, PowerPoint Presentation, Videos, OHP Presentation, Seminar, Group Discussion, Assignment and Quiz.

Course Designers

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

Ms. S. Jeevitha, Assistant Professor, Department of Chemistry.

**SKILL BASED ELECTIVE-III
BIO FUELS
2019-2020 ONWARDS**

Semester – V	BIOFUELS	Hours / Week 2	
Skill Based Elective- III		Credit 2	
Course code - 19UCH5SBE3B		Internal	External
		25	75

Objectives

- To acquire the basic concepts about biomass derived energy, the idea of 1st generation, 2nd generation and advance biofuels and their production
- To describe techno-economic analyses of biofuel conversion technologies
- To apply biomass-derived energy in different applications

Course outcomes

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

CO	CO statement	Knowledge
CO1	Implementation of technologies for the production of biofuels by developing innovative ideas.	K2
CO2	Stabilize the knowledge on digestion and fermentation process for gaseous fuels from organic substrates of different origin	K3
CO3	Diagnose global impacts of biofuels on food and energy supplies	K4
CO4	Compile the regulations limits with Indian Standards	K5

Mapping with Programme Outcomes

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

S- Strong, M-Medium

SKILL BASED ELECTIVE-III

BIO FUELS

2019-2020 ONWARDS

Unit - I Classification of Biofuels

(6 Hrs)

Bio fuels- solid - liquid and gaseous fuels - production processes - raw materials and products - concepts of bio refinery - value added processing of bio fuel residues and co products.

Unit - II Solid Biofuels

(6 Hrs)

Cellulose and lignin– biomass pretreatment and pre-activation by dilute acid and steam explosion methods – biochemical conversion of lignocellulosic to alcohols by separate hydrolysis and fermentation (SHF) process - thermal conversion of biomass to liquid fuels by gasification and pyrolysis.

Unit - III Liquid Biofuels

(6 Hrs)

Characteristics - significance of liquid bio fuels - production - refined oils as fuel - Fischer - Tropsch process for the production of hydrocarbons from syngas – bioethanol and biodiesel – preparation – properties - applications.

Unit - IV Gaseous Biofuels

(6 Hrs)

Characteristics - scope of gaseous bio fuels - energy conversion process - anaerobic digestion – acidogenesis – acetogenesis – methanogenesis - disintegration and hydrolysis - composition and uses of biogas- pretreatment and post treatment to anaerobic digestion.

Unit - V Energy Conversion from BioMass

(6 Hrs)

Bio energy - bio energy cycle – bio fuel and fossil fuel – bio energy type – primary energy conversion technologies - biomass – efficiency of bio mass- energy conversion process – applications– advantages - disadvantage of bio energy.

Text Books

S.No.	Author Name	Year of Publication	Title of the Book	Publisher Name
1	Sharma B.K.	2014	Environmental Chemistry	Krishanan Publications
2	Rao, M.N and Datta, A.K	2007	Wastewater treatment	Oxford and IBH Publishers
3	Robert C.Brown	2003	Biorenewable resources: Engineering new products from Agriculture	Wiley Publishers
4	Mousdale	2008	Biofuels: Biotechnology, Chemistry & Sustainable development	CRC Press

Reference Books

S.No.	Author Name	Year of Publication	Title of the Book	Publisher Name
1	Mark Hammer	1975	Water and Wastewater Technology	Pearson
2	Sharma,B.K	2001	An Introduction to Environmental pollution	Krishna Prakashan media
3	Caye Drapcho, Terry Walker	2008	Biofuels Engineering Process Technology	Mc Graw Hill
4	Sunggyu Lee and Y.T. Shah	2013	Biofuels and Bioenergy Process Technologies	CRC Press

Pedagogy

Lecture, Powerpoint Presentation, Videos, OHP Presentation, Seminar, Group Discussion, Assignment and Quiz.

Course Designers

Ms.Pungayee Alias Amirtham, Assistant Professor and Head, Department of Chemistry.

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

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

Sem	Part	Course	Title	Subject code	Inst Hrs/ week	Credit	Exam Hrs	Marks		Total	
								INT	EXT		
II	I	Language Course II (LC)	இடைக்கால இலக்கியமும் புதினமும்	19ULT2	6	3	3	25	75	100	
			Prose, Drama, Hindi Literature-2 & Grammar-II	19ULH2							
			Poetry Textual Grammer and Alakara	19ULS2							
			Communication in French-II	19ULF2							
	II	English Language Course –II (ELC)	Functional Grammar for Effective Communication-II	19UE2	6	3	3	25	75	100	
	III	Core Course-II (CC)	General Chemistry-II	19UCH2CC2	6	5	3	25	75	100	
		Core Practical – II (CP)	Organic Chemistry Practical –I	19UCH2CC2P	3	3	3	40	60	100	
		First Allied Course- II (AC)	Mathematics-II	19UCH1AC2	4	3	3	25	75	100	
		First Allied Course- III (AC)	Mathematics-III	19UCH2AC3	3	3	3	25	75	100	
	IV	Environmental Studies	Environmental Studies	19UGES	2	2	3	25	75	100	
	V	Extra Credit Course	Basics in Inorganic Chemistry		SWAYAM ONLINE COURSE (As Per UGC Recommendation)						
	Total					30	22				700

CORE PRACTICAL –II
ORGANIC CHEMISTRY PRACTICAL -I
2020-2021 ONWARDS

Semester-II	ORGANIC CHEMISTRY PRACTICAL -I	Hours/Week-3	
Core Practical II (CP)		Credit-3	
Course Code-19UCH5CC2P		Internal 40	External 60

Objectives

Enable the student to carry out the quantitative analysis of an organic substance and to perform the preparation of organic compounds and to determine the physical

Course outcomes

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

CO	CO Statement	Knowledge Level
CO 1	Find the physical constants of the organic compound	K1
CO 2	Demonstrate the estimation of organic compounds	K2
CO 3	Prepare organic compounds using various reactions	K3

Mapping with program outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	S
CO2	S	S	S	M	S
CO3	S	S	S	M	S

S-Strong ; M- Medium

CORE PRACTICAL –V
ORGANIC CHEMISTRY PRACTICAL -I
2020-2021 ONWARDS

PREPARATION OF ORGANIC COMPOUNDS

(SINGLE STAGE)

- a) Salicylic acid from methyl salicylate (Hydrolysis)
- b) Acetanilide from aniline (acetylation)
- c) m-Dinitrobenzene from Nitrobenzene (Nitration)
- d) Benzoic acid from Benzaldehyde (Oxidation)
- e) 2, 4, 6, tribromoaniline from aniline (Bromination)

QUANTITATIVE ANALYSIS (DEMONSTRATION)

- a) Estimation of Ascorbic acid
- b) Saponification value of an oil

PHYSICAL CONSTANTS

Determination of melting point and boiling point of the given organic compound.

MARK DISTRIBUTION :

Internal : 40

Ext. Evaluation :60

Record :5

Practicals :55

Text Books

S.No.	Author Name	Year of Publication	Title of the Book	Publisher Name
	Mohan.J	2003	Organic Analytical Chemistry- Theory and Practice	Narosa
2	Ahluwalia.V.K, Bhagat.P and Agarwal.R	2005	Laboratory Techniques in Organic Chemistry	I. K. International
3	Gnanaprakasam.N. S and Ramamurthy.G	2007	Organic Chemistry Lab Manual	S.Viswanathan Pvt.Ltd

Pedagogy: Hands on training
Course Designer

Mrs. P. Pungayee Alias Amirtham, Assistant Professor and Head, Department of Chemistry

Ms. A. Sharmila ,Assistant Professor, Department of Chemistry

**MASTER OF SCIENCE
IN
CHEMISTRY**

CURRICULUM AND SYLLABUS

**(FOR STUDENTS ADMITTED FROM ACADEMIC YEAR 2019-2020
ONWARDS)**

UNDER CHOICE BASED CREDIT SYSTEM



DEPARTMENT OF CHEMISTRY

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

(Nationally Re-Accredited (III Cycle) with 'A' grade (CGPA-3.41 out of 4) by NAAC)

TIRUCHIRAPPALLI -620 018

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
M.SC., CHEMISTRY CORE STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2019-2020)

Sem	Course	Title	Subject code	Inst Hrs/Week	Credit	Exam	Marks		Total
						Hrs	Int	Ext	
III	Core Course-VI	Physical Chemistry-II	19PCH3CC6	6	6	3	25	75	100
	Core Course-VII	Chemistry for Competitive Examinations	19PCH3CC7	6	5	3	--	100	100
	Core Practical V	Physical Chemistry Practical-I	19PCH3CC5P	6	3	6	40	60	100
	Elective Course-II	Pharmaceutical Chemistry /Bioorganic Chemistry	19PCH3EC2A/ 19PCH3EC2B	6	5	3	25	75	100
	Elective Course-III	Instrumentation techniques/Intellectual Property Rights	19PCH3EC3A/ 19PCH3EC3B	6	5	3	25	75	100
	Extra Credit Course	SWAYAM ONLINE COURSE	To be fixed later	As per UGC recommendation					
		Total		30	24				500

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
M.SC., CHEMISTRY CORE STRUCTURE
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2020-2021)

Sem	Course	Title	Subject code	Inst Hrs/Week	Credit	Exam	Marks		Total	
							INT	EXT		
II	Core Course-IV	Physical Methods in Chemistry-I	19PCH2CC4	6	6	3	25	75	100	
	Core Course-V	Organic Chemistry – II	19PCH2CC5	6	5	3	25	75	100	
	Core Practical-III	Organic Chemistry Practical-II	19PCH2CC3P	6	3	6	40	60	100	
	Core Practical-IV	Inorganic Chemistry Practical-II	19PCH2CC4P	6	3	6	40	60	100	
	Elective Course-I	Green Chemistry/ Forensic Chemistry	19PCH2EC1A/ 19PCH2EC1B	6	4	3	25	75	100	
	Extra Credit Course	Bio Inorganic Chemistry		SWAYAM ONLINE COURSE As per UGC recommendation						
	Total				30	21				500



**Cauvery College for Women (AUTONOMOUS)
Nationally Accredited (III Cycle) with A Grade by NAAC
Annamalai Nagar, Trichy -18.**

PG & Research Department of Computer Science

MINUTES OF THE FOURTH MEETING OF THE BOS

DATE: 04.01.2021

TIME: 10.30 a.m.

MODE: Through Google Meet

Members Present:

# Dr.V.Sinthu Janita Prakash	Chairperson, Professor &HoD
# Prof. S. Nickolas	University Nominee
# Dr. S. Sukumaran,	Subject Expert, Other University
# Dr. K.S. Jeen Marseline,	Subject Expert, Other university
# Mr.Laxmi Narasimhan Varadhan	Placement Representative from
Industry/	Corporate Sector
# Ms. Disanthini Retnaraj	Alumna, Member
# Ms.N.Girubagari	Member
# Dr.P.Rajeswari	Member
# Ms.A.Sahaya Jenitha	Member
# Ms.K.Pradeepa	Member
# Ms.D.Radhika	Member
# Ms.K.Reka	Member
# Ms.S.Udhayapriya	Member
# Ms.P.Muthulakshmi	Member
# Ms.K.Sangeetha	Member
# Ms.R.Rita Jenifer	Member
# Ms.V.Kavitha	Member
# Ms.R.Sangeetha	Member
# Ms.S.Saranya	Member
# Ms.N.Agalya	Member
# Ms.G.Sujatha	Member
# Ms.R.Ramya	Member

Action taken report of Third BoS held on 27.05.2020

The Resolution No.BoS/03/01 to Resolution No.BoS/03/08 in connection with the outcome based Programme structure and syllabus for the IV semester of UG and of PG degree programmes for the batch 2019-2020 onwards were implemented.

Minutes of the Fourth BoS meet held on 04.01.2021 at 10.30 a.m. through Online Mode

The following Resolutions were passed by the members of the BoS

Resolution No.BoS/04/01

- ✓ Considered to include the Online Course offered by SWAYAM in Semester V in the Programme Structure of B.Sc Computer Science (2019 - 2020 batch and onwards) and is forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy

Dr S. Sukumaran (Subject Expert from other University) suggested the students to take Online Courses related to Computer Science.

Resolution No.BoS/04/02

- ✓ Considered and approved the syllabus of Core Course, Major Based Elective I and Skill Based Elective II & III of B.Sc Computer Science (2019 - 2020 batch and onwards) for Fifth Semester and is recommended to the Academic Council, Cauvery College for Women(Autonomous), Trichy

Dr Nickolas (University Nominee) suggested to change the title of the Core Course VII, Subject Code **19UCS5CC7**, Course Title **Data Communication Networks** as **Computer Networks** and also to refine the contents of the syllabus

Resolution No.BoS/04/03

- ✓ Ratified to make changes in the Assessment Criteria for Core Course VII - **Computer Science for Competitive Examinations with Course Code 19PCS3CC7** in Semester III for M.Sc Computer Science (2019 - 2020 batch and onwards) and is forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy. The assessment for External Examination will be for 100 Marks only.

Resolution No.BoS/04/04

- ✓ Approved the Online course offered by SWAYAM as an extra credit course in Semester II in the Programme Structure of B.Sc& M.Sc Computer Science (2020 - 2021 batch and onwards) and is forwarded to the Academic Council, Cauvery College for Women (Autonomous), Trichy.

Cauvery College for Women(Autonomous), Trichy-18
Nationally Accredited (III Cycle) with A Grade by NAAC
PG & Research Department of Computer Science
B.Sc Computer Science
(For the Candidates admitted from the Academic year 2019-2020 onwards)

Part	Course	Title	Course Code	Inst.Hrs/ week	Credits	Exam			Total
						Hrs.	Marks		
							Int	Ext	
III	Core Course – V(CC)	Python Programming	19UCS5CC5	5	5	3	25	75	100
	Core Practical – V(CP)	Python Programming Lab	19UCS5CC5P	3	3	3	40	60	100
	Core Course - VI(CC)	Computer Graphics	19UCS5CC6	5	4	3	25	75	100
	Core Course – VII(CC)	Computer Networks	19UCS5CC7	6	5	3	25	75	100
	Major Based Elective – I	Computer Architecture	19UCS5MBE1A	5	4	3	25	75	100
Software Engineering		19UCS5MBE1B							
Cyber Security		19UCS5MBE1C							
IV	Skill Based Elective – II	Mobile Application Development Lab	19UCS5SBE2AP	2	2	3	40	60	100
		Computer Networks Lab Using JAVA	19UCS5SBE2BP						
	Skill Based Elective – III	Software Testing Tool – Selenium	19UCS5SBE3AP	2	2	3	40	60	100
		Computer Graphics Lab Using C	19UCS5SBE3BP						
	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	27	-	-	-	800

Cauvery College for Women(Autonomous), Trichy-18
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PG & Research Department of Computer Science
B.Sc Computer Science
(For the Candidates admitted from the Academic year 2020-2021 onwards)
Semester : II

Part	Course	Title	Course Code	Inst.Hrs / week	Credits	Exam			Total
						Hrs.	Marks		
							Int	Ext	
I	Language Course-II(LC) Tamil/Other Languages	,ilf;fhy ,yf;fpaKk; GjpdKk;	19ULT2	6	3	3	25	75	100
		Prose, Drama, Hindi Literature-2 & Grammar-II	19ULH2						
		Communication in French-II	19ULF2						
		Poetry Textual Grammar and Alakara	19ULS2						
II	English Language Course-II(ELC)	Functional Grammar for Effective Communication-II	19UE2	6	3	3	25	75	100
III	Core Course – II (CC)	Java Programming	19UCS2CC2	6	6	3	25	75	100
	Core Practical - II (CP)	Java Programming Lab	19UCS2CC2P	3	3	3	40	60	100
	First Allied II	Numerical Analysis and Statistics	19UCS1AC2	3	3	3	25	75	100
	First Allied III	Operations Research	19UCS2AC3	4	2	3	25	75	100
IV	Environmental Studies	Environmental Studies	19UGES	2	2	3	25	75	100
V	Extra Credit Course	SWAYAM ONLINE COURSE	To be Fixed Later	As per UGC Recommendation					
TOTAL				30	22	-	-	-	700

Semester V	Internal Marks : 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS5CC5	PYTHON PROGRAMMING	CORE	75	5	-	5

Objective

- To provide basic idea on functions and concepts of Python programming
- To inculcate the basic techniques of Python programming
- To do input/output with files in Python
- To learn how to build and packages python modules for reusability

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO 1	Describe the basic built-in functions and syntax of Python programming	K1
CO2	Understand the concepts of arrays and file operations	K2
CO3	Use external libraries and packages with python	K3
CO4	Apply the concepts of decision making and construct statements	K3
CO5	Implementing database concepts	K3

Mapping with Programme Outcomes

CoS	PO1	PO2	PO3	PO4
CO1	S	M	M	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

Syllabus

UNIT – I

(13 HOURS)

Introduction to Python- Features of Python- Comments in python- Identifiers and Reserved words - Data types in Python- Built-in data types -Bool datatype- Sequences- Sets-Literals- Input and Output- Operators in Python.

UNIT – II

(17 HOURS)

Control statements- Arrays in Python: Creating an array-importing the array module- Indexing and Slicing-Processing the arrays-Working with array using Numpy- Mathematical operations on arrays - Comparing arrays - Working with single and multi dimensional arrays - Attribute of an array.

UNIT – III

(15 HOURS)

Strings & Characters- Functions - Defining a function - Calling a function - Returning results and multiple values from a function - Pass by object reference - Formal and Actual arguments - Local and Global variables - Recursive function - Lambdas - Decorators - Generators.

UNIT –IV

(17 HOURS)

Lists & Tuples - Dictionaries - Modules and Packages: Built-in Modules - Creating Modules - import Statement - Locating Modules - Namespaces and Scope - The dir() function - The reload() function - Packages in Python.

UNIT – V**(13 HOURS)**

Files in Python - Python's database connectivity - Types of database used with Python - Working with MySQL database - Using MySQL from Python - Creating database tables through Python.

Text 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	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	Eric Matthes	Python crash course	William Pollock , 2 nd edition	2019
2	Allen B. Downey	Think Python	O'Reilly Publishers, 2 nd edition	2015
3	Mark Lutz	Python Pocket Reference	O'Reilly Media	2014
4	Wesley J. Chun	Core Python Programming	Prentice Hall	2009

Web References

1. <http://greenteapress.com/wp/thinkpython>
2. <http://www.tutorialspoint.com/python/>
3. <http://www.learnpython.org/>
4. <http://www.codecademy.com/en/tracks/python>
5. <http://www.pyschools.com/>

Pedagogy

Assignment, Seminar, Lecture, Quiz, Group discussion, Power point presentations

Course Designer

Ms. K.Reka

Semester V	Internal Marks : 40			External Marks:60		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS5CC5P	PYTHON PROGRAMMING LAB	CORE	45	-	3	3

Objective

- To read ,write and debug simple Python programs
- To implement python programs with looping statement
- To represent compound data using python lists, tuples and dictionaries
- To implement in real time environment

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Identify the basic concepts of Python	K2
CO2	Write and debug simple Python programs with loops and conditions	K3
CO3	Use Python lists, tuples, dictionaries for representing compound data and apply file concept in Python	K3
CO4	Developing simple applications using MySql	K3
CO5	Construct Python programs step-wise by defining functions and calling them	K4

Mapping with Programme Outcomes

CoS	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	S	S	S	S
CO3	S	S	S	S
CO4	S	M	M	S
CO5	S	S	S	S

S-Strong;M-Medium; L-Low

Syllabus

1. List and their built-in functions
2. Implementing Tuples
3. Working with Dictionaries
4. Strings and their built-in functions
5. Implementing Functions with Flow control
6. Packages and Modules
7. Exception Handling
8. File Operations
9. Working with MySql
10. Matplotlib pyplot

Web References

1. <https://www.w3resource.com/python-exercises/>
2. <https://cocalc.com/>

3. <http://machinelearningplus.com>
4. <https://www.programiz.com/python-programming/online-compiler/>
5. <https://www.codechef.com/ide>

Pedagogy

Power point presentations, e-content

Course Designer

Ms. K.Reka

Semester V	Internal Marks : 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS5CC6	COMPUTER GRAPHICS	CORE	75	5	-	4

Objective

- To understand the basics of Graphical Mechanisms
- To have a knowledge about display and I/O devices
- To gain knowledge about 2D and 3D Transformations and Techniques

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Identify the basic attributes of various output primitives	K1
CO2	Explain about the basic principles of Graphics systems	K2
CO3	Describe various input techniques and Methods	K2
CO4	Apply algorithm to draw different mathematical objects	K3
CO5	Illustrate various 2D & 3D Geometric & modeling Techniques	K3

Mapping with Programme Outcomes

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

S-Strong, M-Medium, L- Low

Syllabus

UNIT I

(12 HOURS)

Overview of Computer Graphics System: Video Display Devices – Raster Scan Systems – Random – Scan Systems - Graphics Monitors and Workstations – Input Devices – Hardcopy Devices – Graphics Software.

UNIT II

(15 HOURS)

Output Primitives: Line Drawing Algorithms – Loading the Frame Buffer – Line Function – Circle – Generating Algorithms. Attributes of Output Primitives: Line Attributes – Curve Attributes – Color and Grayscale levels– Area fill Attributes – Character Attributes – Bundled Attributes – Inquiry Functions.

UNIT III

(18 HOURS)

2D Geometric Transformations: Basic Transformation – Matrix Representations – Composite Transformations – Window to View port Co-Ordinate Transformations. Clipping: Point Clipping – Line Clipping – Cohen-Sutherland Line Clipping – Polygon Clipping – Sutherland-Hodgeman Polygon Clipping – Curve Clipping – Text Clipping.

UNIT IV**(12 HOURS)**

Graphical User Interfaces and Interactive Input Methods: The User Dialogue – Input of Graphical Data – Input Functions – Interactive Picture Construction Techniques. Three Dimensional Concepts: 3D-Display Methods –Three Dimensional Graphics Packages

UNIT V**(18 HOURS)**

3D Geometric and Modelling Transformations: Translation – Scaling – Rotation – Other Transformations. Visible Surface Detection Methods: Classification of Visible Surface Detection Algorithm –Backface Detection – Depth-Buffer Method – A-Buffer Method – Scan-Line Method –Applications of Computer Graphics.

Text Book

S.No	Author	Book Title	Publication	Year
1.	Donald D.Hearn M. Pauline Baker	Computer Graphics C Version	Pearson Education,2 nd Edition	2014

Reference Books

S.No	Author	Book Title	Publication	Year
1.	Sunil Kumar Sharma, Manoj Singhal	Computer Graphics	Pearson Education	2014
2.	William M. Neuman, Robert R. Sprout	nciples of interactive Computer Graphics	McGraw Hill International Edition	2000
3.	Computer Graphics	Udit Agarwal	S.K. Kataria & Sons	2013

Web References

- www.tutorialspoint.com
- <http://math.hws.edu/graphicsbook>
-
- https://www.researchgate.net/publication/340315732_Lecture1_Computer_Graphics_Introduction
- <http://www.svecw.edu.in/Docs%5CCSECGLNotes2013.pdf>
- <https://www.amazon.com/Computer-Graphics-Principles-Practice-2nd/dp/0201848406>

Pedagogy

Quiz, Assignment, Chalk-Talk, Power point Presentations, E-Content

Course Designer

Ms.A.Sahaya Jenitha

Semester V	Internal Marks:25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS5CC7	COMPUTER NETWORKS	CORE	90	6	-	5

Objective

- To provide the basics in computer network concepts
- To interpret the layering concepts in computer networks
- To educate the knowledge about networking technologies

Course Outcomes

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

CO Number	Course Outcome	Knowledge Level
CO1	Describe the basics of data communication	K1
CO2	Identify the different types of network topologies and the layers of OSI model.	K1
CO3	Explain contemporary issues in networking technologies	K2
CO4	Illustrate about Internetworking	K3

Mapping with Programme Outcomes

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

S-Strong, M-Medium, L- Low

Syllabus

UNIT I

(17 HOURS)

Introduction to Data Communications and Networking: Introduction - Fundamental Concepts - Data Communications – Protocols – Standards –Standards Organization- Signal Propagation-Analog and Digital Signals. Analog and Digital Transmission Methods: Analog Signal, Analog Transmission – Digital Signal, Digital Transmission- Digital Signal, Analog Transmission. Modes of Data Transmission and Multiplexing: Parallel and Serial Communication.

UNIT II

(20 HOURS)

Transmission Errors: Detection and Correction: Introduction – Error Classification – Types of Errors – Error Detection. Transmission Media: Guided Media - Unguided Media. Network Topologies, Switching and Routing Algorithms – Networking Protocols and OSI Model: The OSI Model - OSI Layer Functions.

UNIT III**(22 HOURS)**

LAN, MAN, WAN: LAN – Ethernet-Token Ring- Fiber Distributed Data Interface- MAN - WAN-WAN Architecture. Medium Access Sublayer and ISDN: Static and Dynamic Channel Allocation - Medium Access Control (MAC) Sublayer - Classification and Study of MAC Sublayer Protocols/Collisions - ISDN and its Background-ISDN Architecture-ISDN Interface. Frame relay and Congestion Control: How Frame Relay Works-Congestion Control - ATM.

UNIT IV**(16 HOURS)**

Internetworking Concepts: Internetworking- The Problems in Internetworking - Dealing with Incompatibility Issues–A Virtual Network- Internetworking Devices – Repeaters –Bridges – Routers-Gateways.TCP/IP : TCP/IP Basics-IP Address -Features of TCP-Connections: Passive Open and Active Open – UDP-UDP Packet –Difference between UDP and TCP.

UNIT V**(15 HOURS)**

Domain Name System - E-mail - File Transfer Protocol - The Basics of WWW and Browsing - Hypertext Mark-up Language - Web Browser Architecture – Remote Login(TELNET) - Static, Dynamic and Active Web Pages.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS / EDITION	YEAR OF PUBLICATION
1	Achyut S Godbole and AtulKahate	Data Communications and Networks	Tata McGraw-Hill Education Private Ltd, 2 nd Edition	2017

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS / EDITION	YEAR OF PUBLICATION
1	Andrew S Tanenbaum, David J.Wetherall	Computer Networks	Pearson Education Publications, 5 th Edition	2013
2	C.R.Sharma	Computer Networks	Jaico Publishing House, 1 st edition	2005

Web References

- https://www.tutorialspoint.com/data_communication_computer_network/index.htm
- <https://www.guru99.com/data-communication-computer-network-tutorial.html>
- <https://www.studytonight.com/computer-networks/>

Pedagogy

Quiz, Assignment, Chalk-Talk, Power point Presentations, E-Content

Course Designer

Ms.R.Sangeetha

Semester V	Internal Marks : 25			External Marks: 75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS5MBE1A	COMPUTER ARCHITECTURE	MBE-I	75	5	-	4

Objective

- To conceptualize the basics of organizational and architectural issues of a digital computer
- To analyze performance issues in processor and memory design of a digital computer
- To demonstrate various data transfer techniques in digital computer
- To evaluate processor performance improvement using instruction level parallelism

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Describe the basic structure of computer	K1
CO2	Express computer arithmetic operations	K2
CO3	Demonstrate the control unit operations	K3
CO4	Analyse the concept of IO organization	K3

Mapping with Programme Outcomes

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

S-Strong, M-Medium, L- Low

Syllabus

UNIT – I

(15 HOURS)

Basic Computer and Organization Design: Operational concepts-Instruction Codes-Registers-Instructions-Memory locations-Memory Address-Instruction Cycle-Timing Signal-Control signal-bus organization

UNIT- II

(15 HOURS)

General Register Organization: Stack Organization-Addressing modes-Instruction classification-Program control.

UNIT- III

(18 HOURS)

Memory Organization: Hierarchy-Main memory-Organization of RAM-SRAM-DRAM-ROM-PROM-EPROM-EEPROM-Auxiliary Memory-Cache Memory-Virtual Memory-Mapping Techniques.

UNIT-IV**(15 HOURS)**

Parallel Computer Structures: Introduction to parallel processing-pipeline computers-Multi processing systems-SISD-SIMD-MISD-MIMD.

UNIT-V**(12 HOURS)**

Pipelining and Vector Processing: Introduction to Pipelining- Vector Processing- Array Processors.

Text Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS / EDITION	YEAR OF PUBLICATION
1.	Computer System Architecture	M. Morris Mano	Pearson India, Revised 3 rd Edition	2019
2.	Computer Architecture and parallel processing	Kai Hwang, FA Briggs	Tata McGraw Hill	2017

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS / EDITION	YEAR OF PUBLICATION
1.	Computer Organization	Carl Hamacher	Tata McGraw Hill, 5 th Edition	2011
2.	Computer Architecture and Organization	John P Hayes	Tata McGraw Hill, 5 th Edition	2017
3.	Computer Organization and Architecture	William Stallings	Pearson Education, 10 th Edition	2016

Web References

1. [https:// en.wikipedia.org](https://en.wikipedia.org)
2. [https:// home.ustc.edu.cn](https://home.ustc.edu.cn)
3. [https:// ict.iitk.ac.in](https://ict.iitk.ac.in)
4. www.geeksforgeeks.org

Pedagogy

Quiz, Assignment, Chalk-Talk, Power point Presentations, E-Content

Course Designer

Ms.D.Radhika

Semester V	Internal Marks : 25			External Marks:75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS5MBE1B	SOFTWARE ENGINEERING	MBE-I	75	5	-	4

Objective

- To provide knowledge of the various phases of Software Engineering Process
- To study the basic concepts of Software Systems, Development process and Planning Structures
- To understand how to estimate cost and its specification Techniques
- To inculcate knowledge on Design, Testing , Verification and Validation techniques

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Describe about Software engineering concepts and process	K1
CO2	Recall the importance on Measurement & Metrics	K1
CO3	Identify various software computing cost	K2
CO4	Discuss on software Implementation and Maintenance	K2
CO5	Illustration on software design and modules	K3
CO6	Demonstrate the subject knowledge on coupling, cohesion and testing strategies	K3
CO7	Describe about Emerging Trends in Web Engineering, Cloud Computing, open source	K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4
CO1	S	S	S	S
CO2	S	S	S	S
CO3	S	S	S	S
CO4	S	S	S	S
CO5	S	S	S	S
CO6	M	S	S	S
CO7	M	S	S	S

S-Strong, M-Medium, L- Low

Syllabus

UNIT I : INTRODUCTION

(15 HOURS)

Introduction – Definitions-Size Factors-Quality and Productivity factors –Product-Process. Planning a Software Project-Introduction-Defining the Problem-Developing a Solution Strategy- Planning the Development Process-Planning an Organizational Structure-other Planning Activities.

UNIT II : REQUIREMENTS ANALYSIS MODELING**(15 HOURS)**

Software Cost Estimation-Cost Factors-Cost Estimation Techniques-Staffing level Estimation – Estimating Software Maintenance Costs. Software Requirement Specification-Formal Specification Techniques.

UNIT III : SOFTWARE DESIGN**(18 HOURS)**

Software Design-Fundamental Design Concepts-Modules and Modularization Criteria –Design Notations – Design Techniques - Detailed Design Considerations - Real time and Distributed System design - Test Plans - Milestones, Walkthroughs and Inspections –Design Guidelines.

UNIT IV : SOFTWARE CODING**(15 HOURS)**

Introduction to Software Measurement and Metrics - Software Configuration – Project Management Introduction - Introduction to Software Testing - Software Maintenance.

UNIT V : WEB ENGINEERING**(12 HOURS)**

Introduction to Web - General Web Characteristics - Web Application Categories - Working of Web Application - Advantages and Drawbacks of Web Applications - Web Engineering - Emerging Trends in Software Engineering - Web 2.0 - Rapid Delivery - Open Source Software Development - Security Engineering - Service Oriented Software Engineering - Web Service - Software as a Service - Service Oriented Architecture - Cloud Computing - Aspect Oriented Software Development - Test Driven Development - Social Computing.

TextBooks

S.No	AUTHOR	TITLE OF THE BOOK	PUBLISHER/ EDITION	YEAR OF PUBLICATION
1.	Richard Fairley	Software Engineering Concepts	TMH	2008
2.	Chandramouli Subramanian, SaikatDutt Chandramouli Seetharaman, B.G.Geetha (Unit V)	Software Engineering	Pearson Publications	2015

Reference Books

S.No	AUTHOR	TITLE OF THE BOOK	PUBLISHER/ EDITION	YEAR OF PUBLICATION
1.	Roger S.Pressman, Bruce R.MAXTM	Software Engineering: A Practitioner's Approach	MGH publishers , 6 th Edition	2017
2.	Jibitesh Mishra	Software Engineering	Pearson Education	2011
3.	Ian Sommerville	Software Engineering	9th Edition, Pearson Education Asia	2011
4.	kaj Jalote	Software Engineering	A Precise Approach", Wiley India	2010

Web References

1. https://www.academia.edu/4660479/an_integral_approach_to_software_engineering
2. <https://link.springer.com/content/pdf/bfm%3A978-1-4684-9312-2%2F1.pdf>
3. <http://nptel.ac.in/>
4. <http://www.ddegjust.ac.in/studymaterial/mca-5/mca-303.pdf>
5. http://bigbluebutton13.unisepe.com.br/cgi/viewcontent.php?article=software_engineering

Pedagogy

Chalk and talk, PPT, Discussion, Assignment, Demo, Quiz, Seminar

Course Designer

Ms.A.Sahaya Jenitha

Semester V	Internal Marks : 25			External Marks: 75		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS5MBE1C	CYBER SECURITY	MBE-I	75	5	-	4

Objective

- To understand the difference between threat, risk, attack and vulnerability
- Analyze how threats materialize into attacks and the motivations behind them
- Exhibit knowledge to secure corrupted systems, protect personal data and secure computer networks in an organization

Course Outcome

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

CO Number	CO Statement	Knowledge Level
CO1	Understand threat, risk, attack and motivations behind them	K2
CO2	Design and develop secured architecture for an organization	K3
CO3	Determine software vulnerabilities to reduce the risk of exploitation	K3

Mapping with Programme Outcomes

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

S– Strong; M–Medium; L –Low

Syllabus

UNIT –I

(15 HOURS)

Introduction: History of Internet – Introduction to Cyber crime- Malware and its type – Kinds of Cyber Crime – Authentication- Encryption- Digital Signature- Antivirus- Vulnerability-Naming Schemes and Security Configuration Settings – The attacker’s Motivation and Tactics – Zero-Day Vulnerabilities

UNIT –II

(15 HOURS)

Overview-Unified Threat Management – Firewalls – Stateless Packet Filtering – Stateful / Session Filtering – Application Level Gateways – Circuit Level Gateways – A comparison of four types of firewalls – The Architecture for a Primary-Backup Firewall – Configuring Firewall on MAC computer – Working with Windows Firewall as a Personal Firewall – The Cisco Firewall as an Enterprise Firewall – The small Office /Home Office Firewall – Emerging Firewall Technology

UNIT –III**(15 HOURS)**

Generating secure password – Using Password Manager – Enabling Two Step Verification – Hash and Authentication: Authentication Overview – Hash Functions – The Hash Message Authentication Code- Password Based Authentication – Password based Security Protocol – The One Time Password and Token – Open Identification(OpenID) and Open Authorization (OAuth)

UNIT – IV**(15 HOURS)**

Safe Browsing – Finding the best browser according to the users requirement- clearing cache for browsers – Wireless LAN-Major issues with WLAN – Safe browsing Guidelines for social networking sites – Email Security Tips – Smartphone Security Guidelines: Purses, Wallets, Smart phones – Platforms, setup and Installation – Communicating Securely (Through Voice and Messages) with a smart phone

UNIT – V**(15 HOURS)**

Cyber Threats and Their Defense: Domain Name System (DNS) Protection – Router Security – Spam / Email Defensive measures – Phishing Defensive Measures – Web Based Attacks – Database Defensive Measures – Botnet Attacks and Applicable Defensive Techniques

Text Books

NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER / EDITION	YEAR OF PUBLICATION
	Jeetendra Pande	roduction to Cyber Security	arakhand Open University	2017
	Chwan-Hwa (John) Wu J.David Irwin	roduction to Computer Networks and Cyber Security	RC Press	2013

Reference Books

NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER / EDITION	YEAR OF PUBLICATION
	James Graham Richard Howard Ryan Olson	ber Security Essentials	RC Press	2011
	Nina Godbole Sunit Belapure	ber Security	iley India	2011

Web References

1. <http://www.uou.ac.in/sites/default/files/slm/Introduction-cyber-security.pdf>
2. http://www.bandido.ch/programming/Cyber_Security_Essentials.pdf
3. <https://www.youtube.com/watch?v=PIHnamdwGmw>
4. https://www.youtube.com/watch?v=U_P23SqJaDc

Pedagogy

Chalk and Talk, PPT, Discussion, Assignment

Course Designer

Ms.R.Ramya

Semester V	Internal Marks:40			External Marks:60		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS5SBE2AP	MOBILE APPLICATION DEVELOPMENT LAB	SBE – II	30	-	2	2

Objective

- To understand the components and structure of mobile application development frameworks for Android and windows OS based mobiles
- To understand how to work with various layouts in mobile application development
- To implement in real time environment

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Install and configure Android application development tools	K1
CO2	Analyze and discover own mobile app for simple needs	K3
CO3	Deploy applications to hand held devices	K5

Mapping with Programme Outcomes

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

S-Strong, M-Medium, L- Low

Syllabus

- Develop an application that uses Layout Managers and event listeners.
- Develop an application to change Font and Colors of an object.
- Develop a native calculator App.
- Develop a Rating App.
- Implement an application that creates an alert upon receiving a message.
- Implement an application that implements Multi threading.
- Implement Content provider for student database.

Web References

- www.codeconnect.com

Pedagogy

Power point Presentations, E-Content

Course Designer

Dr.P.Rajeswari

Semester V	Internal Marks:40			External Marks:60		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS5SBE2BP	COMPUTER NETWORKS LAB USING JAVA	SBE – II	30	-	2	2

Objective

- Learn socket programming
- Have hands on experience on ARP protocols
- To implement RPC

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the basic concept of networking	K1
CO2	Implement the socket programming for client server architecture	K2
CO3	Illustrate various protocols implementation	K3

Mapping with Programme Outcomes

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

S-Strong, M-Medium, L- Low

Syllabus

1. Study of Socket Programming and Client – Server model
2. Write a code simulating ARP protocols using TCP
3. Write a code simulating PING and TRACEROUTE commands
4. Create a socket HTTP for web page upload and download
5. Write a program to implement RPC (Remote Procedure Call)

Web References

1. <https://www.javatpoint.com/socket-programming>
2. https://srikarthiks.files.wordpress.com/2019/07/nw-lab_arp.pdf
3. <https://www.darkwebcode.com/2020/04/create-socket-for-http-for-web-page-upload-and-download.html>
4. <http://drranurekha.com/network-programming-2/>

Pedagogy

Power point Presentations

Course Designer Ms.R.Rita Jenifer

Semester V	Internal Marks : 40			External Marks:60		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS5SBE3AP	SOFTWARE TESTING TOOL – SELENIUM	SBE-III	30	-	2	2

Objective

- To understand why we need automation testing
- To understand the essential characteristics of a Selenium tool used for test automation
- To easily build, enhance, and maintain scripts using both the Selenium IDE and Web drivers

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	ate how to install and run open-source software testing tool Selenium	K1
CO2	Understand Selenium tool to perform testing	K2
CO3	Prepare test suits for different applications	K3
CO4	e test suits and test simple programs	K3

Mapping with Programme Outcomes

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

S – Strong; M – Medium; L – Low

Syllabus

1. Install Selenium IDE and write a test suite containing minimum 4 test cases.
2. Install Selenium Webdriver and demonstrate it using a script in Java/PHP.
3. Write a program to enter student's six subject marks list and check whether passed or failed. Display the highest score.
4. Write a program to get elements from a webpage using different Locators
5. Write a program to check Logo Image for a webpage.
6. Write and test a program to login a specific webpage.
7. Write and test a program to register for a particular webpage
8. Take screenshot of a specific webpage
9. Write a program to upload a file in selenium
10. Write and test a program to provide total number of objects present / available on the page.

11. Open ended Experiment: Mini Project – Not for exam but to compulsory to be included in Record. (Test cases for Admission form / Shopping cart / Travel Booking / Hotel Booking / Utility Bill Payment.)

Web References

1. <https://www.shroffpublishers.com/books/9789350237120/>
2. https://www.selenium.dev/documentation/en/legacy_docs/selenium_ide/
3. <https://stackabuse.com/web-browser-automation-with-selenium-and-java/>
4. <https://selenium-python.readthedocs.io/>
5. <https://testng.org/doc/selenium.html>
6. <https://www.selenium.dev/>

Pedagogy: Demonstration

Course Designer : Ms.V.Kavitha

Semester V	Internal Marks : 40			External Marks:60		
COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
19UCS5SBE3BP	COMPUTER GRAPHICS LAB USING C	SBE-III	30	-	2	2

Objectives

- To understand the basic concepts of Computer Graphics
- To understand the concepts of different type of text formatting and drawing using simple functions
- To understand the pixel activation techniques using different algorithms
- To understand the concepts of different type of geometric transformation of objects in 2D

Course Outcomes

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

CO Number	CO statement	Knowledge level
CO1	call the basics of computer graphics.	K1
CO2	scribe pixel activation with algorithms	K2
CO3	pply different text formatting using graphic functions and 2D transformations of an object.	K3

Mapping with Programme Outcomes

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

S-Strong, M-Medium, L- Low

Syllabus

1. Write a C-Program to draw a line segment between two given points using DDA algorithm.
2. Write a C program for determining pixel activation list between two given points in order to draw line segment using Bresenham's Line drawing algorithm.
3. Write a C Program to generate pixel activation list for drawing a circle with a given centre of circle P(x, y) and a radius r.
4. Write a C program for displaying text in different sizes, different colours, different font styles.
5. Write a C-program for performing the basic 2D transformations such as translation,Scaling and Rotation for a given 2D object
6. Write a C Program for drawing simple two dimensional objects (Circle, Ellipse.....).

i) House ii)Car iii) Fish

Web References

1. <https://www.geeksforgeeks.org/dda-line-generation-algorithm-computer-graphics/>
2. <https://www.javatpoint.com/computer-graphics-bresenhams-line-algorithm>
3. <https://educatech.in/cprogram-which-generates-pixel-activation-list-for-drawing-the-following-simple-two-dimensional-objects/>
4. <https://educatech.in/c-program-for-displaying-text-in-different-sizes-different-colors-different-font-styles/>
5. <http://meansofmine.blogspot.com/2011/04/c-program-for-2d-transformations-such.html>

Pedagogy

Power point Presentations

Course Designer

Ms.S.UdhayaPriya

Cauvery College for Women (Autonomous), Trichy-18
Nationally Accredited (III Cycle) with A Grade by NAAC
PG & Research Department of Computer Science
M.Sc Computer Science

(For the Candidates admitted from the Academic year 2019-2020 and onwards)

Semester	Course	Title	Course Code	Inst.Hrs / week	Credits	Exam			Total	
						Hrs	Mark			
							Int.	Ext.		
III	Core Course –VII (CC)	Computer Science for Competitive Examinations	19PCS3CC7	6	5	3	-	100	100	
	Core Course – III(CC)	Big Data Analytics	19PCS3CC8	6	5	3	25	75	100	
	Core Practical–III(CP)	Python and R Lab	19PCS3CC3P	6	4	3	40	60	100	
	Elective Course- III(EC)	Blockchain / Parallel Processing/ Compiler Design	19PCS3EC3A/ 19PCS3EC3B/ 19PCS3EC3C	6	4	3	25	75	100	
	Elective Course- IV(EC)	Robotic Process Automation/ Machine Learning / IoT	19PCS3EC4A/ 19PCS3EC4B/ 19PCS3EC4C	6	4	3	25	75	100	
	Extra Credit Course	SWAYAM ONLINE COURSE	To Be Fixed Later	As per UGC Recommendation						
	Total				30	22	-	-	-	500

Cauvery College for Women (Autonomous), Trichy-18
Nationally Accredited (III Cycle) with A Grade by NAAC
PG & Research Department of Computer Science

M.Sc Computer Science
(For the Candidates admitted from the Academic year 2020- 2021
onwards)

Semester	Course	Title	Course Code	Inst.Hrs/ week	Credits	Exam			Total	
						Hr s	Mark			
							Int.	Ext.		
II	Core Course – V (CC)	Data Mining and Warehousing	19PCS2CC5	6	5	3	25	75	100	
	Core Practical–II(CP)	Data Mining Lab and MatLab	19PCS2CC2P	6	4	3	40	60	100	
	Core Course - VI (CC)	Artificial Intelligence	19PCS2CC6	6	5	3	25	75	100	
	Elective Course-I(EC)	Network Security / Soft Computing/ Advanced Computer Architecture	19PCS2EC1A/ 19PCS2EC1B/ 19PCS2EC1C	6	4	3	25	75	100	
	Elective Course-II(EC)	Bioinformatics/ Advanced Database System / Software Project Management	19PCS2EC2A/ 19PCS2EC2B/ 19PCS2EC2C	6	4	3	25	75	100	
	Extra Credit Course	SWAYAM ONLINE COURSE	To be fixed later	As per UGC Recommendation						
	Total				30	22	-	-	-	500

CAUVERY COLLEGE FOR WOMEN

(AUTONOMOUS)

**Nationally Accredited (III Cycle) with "A" Grade by NAAC
Annamalai Nagar, Trichy – 18.**

**DEPARTMENT OF COMPUTER APPLICATIONS
AUTONOMOUS SYLLABUS
BOARD OF STUDIES
2020 - 2021**

Cauvery College for Women (Autonomous)
Nationally Accredited (III Cycle) with “A” Grade by NAAC
ISO 9001:2015 Certified by IRCLASS & Accredited by NABCB
Annamalai Nagar, Trichy -18.

MINUTES OF THE MEETING-Board of Studies :4
Department of Computer Applications

DATE: 08-01-2021

TIME: 10.30 AM through GOOGLE MEET

Members Present

- | | |
|----------------------------|---|
| 1) Dr.R. Merlin Packiam | Chairperson, Associate Professor &
Head |
| 2) Dr.K. MeenakshiSundaram | Subject Expert, Other University |
| 3) Dr.J.G.R. Sathiaseelan | Subject Expert, Bharathidasan
University |
| 4) Mr.Derrick Alex | Placement Representative from
Industry |
| | Corporate Sector |
| 5) Dr.A. Kangaiammal | Alumna, Member |
| 6) Mr.A. Parthipan | Guest Member from Industry |
| 7) Dr.H. Krishnaveni | Member |
| 8) Ms.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. InfineSinduja | Member |
| 16) Ms.M. Ellakkiya | Member |
| 17) Ms.A. Jabeen | Member |
| 18) Dr.N. Sivapriya | Member |

The Agenda for the meeting was as follows:

1. ITEM NO.BOS/04/01

To approve and recommend the syllabus for the core course Web Programming with PHP(19UCA5CC5) and Practical V –PHP with MySQL (19UCA5CC5P) in V semester for BCA students.

To approve and recommend the syllabus for the core course Operating Systems(19UCA5CC6) for BCA students.

To approve and recommend the syllabus for the core course Software Engineering(19UCA5CC7) for BCA students.

2. ITEM NO.BOS/04/02

To approve and recommend the syllabus for Major Based Elective – I Course in V Semester with title “Cloud Computing(19UCA5MBE1A)”, “Human Computer Interaction(19UCA5MBE1B)” and “Artificial Intelligence(19UCA5MBE1C)”for BCA Students.

3. ITEM NO.BOS/04/03

To approve and recommend the syllabus for the **Skill Based Elective-II** course in V semester with a title “Mobile Applications Development(19UCA5SBE2A)” and “Multimedia Systems(19UCA5SBE2B)” for BCA students.

To approve and recommend the syllabus for the **Skill Based Elective-III** course in V semester with a title “Practical - Mobile Applications Development (19UCA5SBE3AP)” and “Practical - Multimedia Systems(19UCA5SBE3BP)” for BCA students.

4. ITEM NO.BOS/04/04

To approve and recommend the curriculum and syllabus of V semester for B.Com (CA).

- Core Course X – R for Data Analysis (19UCC5CC9) and Core Course XII – Practical R Programming (19UCC5CC2P).

5. ITEM NO.BOS/04/05

To approve and recommend the Programme Structure and syllabus of I Semester BCA(Specialized Programme)for the batch 2021-2024.

6. ITEM NO.BOS/04/06

Appreciation of Board of Studies Members who contributed to prepare the syllabus.

Minutes of the Fourth BoS:

The following Resolution was passed by the BoS members

- Programme Structure and syllabus of UG (BCA) Batch 2019-2020(till V Semester) has been modified and approved.
- Programme Structure and syllabus of I Semester BCA (Specialized Programme) from 2021-2024 batch has been approved.

1. ITEM NO.BOS/04/01

The curriculum and syllabus for BCA were discussed and the following changes were recommended

- Core Course V (CC) – Web Programming with PHP (19UCA5CC5) syllabus has been modified and approved.
- Core Course V (CP) – Practical IV -PHP with MySQL (19UCA5CC5P) syllabus has been approved.
- Core Course VI (CC) – Operating Systems (19UCA5CC6) syllabus has been approved.
- Core Course VII (CC) – Software Engineering (19UCA5CC7) syllabus has been approved.

2. ITEM NO.BOS/04/02

The syllabus of **Major based Elective-I** course of V semester BCA were discussed and the following changes were recommended.

- Cloud Computing (19UCA5MBE1A) syllabus has been approved.
- Introduction to Data mining and Data warehousing (19UCA5MBE1B) syllabus has been approved instead of Human Computer Interaction.
- Artificial Intelligence (19UCA5MBE1C) syllabus has been approved.

3. ITEM NO.BOS/04/03

The syllabus of **Skill Based Elective-II** course of V semester BCA was discussed.

- Mobile Applications Development (19UCA5SBE2A) syllabus has been approved.
- Multimedia Systems (19UCA5SBE2B) syllabus has been approved.

The syllabus of **Skill Based Elective-III** course of V semester BCA was discussed.

- Practical-Mobile Applications Development (19UCA5SBE2AP) syllabus has been approved.
- Practical-Multimedia Systems (19UCA5SBE2BP) syllabus has been approved.

4. ITEM NO.BOS/04/04

The curriculum and syllabus for B.Com (CA) were discussed and approved.

- Core Course X (CC) – “R for Data Analysis (19UCC5CC9)” syllabus has been approved.
- Core Course XII (CC) – “Practical- R Programming (19UCC5CC2P)” syllabus has been modified and approved.

5. ITEM NO.BOS/04/05

The curriculum and syllabus of I Semester BCA (Specialized Programme) for the batch 2021-2024 were discussed and approved.

- Core Course I (CC) – “Programming in C with Data structures (21UASCC1) syllabus has been modified and approved.
- Core Course I (CP) – “Practical I -Programming in C with Data structures (21UASCC1P)

Syllabus has been modified and approved.

6. ITEM NO.BOS/04/06

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, B.Com(CA) and I semester of BCA(Specialized Programme) to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

BACHELOR OF COMPUTER APPLICATIONS- PROGRAMME STRUCTURE

(For the Candidates admitted from the academic year 2019-2020 onwards)

Semester – V

Semester	Part	Course	Title	Course Code	Inst. Hours/Week	Credit	Exam Hours	Marks		Total
								Internal	External	
V	III	Core Course - V (CC)	Web Programming with PHP	19UCA5CC5	5	5	3	25	75	100
		Core Course - V (CP)	Practical V -PHP with MySQL	19UCA5CC5P	4	3	3	40	60	100
		Core Course - VI (CC)	Operating Systems	19UCA5CC6	5	5	3	25	75	100
		Core Course - VII (CC)	Software Engineering	19UCA5CC7	5	5	3	25	75	100
		Major Based Elective – I	Cloud Computing	19UCA5MBE1A	5	5	3	25	75	100
			Introduction to Data Mining and Warehousing	19UCA5MBE1B						
			Artificial Intelligence	19UCA5MBE1C						
	IV	Skill Based Elective – II	Mobile Applications Development	19UCA5SBE2A	2	2	3	25	75	100
			Multimedia Systems	19UCA5SBE2B						
		Skill Based Elective – III	Practical-Mobile Applications Development	19UCA5SBE3AP	2	2	3	40	60	100
			Practical-Multimedia Systems	19UCA5SBE3BP						
	UGC Jeevan Kaushal Life Skills	Professional Skills	19UGPS	2	2	3	25	75	100	
	Swayam online course	As per UGC Recommendations								
Total					30	29				800

**CORE COURSE – V (CC)
WEB PROGRAMMING WITH PHP**

Semester: V

Course Code	Course Title	Category	Learning Hours	Theory Hours/Week	Practical Hours/Week	Credit
19UCA5CC5	Web Programming with PHP	Core	75	5	-	5

PREAMBLE

- To understand the fundamentals of programming such as variables, operators, flow control and to learn website creation using PHP.
- To understand the concepts of designing simple web application using PHP with MySQL.

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
<u>CO1</u>	Describe the basic concepts of PHP	<u>K2</u>
<u>CO2</u>	Implement functions and arrays in PHP	<u>K3</u>
<u>CO3</u>	Apply OOPS concepts in PHP	<u>K3</u>
<u>CO4</u>	Demonstrate the concepts of session, cookies and FTP	<u>K2</u>
<u>CO5</u>	Execute MySQL queries using PHP	<u>K3</u>

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	M	M	M	M
CO2	M	M	M	M
CO3	S	S	M	M
CO4	S	S	M	M
CO5	S	S	S	M

S-Strong; M-Medium; L-Low

SYLLABUS:**UNIT I: Essential PHP****(15 HOURS)**

Essential PHP:Creating your Development Environment- Creating a First PHP Page-Mixing HTML and PHP - Printing Some Text- Printing Some HTML- More Echo Power- Using PHP “Here” Documents-Adding Comments to PHP - Variables - Constants - Data Types .Operators and Flow Control.

UNIT II: PHP Basics**(15 HOURS)**

Strings and Arrays - Creating Functions- Reading Data in Web Pages: Setting Up Web Pages to Communicate with PHP - Handling Text Fields and Text Areas - Handling Check Boxes and Radio Buttons - Handling List Boxes, Password Controls, Hidden Controls, Image Maps, File Uploads and Buttons.

UNIT III: OOPS Concepts**(15 HOURS)**

Object-Oriented Programming: Creating Classes, Objects - Setting Access to Properties and Methods - Using Constructors and Destructors - Inheritance - Overriding, Overloading Methods, Autoloading Classes. Advanced Object-Oriented Programming: Creating Static Methods, Abstract Classes, Interfaces and Class Constants, Supporting Object Iteration - Using Final Keyword - Cloning Objects- Reflection.

UNIT IV: File Handling**(15 HOURS)**

PHP Browser-Handling Power -File Handling-Cookies and FTP: Setting, Reading, Deleting Cookies - Working with FTP - Downloading, Uploading, Deleting a File with FTP - Creating and Removing Directories with FTP - Working with E-mail. Session Handlers:Session Handling - Configuration Directives - Working with Sessions - Practical Session-Handling Examples - Creating Custom Session Handlers.

UNIT V: MySQL using PHP**(15 HOURS)**

Introducing MySQL: Key Features of MySQL - Prominent MySQL Users. Working with Databases: Creating a MySQL Database - Creating a New Table - Putting Data into the New Database - Accessing the Database in PHP - Update Data into the Database- Insert Data into the Database - Delete Data from Database. Drawing Images on the Server.

TEXT:

1. Steven Holzner, “The Complete Reference PHP”, Tata McGraw Hill Pvt. Ltd., 2012.
2. Frank M. Kromann, “Beginning PHP and MySQL”, Novice to Professional, Fifth Edition, 2018. (Chapters 3, 17, 22)

REFERENCES:

3. Rasmus Lerdorf, Kevin Tatroe, Peter MacIntyre, “Programming PHP”, Third Edition, O’Reilly, 2013.
4. Luke Welling, Laura Thomson, “PHP and MySQL Web Development”, Fifth Edition, Pearson India Education Services Pvt. Ltd., 2017.

WEB REFERENCES:

1. <https://www.php.net/manual/en/index.php>
2. www.tutorialspoint.com/php/php_tutorial.pdf

COURSE DESIGNER

Ms.R.Brendha, Associate Professor, Department of Computer Applications.

**CORE COURSE – V (CP)
PRACTICAL V –PHP WITH MySQL**

Semester: V

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA5CC5P	Practical V- PHP With MySQL	Core	60	–	4	3

PREAMBLE:

- To impart practical training on Programming with PHP.

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Apply HTML tags and PHP coding to design an application form	K3
CO2	Implement form validation using PHP	K3
CO3	Create session for college office bearers election	K3
CO4	Create and manipulate database using MySQL	K5
CO5	Develop an application by their own	K5

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	M	M	M
CO2	S	M	M	M
CO3	S	S	L	L
CO4	S	S	M	M
CO5	S	S	S	S

S-Strong; M-Medium; L-Low

LIST OF PRACTICALS

- Using HTML tags, create a college application form. (Note: Application form should contain the following fields Name, Father's Name, Date of Birth, Gender, Email-Address, Mobile Number, Address and Course to be Applied)
- Apply PHP coding to print the data of the college application form.
- Validate the application form using validator functions and display the error messages.
- Design a HTML form to get a student's semester mark details and calculate the total, average, grade, result according to the marks.

5. Create a PHP page for the college union bearers' election using sessions.
6. Database in PHP
 - a. Get the student details, using application form insert into the database.
 - b. Design a HTML page for selecting subjects for examination and insert into database.
 - c. Based on student's selection of subjects generate hall ticket with examination date.
7. Create your own PHP applications (like Employee Management System, Library Management System, Student Management System)

COURSE DESIGNERS:

Ms. V. InfineSinduja, Assistant Professor, Department of Computer Applications.

Ms. A. Jabeen , Assistant Professor, Department of Computer Applications.

CORE COURSE – VI (CC)

OPERATING SYSTEMS

Semester: V

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA5CC6	Operating Systems	Core	75	5	-	5

PREAMBLE:

- To understand the concept of Process Management, Synchronization, Scheduling, Deadlock, Memory Management and File Systems in Operating Systems

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	State the types of Operating System and its Structure	K1
CO2	Describe Process Management & Synchronization	K1
CO3	Explain various Scheduling and deadlock	K2
CO4	Discuss Memory Management & Mass Storage	K2
CO5	Illustrate File Systems	K3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	M	M	M
CO2	S	S	M	M
CO3	S	S	L	L
CO4	S	S	S	L
CO5	S	S	S	S

S – Strong; M – Medium; L - Low

SYLLABUS:

UNIT I: Introduction to Operating System

(15 HOURS)

Introduction: Objectives and Functions – Different Views of an OS – Evolution of Operating Systems - Types of Operating System – Comparison between different Operating Systems –Computer System Organization – Computer System Architecture – Operating System Operations - Operating System Structures.

UNIT II: Process Management & Synchronization

(15 HOURS)

Process Management: Introduction – Process Concept – Process Scheduling - Operations on Process – Cooperating Processes – Interprocess Communication.**Process Synchronization:** Principles of Concurrency – Precedence Graph – Critical regions – Synchronization: Software Approaches - Semaphores.

UNIT III: Scheduling & Deadlock

(15 HOURS)

CPU Scheduling: Introduction – Scheduling Concepts – Scheduling Criteria - Scheduling Algorithm – Multiprocessor Scheduling – Real-time Scheduling – Algorithm Evaluation – Thread Scheduling. **Deadlock:** System Model – Deadlock Characterization – Method for Handling Deadlock – Deadlock Prevention – Deadlock Avoidance – Deadlock Detection – Deadlock Recovery.

UNIT IV:Memory Management, I/O Systems &Mass Storage (15 HOURS)

Memory Management Strategies: Background – Contiguous Memory Allocation – Non-Contiguous Memory Allocation – Swapping – Overlays.**Virtual Memory:** Demand Paging – Page Replacement– Thrashing. **I/O Systems:** Introduction – I/O techniques – Application I/O Interface – Kernel I/O Sub systems. **Mass Storage:** Introduction – Disk Structure- Disk Scheduling.

UNIT V: File Systems (15 HOURS)

File Systems: Introduction – Basic concept – Directories – File System Mounting – Record Blocking- File Sharing – Protection.- **Implementation of File System:** File System Structure – File System Implementation – Allocation Methods – Implementing Directories – Shared Files – Free Space Management – Recovery – Log Structured File System.

TEXT:

RohitKhurana, “Operating Systems”, Vikas Publishing House Pvt.Ltd, New Delhi, 2nd Edition, 2018.

REFERENCES:

1. “Abraham Sliberschatz, Peter Baer Galvin, Greg Gagne”, “Operating System concepts”, John Wiley & Sons, Inc, New Delhi, 6th Edition, 2002.
2. “Ann McIverMcHoes, Ida M.Flynn”, “Understanding Operating Systems”,Cengage Learning, New Delhi, 6th Edition, 2018.

WEB REFERENCES:

1. https://www.tutorialspoint.com/operating_system/
2. <https://www.geeksforgeeks.org/operating-systems/>
3. http://www.sncwgs.ac.in/wp-content/uploads/2015/11/operating_system_tutorial.pdf

COURSE DESIGNER

Ms.P.Ranjani, Assistant Professor, Department of Computer Applications.

CORE COURSE – VII (CC)

SOFTWARE ENGINEERING

Semester: V

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA5CC7	Software Engineering	Core	75	5	-	5

PREAMBLE:

- To provide knowledge of the various phases of Software Engineering Process

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Describe the basics of Software Engineering	K1
CO2	State the concepts of design and Architecture Engineering	K1
CO3	Explain object oriented analysis and design concepts	K2
CO4	Demonstrate the design and coding of a software	K2
CO5	Make use of various types of software testing	K3

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 Software Engineering

(15 HOURS)

Software Engineering-Introduction: Introduction to Software Engineering - Software Process -Software Process Models -Software product -**Requirements**

EngineeringPrinciples: Introduction - Requirements Engineering - Importance of Requirements -Types of Requirements.

Unit II: Analysis & Design

(15 HOURS)

Requirement Analysis Modeling: Analysis Modeling Approaches -Structured Analysis - Object Oriented Analysis - **Design and Architectural Engineering:** Design Process and Concepts - Basic Issues in Software Design - Characteristics of Good Design - Software Design and Software Engineering - Function Oriented System vs Object Oriented System - Modularity, Cohesion, Coupling, Layering - Real Time Software Design -Design Models -Design Documentation.

Unit III: Object Oriented Concepts

(15 HOURS)

Object Oriented Concepts: Introduction - Fundamental Parts of Object-Oriented Approach -Data Hiding and Class Hierarchy Creation -Relationships -Role of UML in OO Design -Design Patterns - Frameworks – **Object Oriented Analysis and Design:** Object Oriented Analysis -Object Oriented Design.

Unit IV: Software Design & Coding

(15 HOURS)

User Interface Design: Concepts of User Interface - Elements of User Interface - Designing the User Interface -User Interface Evaluation -Golden Rules of User Interface Design -User Interface Models –Usability- **Software Coding:** Introduction – Programming Principles –Programming Guidelines – Coding Conventions – Key Concepts in Software Coding.

Unit V: Software Testing & Maintenance

(15 HOURS)

Introduction to Software Testing: Introduction – Psychology of Testing – Software Testing Scope - Software Testing Objectives - Strategic Approach to Software Testing- Types of Software Testing - **Software Maintenance:** Introduction - Maintenance Activities - Maintenance Process - Maintenance Cost - Software Evolution - Reverse Engineering - Re-engineering - Re-structuring - Maintenance Strategies - Issues in Software Maintenance.

TEXT:

1. Chandramouli Subramanian, SaikatDutt, ChandramouliSeetharaman, B.G.Geetha “Software Engineering”, Pearson Publications, 2015.

REFERENCES:

1. JibiteshMishra, ”Software Engineering”, Pearson Education, 2011
2. Richard E. Fairley, “Software Engineering Concepts”, Tata McGraw-Hill Publishing Company Ltd. 2001
3. Roger S.Pressman, Bruce R.Maxim, “Software Engineering: A Practitioner's Approach, Tata McGraw-Hill Publishing Company Ltd., 2014.

WEB REFERENCES:

1. https://www.tutorialspoint.com/software_engineering/
2. <https://www.geeksforgeeks.org/software-engineering/>
3. <https://www.slideshare.net/pashadon143/se-46394097/>

COURSE DESIGNER

Ms.A.Jabeen, Assistant Professor, Department of Computer Applications.

MAJOR BASED ELECTIVE – I (MBE)

CLOUD COMPUTING

Semester: V

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA5MBE1A	Cloud Computing	MBE-I	90	6	-	5

PREAMBLE

- To understand the concepts in Cloud Computing and its Applications

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	State the Architecture of Cloud Computing	K1
CO2	Explain the Virtualization of Cloud Computing	K2
CO3	Explain the Data storage in Cloud	K2
CO4	Discuss the Applications of Cloud Computing	K2
CO5	Illustrate the Risks & Data Security	K3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	M	S	M	S
CO2	S	S	S	S
CO3	M	S	M	S
CO4	S	S	S	M
CO5	M	S	M	M

S-Strong; M-Medium; L-Low

SYLLABUS:

UNIT I: Cloud Computing & Architecture

(18 HOURS)

Cloud Computing Foundation: Cloud Computing Basics-History of Cloud Computing.**Move to Cloud Computing:** Pros and Cons of Cloud Computing-Technologies in Cloud Computing. **Types of Cloud:** Public and Private Cloud-Cloud Infrastructure. Cloud Application Architecture. **Working of Cloud Computing:** Cloud Service Models-Cloud Deployment Models-**Cloud Computing and Services:** Pros and Cons.**Cloud Computing Architecture:** Cloud Computing Technology-Cloud Lifecycle Model-Role of Cloud Modeling and Architecture-Cloud Architecture.

UNIT II: Virtualization

(18 HOURS)

Foundations: Definition of Virtualization-Adopting Virtualization-Types of Virtualization-Virtualization Architecture and Software-Virtualization Application-Pitfalls of Virtualization. **Grid, Cloud and virtualization:** Virtualization in Grid-Virtualization in Cloud-Virtualization and Cloud Security. **Virtualization and Cloud Computing:** Anatomy of Cloud Infrastructure-Virtual Infrastructures-CPU Virtualization-Network and Storage Virtualization.

UNIT III: Data Storage and Cloud Computing

(18 HOURS)

Data Storage: Introduction to Enterprise Data Storage–Data Storage Management-File Systems-Cloud Data Stores –Using Grids for Data Storage. **Cloud Storage:** Cloud Storage Introduction-Overview of Cloud Storage-Data management for Cloud Storage-Provisioning Cloud Storage-Data-intensive Technologies for Cloud Computing,**Cloud Computing Elements:** The Cloud-Value of Cloud Computing-Cloud Do’s and Don’ts-Cloud Computing-Legal Implication-Overview of Amazon Web Services.**Understanding Services and Applications by Type:** Web based Application-Web Services-Infrastructure Services-On demand Computing-Web Application Framework.

UNIT IV: Cloud Services & Applications

(18 HOURS)

Cloud Services: Cloud Types and Services-Software as a Service- Platform as a Service- Infrastructure as a Service-Other Cloud Services. **Cloud Applications:** Microsoft Cloud Services. **Google Cloud Applications:** Google Applications Utilizing Cloud-Google App Engine-**Amazon Cloud Services:** Understanding Amazon Web Components and Services-Elastic Compute Cloud (EC2)-Amazon Storage System-Amazon Database Services.

UNIT V: Cloud Computing and Security

(18 HOURS)

Risk in Cloud Computing: Introduction- Risk Management-Cloud Impact-Enterprise Wide Risk Management- Types of Risks in Cloud Computing. **Data Security in Cloud:** Introduction-Current State-Homo Sapiens and Digital Information-Content Level Security (CLS). **Cloud Security Services:** Objectives-Confidentiality, Integrity and Availability-Security Authorization Challenges in the Cloud-Secure Cloud Software Requirements-Secure Cloud Software Testing-Future Cloud.

TEXT:

1. A.Srinivasan, J.Suresh, “Cloud Computing: A practical approach for learning and implementation”, Pearson India Publications,2014

REFERENCES:

1. Kai Hwang Geoffrey Fox Jack J.Dongarra ,“Distributed Cloud Computing: From Parallel Processing To Internet of Things“ ,Elsevier,2012
2. Judith S.Hurwitz,Daniel Kirsch, “Cloud Computing for Dummies”, WILEY, 2020
3. Barrie Sosinsky, “Cloud Computing Bible”,WILEY, 2011

WEB REFERENCES:

1. https://en.wikipedia.org/wiki/Cloud_computing
2. https://link.springer.com/chapter/10.1007/978-3-030-34957-8_7

COURSE DESIGNER

Ms.Lakshna Arun, Assistant Professor, Department of Computer Applications.

Major Based Elective - I (MBE)
INTRODUCTION TO DATA MINING AND WAREHOUSING

Semester: V

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA5MBE1B	Introduction to Data Mining And Warehousing	Core	75	5	-	5

PREAMBLE

- To understand concepts of Classification, Cluster analysis in Data mining and Warehousing

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Understand the concept of data mining and data warehousing	K1
CO2	Know the various data mining techniques such as association rule mining	K2
CO3	Describe the Characteristics of web and web mining	K3
CO4	Discuss the Knowledge on multidimensional data and OLAP operations	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
CO4	M	M	S	M

S– Strong; M–Medium; L -Low

SYLLABUS

UNIT I: Introduction

(18 HOURS)

Data Mining Definition - Application - Data Mining Techniques - Data Mining Case Studies: Aviation, Astrology, Mall Order - Future of Data Mining - Data Mining Software. Association Rule Mining: Introduction - Basics – Apriori Algorithm.

UNIT II: Classification

(18 HOURS)

Introduction- Decision tree -Building a Decision Tree - The Tree Induction Algorithm - Split Algorithm based on Information Theory - Over fitting and Pruning - Decision Tree Rules - Naive Bayes Method - Estimation of Predictive Accuracy of Classification Methods.

UNIT III: Cluster Analysis**(18 HOURS)**

Cluster Analysis - Desired Features of Cluster Analysis - Types of Data - Computing Distance -Types of Cluster Analysis Methods – Partition Methods: K-Means Method - Hierarchical Methods : Distance between clusters - Agglomerative Method - Divisive Hierarchical Method - Density based Methods - Dealing With Large Databases .

UNIT IV: Web Data Mining**(18 HOURS)**

Introduction - Web Terminology and Characteristics - Web Content Mining - Web Usage Mining - Web Structure Mining - Search Engines: Search Engines Functionality Search Engines Architecture - Ranking Of Web Pages.

UNIT V: Data Warehousing**(18 HOURS)**

Introduction - Data Warehouses - Data Warehousing Design - Guidelines for Data Warehousing Implementation - Data Warehouse Metadata. Online Analytical Processing (OLAP): Introduction - Characteristics of OLAP System: Multidimensional View and Data Cube , 03ta Cube Operations.

TEXT:

1. G.K. Gupta “Introduction To Data Mining With Case Studies” , PHI, 2014

REFERENCES:

1. Jiawei Han, MichelineKamber, Jia n Pei “Data Mining: Concepts and Techniques” Morgan Kaufman Publishers, Third Edition, 2012
2. C.S.R. Prabhu“ Data Warehousing: Concepts, Techniques, Products and Application” PHI Learning Private Ltd. Second Edition, 2008

WEB REFERENCES:

1. <https://www.tutorialride.com/data-mining/data-mining-tutorial.htm>
2. https://hanj.cs.illinois.edu/bk3/bk3_slidesindex.htm

COURSE DESIGNER

Ms.T.Juliemary , Assistant Professor, Department of Computer Applications.

**MAJOR BASED ELECTIVE – I (MBE)
ARTIFICIAL INTELLIGENCE**

Semester: V

CourseCode	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA5MBE1C	Artificial Intelligence	Major	75	5	-	5

PREAMBLE

- To foster the development and understanding of Artificial Intelligence and its applications worldwide.

COURSE OUTCOME

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Explain the AI problem Solving Techniques	K2
CO2	Describe Several General Purpose Search Techniques	K3
CO3	Explain Various Heuristic Search Algorithms	K2
CO4	Discuss the Predicate Logic and Relationships for Knowledge Representation	K3
CO5	Apply the Use of Rules to Encode Knowledge	K2

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	M	M	M	S
CO2	S	S	M	S
CO3	M	S	S	S
CO4	S	S	M	S
CO5	M	S	M	S

S – Strong; M – Medium; L – Low

SYLLABUS:

UNIT I: Problems and Search (18 Hours)

What is Artificial Intelligence?:- The AI Problems-What is an AI Technique?-
Problems, Problem Spaces and Search:Defining the Problem as State Space Search-
Production Systems - Control Strategies – Algorithm : Breadth-First Search – Algorithm :
Depth-First Search – Advantages of Depth-First Search and Breadth-First Search.

UNIT II: Heuristic Search Techniques (18 Hours)

Generate-and-Test –Algorithm: Generate-and-Test - Hill Climbing –Simple Hill
Climbing – Algorithm: Simple Hill climbing - Steepest-Ascent Hill Climbing – Algorithm:
Steepest-Ascent Hill Climbing - Best-first Search – OR-Graphs – Algorithm: Best-First
Search -The A* Algorithm.

UNIT III: Heuristic Search Techniques (18 Hours)

Problem Reduction – AND-OR Graphs – Algorithm- Problem Reduction - The
AO*Algorithm –Algorithm: AO* - Constraint Satisfaction – Algorithm: Constraint
Satisfaction -Means-Ends- Analysis.

UNIT IV: Knowledge Representation (18 Hours)

Knowledge Representation Issues: Representations and mappings -Approaches
to Knowledge Representation.**Using Predicate Logic:** Representing Simple Facts in
Logic- Representing Instance and ISA Relationships - Computable Functions and
Predicates.

UNIT V: Representing knowledge using Rules (18 Hours)

Procedural Versus Declarative Knowledge – Logic Programming – Forward Versus
Backward Reasoning. **Symbolic Reasoning Under Uncertainty:**Introduction to
Nonmonotonic Reasoning - Logics for Nonmonotonic Reasoning.

TEXT:

1. Elaine Rich, Kevin Knight and Shivashankar B Nair, “Artificial Intelligence”, Tata McGraw-Hill companies, Third Edition, Reprint 2017.

REFERENCES:

1. Stuart Russel and Peter Norvig ,“Artificial Intelligence- A Modern Approach”, Pearson Education ,2nd Edition,2020.
2. SarojKaushik, “Artificial Intelligence” ,Cengage Learning India, 2011.

WEB REFERENCES:

1. www.eeCIS.udel.edu
2. <https://courses.cs.washington.edu>
3. www.cs.ukzn.ac.za
4. www.tutorialspoint.com/pdf/artificial_intelligence_expert_systems.pdf

COURSE DESIGNER

A. Anandhavalli, Assistant Professor, Department of Computer Applications.

**SKILL BASED ELECTIVE – II (SBE)
MOBILE APPLICATION DEVELOPMENT**

Semester: V

Course Code	Course Title	Category	Learning Hours	Theory Hours/Week	Practical Hours/Week	Credit
19UCA5SBE2A	Mobile Application Development	SBE	30	2	-	2

PREAMBLE

- To grasp the fundamentals of mobile app development tools, techniques and coding concepts to design a specific mobile application.

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Define the fundamental concepts in mobile application development tools	K1
CO2	Demonstrate the activities and fragments.	K1
CO3	Develop an activity using fragment.	K3
CO4	Explain some basic views in an android application.	K2
CO5	Experiment with file operations such as saving, reading, and accessing a file.	K4

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	M
CO2	M	M	M	M
CO3	M	M	M	M
CO4	M	M	L	L
CO5	M	M	L	L

S – Strong; M – Medium; L - Low

SYLLABUS:

UNIT I: Basics for Android Studio

(6 HOURS)

Getting Started with Android Programming: Introduction to Android – Obtains the Required Tools – Launching Your First Android Application. **Using Android Studio for Android Development:** Exploring the IDE – Using Code Completion – Debugging Your Application – Publishing Your Application.

UNIT II: Activities, Fragments and Intents

(6 HOURS)

Activities, Fragments and Intents: Understanding Activities – Linking Activities Using Intents – Fragments – Displaying Notifications.

UNIT III: Android User Interface

(6 HOURS)

Getting to Know the Android User Interface: Understanding the Components of a Screen – Adapting to Display Orientation – Managing Changes to Screen Orientation – Utilizing the Action Bar – Creating the User Interface Programmatically – Listening for UI Notifications.

UNIT IV: User Interface with Views

(6 HOURS)

Designing Your User Interface With Views: Using Basic Views – Using Picker Views – Using List Views to Display Long Lists – Understanding Specialized Fragment.

UNIT V: Data Persistence

(6 HOURS)

Displaying Pictures and Menus with Views: Using Image Views to Display Pictures – Using Menus with Views – Using WebView. **Data Persistence:** Saving and Loading User Preferences – Persisting Data to Files - Creating and Using Databases.

TEXT:

J.F. DiMarzio, "Beginning Android Programming with Android Studio", John Wiley & Sons, Inc., 6th Edition, 2017.

REFERENCES:

1. Wallace Jackson, "Android apps for absolute beginners: Covering Android 7", 4th Edition, 2017.
2. Developed by Google Developer Training Team, "Android Developer Fundamentals Course Learn to Develop Android Applications-Practical Workbook", 2017.

WEB REFERENCES:

1. <https://developer.android.com/training/basics/firstapp>
2. <https://www.tutorialspoint.com/android/index.htm>
3. <https://o7planning.org/en/11007/android>

COURSE DESIGNER

Ms.V.Yasodha, Assistant Professor, Department of Computer Applications.

SKILL BASED ELECTIVE – II (SBE)

MULTIMEDIA SYSTEMS

Semester: V

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA5SBE2B	Multimedia Systems	SBE	30	2	-	2

PREAMBLE

- To understand the various components, such as text,sound,audio of multimedia systems

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Recall the basic concepts of Multimedia	K1
CO2	Explain the properties of Images & Sound	K2
CO3	Use the Animation	K3
CO4	Describe the various tools of Multimedia	K2
CO5	Discuss the role of Multimedia in Internet	K2

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	S
CO2	S	S	S	S
CO3	S	S	M	S
CO4	S	S	S	M
CO5	M	M	M	M

S-Strong; M-Medium; L-Low

SYLLABUS:

UNIT I: Introduction to Multimedia and Text

(6 HOURS)

Definitions-Applications of Multimedia -Using Text in Multimedia- Font Editing and Design Tools.

UNIT II: Images and Sound

(6 HOURS)

Making Still Images- Digital Audio- MIDI Audio- MIDI vs. Digital Audio -
Multimedia

System Sounds-Audio File Formats.

UNIT III: Animation and Video

(6 HOURS)

The Power of Motion- principles of Animation-Animation by Computer- Using
Video-

Working of Video-Digital Video Containers.

UNIT IV: Making Multimedia

(6 HOURS)

Multimedia Hardware-Multimedia Software.

UNIT V: The Internet and Multimedia**(6 HOURS)**

Multimedia on the Web- Images for the Web- Sound for the Web- Animation for the Web-Video for the Web.

TEXT:

1. Tay Vaughan, “Multimedia: Making It Work” 8th Edition, Mc Graw Hill, 2011.

REFERENCES:

1. Ralf Steinmetz, Klara Nahrstedt, “Multimedia Computing, Communications & Applications”, Pearson,2014

WEB REFERENCES:

1. <http://www.zdnet.com/cshopper/features/9510/feature2/sub3.html>
2. <http://www.hotwired.com/webmonkey/html/96/44/index2a.html?collection=multimedia>

COURSE DESIGNER

Ms.K.Akila, Assistant Professor, Department of Computer Applications.

SKILL BASED ELECTIVE – III (SBE)
PRACTICAL - MOBILE APPLICATION DEVELOPMENT

Semester: V

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA5SBE3AP	Practical -Mobile Application Development	SBE	30	-	2	2

PREAMBLE

- To understand the android studio tools and SDK for developing android applications.

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Illustrate the android application development tools with installation.	K2
CO2	Develop user interfaces for the android platform.	K3
CO3	Apply Java programming concepts to android application development.	K3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	M
CO2	S	M	M	M
CO3	M	M	L	L

S – Strong; M – Medium; L - Low

LIST OF PRACTICALS

1. Develop a “Hello World” application.
2. Develop an application that uses GUI components (Font and Colors.).
3. Develop a login module(Check username and password) using activity and Intent.
4. Develop a native calculator application using activities and Fragments.
5. Develop an application that draws basic graphical primitives on the screen.
6. Develop an application that makes use of databases.
7. Develop an application that creates an alarm clock.

COURSE DESIGNER

Ms.V.Yasodha, Assistant Professor, Department of Computer Applications.

SKILL BASED ELECTIVE– III (SBE)

PRACTICAL - MULTIMEDIA SYSTEMS

Semester: V

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCA5SBE3BP	Multimedia Systems Practical	SBE	30	2	-	2

PREAMBLE

- To understand the use of various components of multimedia systems.

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 Multimedia	K1
CO2	Demonstrate the Animation with Music	K2
CO3	Develop logo using images and graphics	K3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	S
CO2	S	S	S	S
CO3	S	S	M	S

S-Strong; M-Medium; L-Low

LIST OF PRACTICALS

1. Registration of a user in www.Renderforest.com
2. Design a Multicolor Blast logo and Igniting logo Reveal
3. Create your own animation with music
4. Create mockup for any business with tag line
5. Develop a College website using the tools of renderforest
6. Create a video for teacher's day celebration
7. Design flyers and posters for graduation day

COURSE DESIGNER:

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

Ms.K.Akila, Assistant Professor, Department of Computer Applications

BACHELOR OF COMPUTER APPLICATIONS- PROGRAMME STRUCTURE

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

Semester – II

Semester	Part	Course	Title	Course Code	Inst. Hours/Week	Credit	Exam Hours	Marks		Total
								Internal	External	
II	I	Language Course-II (LC)-Tamil/Other Languages (Hindi/Sanskrit/French)	இடைக்கால இலக்கியமும் புதினமும்	19ULT2	6	3	3	25	75	100
			Prose, Drama, Hindi Literature-II,& Grammar-II	19ULH2						
			Poetry Textual Grammar and Alakara	19ULS2						
			Communication in French-II	19ULF2						
	II	English Language Course - II (ELC)	Functional Grammar for Effective Communication – II	19UE2	6	3	3	25	75	100
	III	Core Course - II (CC)	Data Structures	19UCA2CC2	6	6	3	25	75	100
		Core Course - II (CP)	Practical II -Data Structures Using C	19UCA2CC2P	3	2	3	40	60	100
		First Allied - II (AC)	Numerical Analysis and Statistics	19UCA1AC2	3	3	3	25	75	100
		First Allied - III (AC)	Operations Research	19UCA2AC3	4	2	3	25	75	100
		Environmental Studies		19UGES	2	2	3	25	75	100
	Swayam online course	As per UGC Recommendations								
Total					30	21				700

B.COM (CA)

(V – Semester)

CORE COURSE – X (CC)

R FOR DATA ANALYSIS

Semester: V

Course Code	Course Title	Category	Learning Hours	Theory Hours/Week	Practical Hours/Week	Credit
19UCC5CC9	Core Course V – R for Data Analysis	Core	75	5	-	5

PREAMBLE

- To impart knowledge in fundamentals of R for Data Analysis.

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Define Data types and its Values	K1
CO2	Discuss Operations and Testing Conditions	K1
CO3	Explain Functions and Matrices	K2
CO4	Use Data Frames and Plots	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

SYLLABUS:

UNIT I: Introduction to R

(15 HOURS)

Getting Started: Understanding R – Installing R – Installing Rstudio – Exploring Rstudio – Setting Preferences - Creating an R script. **Storing Values:** Storing a Single Value – Adding Comments – Recognizing Data types – Storing Multiple Values – Storing Mixed Data types – Plotting Stored Values – Controlling Objects.

UNIT II: Operation and Control Statements

(15 HOURS)

Performing Operation Doing Arithmetic – Making Comparisons – Assessing Logic – Operating on Elements – Comparing Elements – Recognizing Precedence – Manipulating Elements. **Testing Conditions:** Seeking Truth – Branching Alternatives – Chaining Branches – Switching Branches – Looping While True – Performing For Loops – Breaking from Loops.

UNIT III: Functions and Matrices

(15 HOURS)

Employing Functions: Doing Mathematics – Manipulating Strings – Producing Sequences – Generating Random Numbers – Distributing Patterns – Extracting Statistics – Creating Functions – Providing Defaults. **Building Matrices:** 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 (15 HOURS)

Constructing data frames: 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. **Producing quick plots:** 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: Data Presentation

(15 HOURS)

Storytelling with data: Presenting data – Considering aesthetics – Using geometries – Showing statistics – Illustrating facets – Controlling coordinates – Designing themes. **Plotting perfection:** 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. Mike McGrath, “R for Data Analysis in easy steps”, In Easy Steps, 2018.

REFERENCES:

3. Dr. Mark Gardener, “Beginning R the Statistical Programming Language”, John Wiley & Sons, Inc, 2012.
4. 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.

CORE COURSE – XII (CC)

PRACTICAL XII-R PROGRAMMING

Semester: V

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
19UCC5CC2P	R Programming	Core	75	-	5	5

PREAMBLE

- To impart practical training on R-Programming.

COURSE OUTCOME:

On successful completion of the course, 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	M	M

S-Strong; M-Medium; L-Low

LIST OF PRACTICALS

1. Install R and R Studio
 - i.)Download and install R from the CRAN <http://cran.r-project.org/>.
 - ii.)Download and install Rstudio from <http://www.rstudio.com/>.
 - iii.)Install the devtools package from the CRAN using R's `install.packages()` function
2. Create R program to take input from the user (name and age) and display the values. Also print the version of R installation.
3. Get the details of the objects in memory using R.
4. Create three vectors such as numeric data, character data and logical data. Display the content of the vectors and their type.
5. Create a simple bar plot of five subjects marks of a student.
6. Create data frames which contain details of 5 employees and display summary of the data.
7. Create an array of two 3x3 matrices for two given vectors.
8. Extract 3rd and 5th rows with 1st and 3rd columns from a given data frame.
9. Generate inner, outer, left, right join (merge) from given two data frames.
10. Demonstrate use of histogram.
11. Demonstrate box plot function.

COURSE DESIGNER

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

BACHELOR OF COMPUTER APPLICATIONS (SPECIALIZED) - PROGRAMME STRUCTURE

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

Semester - I

Semester	Part	Course	Title	Course Code	Inst. Hours/Week	Credit	Exam Hours	Marks		Total
								Internal	External	
I	I	Language Course-I (LC)-Tamil / Other Languages (Hindi/Sanskrit/French)	இக்கால இலக்கியம்	19ULT1	6	3	3	25	75	100
			Story, Novel, Hindi Literature-I,& Grammar-I	19ULH1						
			History of Popular Tales, Literature and Sanskrit Story	19ULS1						
			Communication in French-I	19ULF1						
	II	English Language Course - I (ELC)	Functional Grammar for Effective Communication - I	19UE1	6	3	3	25	75	100
	III	Core Course - I (CC)	Programming in C with Data structures	21UAS1CC1	6	6	3	25	75	100
		Core Course - I (CP)	Practical I -Programming in C with Data structures	21UAS1CC1P	4	2	3	40	60	100
First Allied - I (AC)		Foundation of Mathematics	21UAS1AC1	6	4	3	25	75	100	
		UGC Jeevan Kaushal Life Skills – Universal Human Values	20UGVE	2	2	3	25	75	100	
Total					30	20				600

CORE COURSE – I (CC)

PROGRAMMING IN C WITH DATA STRUCTURES

Semester: I

Course Code	Course Title	Category	Learning Hours	Theory Hours/Week	Practical Hours/Week	Credit
21UAS1CC1	Programming in C with Data Structures	Core	90	6	-	6

PREAMBLE

- To train the students to the basic concepts of C programming and to learn the linear and nonlinear data structures

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Describe the fundamentals of C programming	K1
CO2	Explain decision making and looping statements in C	K2
CO3	Identify the role of structure and pointers	K2
CO4	Demonstrate the concept of data structures	K2
CO5	Make use of the linked lists, stacks and queues	K3

MAPPING WITH PROGRAMME SPECIFIC OUTCOMES:

	PSO1	PSO2	PSO3	PSO4
CO1	S	S	M	L
CO2	S	S	M	L
CO3	S	S	M	L
CO4	S	S	S	M
CO5	S	S	S	L

S -Strong; M - Medium; L - Low

SYLLABUS:

UNIT I: C PROGRAMMING BASICS

(18 HOURS)

Overview of C: Basic Structure of C Program, **Constants and Variables and Data**

Types: Introduction – Character Set – C Tokens – Keywords and Identifiers – Constants –

Variables – Data Types – Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables – Defining Symbolic Constants – **Operators and Expressions:** Arithmetic, Relational, Logical, Assignment, Conditional, Increment and Decrement, Bitwise and Special Operator – **Managing Input and Output Operations:** Formatted Input - Formatted Output.

UNIT II: ITERATIVE STRUCTURES & FUNCTIONS (18 HOURS)

Decision Making and Branching: If, Switch, The ?: Operator – **Decision Making and Looping:** While, Do and For Statements – **User- Defined Functions:** Definition of Functions – Return Values and Their Types – Function Calls – Function Declarations – Category of Functions – Nesting of Functions – Recursion.

UNIT III: STRUCTURES AND POINTERS (18 HOURS)

Structures and Unions: Defining a structure – Declaring Structure Variables – Accessing Structure Members – Structure Initialization – Operations on Individual Members – **Pointers:** Declaring Pointer Variables – Initialization of Pointer Variables – Accessing a Variable Through its Pointer – Chain of Pointers – Pointer Expressions.

UNIT IV: DATA STRUCTURES BASICS (18 HOURS)

Introduction to Data Structures: Introduction - Abstract Data Types - Data Types - Primitive Data Types - Data structure and Structured Type-Atomic Type - **Arrays:** Introduction - Arrays in C - Single Dimensional Arrays - Array Operations - Two-Dimensional Arrays - Multidimensional Arrays - Pointers and Arrays.

UNIT V: LINKED LISTS, STACKS, QUEUES, TREES AND GRAPHS (18 HOURS)

Linked Lists: Introduction - Dynamic Memory Allocation - Basic Linked List Operations - **Stacks:** Introduction - Stack as an Abstract Data Type - Representation of Stacks through Arrays - **Queues:** Introduction - Queue as an Abstract Data Type - Representation of Queues - **Trees:** Basic Terminology – **Graphs:** Introduction – Definitions and Terminology

TEXT:

1. E. Balagurusamy, “Programming in ANSI C “, McGraw Hill Education Private Limited, 7th Edition, 2017.
2. ISRD Group, “Data Structures Using C”, Tata McGraw Hill Education Private Limited, 2009.
3. Ellis Horowitz, Sartaj Sahni, “**Fundamentals of Data Structures**”, Neeraj Galgotia, 2003.

REFERENCES:

1. Yashavant Kanetkar, “**Let Us C**”, BPB Publications, New Delhi, 6th Edition, 2005.
2. Ellis Horowitz, Sartaj Sahni, Susan Anderson Freed, “**Fundamentals of Data Structures in C**”, University Press, 2nd Edition 2008.

WEB REFERENCES:

1. <http://www.tutorialspoint.com/cprogramming/index.html>.
2. <http://www.cprogramming.com/tutorial/c-tutorial.html>.
3. <http://www.w3schools.in/c>.
4. <https://www.w3schools.in/data-structures-tutorial>.

COURSE DESIGNER

Ms. R. Sridevi, Assistant Professor, Department of Computer Applications.

CORE COURSE – I (CP)
PRACTICAL I - PROGRAMMING IN C WITH DATA
STRUCTURES

Semester: I

Course Code	Course Title	Category	Learning Hours	Theory Hours/ Week	Practical Hours/ Week	Credit
21UAS1CC1P	Practical I - Programming in C with Data Structures	Core	45	-	3	2

PREAMBLE

- To provide the hands-on experience on C programming and improve the practical skill set
- To gain knowledge for writing complex programs using data structures

COURSE OUTCOME:

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Identify the basic terminology of C programming	K1
CO2	Discuss programs involving decision making and looping statements	K2
CO3	Apply the concept of functions	K3
CO4	Demonstrate the practical experience in solutions using various data structures	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
CO4	S	S	S	M

S -Strong; M - Medium; L – Low

SYLLABUS:

LIST OF PRACTICALS

1. Formulae Conversion

2. Selection Structure
 - a. Simple If
 - b. If – Else
 - c. Else – If Ladder
 - d. Switch
 - e. Ternary Operator
3. Iterative Structure
 - a. While
 - b. Do – While
 - c. For
4. Functions
5. Arrays
 - a. One Dimension
 - b. TwoDimension
6. Stack Representation and Manipulation
7. Queue Representation and Manipulation
8. Linked List Representation and Manipulation

COURSE DESIGNER

Ms. R. Sridevi, Assistant Professor, Department of Computer Applications.

**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 : 08 JANUARY 2021

MEDIUM: Google Meet

TIME : 11.00 AM

Members Present

- | | |
|-----------------------------|---|
| 19) Dr. M. Parveen | Chairperson, Professor & HoD |
| 20) Dr. T. Kokilavani | University Nominee, Bharathidasan University |
| 21) Dr. V. Bhuvaneshwari | Subject Expert, Other university |
| 22) Dr. S. Vidya | Subject Expert, Other university |
| 23) Mr. I. Johnson | Placement Representative from Industry/
Corporate Sector |
| 24) Ms. D. Jeevitha | Alumna, Member |
| 25) Dr. A. R. Jasmine Begum | Member |
| 26) Mrs. J. Sangeetha | Member |
| 27) Dr. M. Anandhi | Member |
| 28) Dr. A. Bhuvaneshwari | Member |
| 29) Mrs. S. Latha | Member |
| 30) Mrs. S. Sugunadevi | Member |
| 31) Mrs. P. Tamilselvi | Member |
| 14) Mrs. M. Thangam | Member |

Action taken report of Third BoS held on 28.05.2020

The Resolution No.BoS/03/01 to Resolution No. BoS/03/04 in connection with the outcome based Programme structure and syllabus for the semester IV of UG degree programme for the batch 2019-2020 onwards were implemented.

The Agenda for the meeting was as follows:

7. ITEM NO.BOS/04/01

To approve the syllabus of B.Sc Information Technology and recommend the same to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

8. ITEM NO.BOS/04/02

To approve the syllabus for Skill Based Electives designed and recommend the syllabus to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

9. ITEM NO.BOS/04/03

To approve the syllabus for Major based electives designed for B.Sc Information Technology and recommend the syllabus to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

10. ITEM NO.BOS/04/04

To discuss the Program Outcome, Course Objectives and Course Outcomes for the proposed curriculum.

11. ITEM NO.BOS/04/05

To Appreciate the Board of Studies Members who contributed their suggestions to approve syllabus.

Minutes of the Fourth BoS:

The following Resolutions were passed by the BoS members

- i) Syllabus and Skeleton of UG (B.Sc IT) Batch 2019-2020 & 2020-2021 has been approved
- ii) The Ratification of UG syllabus in II Semester has been made to include Online SWAYAM course with extra credits as per UGC Recommendations

ITEM NO.BOS/04/01

The Curriculum and Syllabus for B.Sc Information Technology were discussed and the following changes were recommended

- Core Course VI - Suggested to change the edition of text book
- Core Course VII - Suggested to modify the title of the paper and to change the text book of the same
- Based on the above suggestion, title of the core course VII and text books of VI & VII has been modified

ITEM NO.BOS/04/02

The Syllabus for Skill based Elective was discussed and the following changes were recommended.

- Members suggested to change syllabus for one of the SBE paper

- Suggested to include few concepts in the existing list of programs for SBE Web Development Tool
- Based on the above suggestions, corrections has been incorporated

ITEM NO.BOS/04/03

The syllabus for Major Based electives designed for BSc IT students was discussed and the following changes were recommended.

- Members recommended to change the text book of one of the MBE-I paper
- Members suggested to modify the title of one of the MBE-I paper
- Based on the above suggestions, corrections has been implemented

ITEM NO.BOS/04/04

The Programme Outcome/Course Objectives/Course Outcome was found to be compatible with the syllabus.

ITEM NO.BOS/04/05

The Chairman reported 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 and 2020-2021

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 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. Bhuvaneshwari, Associate Professor, Department of Computer Science, Bharathiyar University, Coimbatore.	

5.	INDUSTRIAL REPRESENTATIVE Dr. I. Johnson, Managing Director, Palom Info Tech, Trichy	
6.	MEMBER ALUMNA Dr. D. Jeevitha, Technical Lead, Palom Technologies, Chennai.	

MEMBERS

7.	Dr. A. R. Jasmine Begum, Associate Professor, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	
8.	Ms. J. Sangeetha, Associate Professor, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	
9.	Dr. M. Anandhi, Member, Associate Professor, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	
10.	Dr. A. Bhuvaneshwari, Associate Professor, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	
11.	Ms. S. Latha, Assistant Professor, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	
12.	Ms. S. Suguna Devi, Assistant Professor, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	
13.	Ms. P. Tamilselvi, Assistant Professor, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	
14.	Ms. M. Thangam, Assistant Professor, Department of Information Technology, Cauvery College for Women (Autonomous), Trichy.	

Cauvery College for Women (AUTONOMOUS)
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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	Marks		Total
							Hours	Int	Ext	
V	III	Core V	Python Programming & Machine Learning	19UIT5CC5	5	5	3	25	75	100
		Core V Practical	Programming in Python	19UIT5CC5P	4	3	3	40	60	100
		Core VI	Computer Networks	19UIT5CC6	5	5	3	25	75	100
		Core VII	Digital Logic and Computer Design	19UIT5CC7	5	5	3	25	75	100
	IV	Major Based Elective I	I.A. Software	19UIT5MBE1A	5	5	3	25	75	100
			I.B. Object Oriented	19UIT5MBE1B						
			I.C. Software Project	19UIT5MBE1C						
		Skill Based Elective–IIP	2.A. Content Management	19UIT5SBE2AP	2	2	3	40	60	100
			2.B. Interactive Multimedia Software	19UIT5SBE2BP						
			3.A. Web	19UIT5SBE3AP						
	Skill Based Elective–IIIP	3.B. Graphics Lab	19UIT5SBE3BP	2	2	3	40	60	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 Norms					
Total					30	29				800



CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
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Annamalai Nagar, Trichy -18.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc (IT) COURSE STRUCTURE

Sem	Part	Course	Title	Course Code	Inst. Hours/ week	Credit	Exam Hours	Marks		Total
								Int	Ext	
II	I	Language Course-II (LC)- Tamil/Other Languages	,ilf;fhy ,yf;fpaKk; GjpdKk;	19ULT2	6	3	3	25	75	100
			Prose, Drama, Hindi Literature – 2 & Grammar – II	19ULH2						
			Poetry, Textual Grammar and Alakara	19ULS2						
			Communication in French - II	19ULF2						
	II	English Language Course – II (ELC)	Functional Grammar for Effective Communication - II	19UE2	6	3	3	25	75	100
	III	Core II	Data structures and C++	19UIT2CC2	6	6	3	25	75	100
		Core Practical II	Data structures using C++ Lab	19UIT2CC2 P	3	2	3	40	60	100
		First Allied II	Numerical Analysis & Statistics	19UIT1AC2	3	3	3	25	75	100
		First Allied III	Operation Research	19UIT2AC3	4	2	3	25	75	100
	IV		Environmental Studies	19UGES	2	2	3			100
V	Extra Credit Course	SWAYAM ONLINE COURSE	To be fixed later	As per UGC Recommendation						
Total					30	21				700

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

SEMESTER – V	PYTHON PROGRAMMING & MACHINE LEARNING	Hours/Week-5	
CORE -V		Credits - 5	
Course Code- 19UIT5CC5		Internal-25	External-75

COURSE OBJECTIVES

- To understand the fundamentals of Python programming
- To demonstrate the usage of Arrays, Functions, Strings and Lists
- To develop programs with regular expressions and GUI
- To create the ability to handle Data Frames

COURSE OUTCOME

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

CO Number	CO Statement	Knowledge Level
CO1	Introduce the basic concepts of Python	K1
CO2	Write and Execute programs using Arrays and Functions	K2
CO3	Illustrate the concepts of Strings and Dictionaries	K2
CO4	Design coding using Regular Expressions and GUI	K3
CO5	Applying knowledge in handling Data Frames	K3

MAPPING WITH PROGRAMME OUTCOMES

COs/POs	PO1	PO2	PO3	PO4
CO1	S	M	M	M
CO2	S	M	M	S
CO3	S	S	M	S
CO4	S	S	S	S
CO5	S	S	S	S

SYLLABUS

UNIT I

(13 Hrs)

Introduction – Python Overview – Comments – Python Identifiers – Reserved Keywords – Variables – Standard Data Types – Operators – Statement and Expression – String Operations – Boolean Expressions – Control Statements – Iteration – while statement – Input from Keyboard – Output statements

UNIT II**(15 Hrs)**

Arrays – Creating an Array – Importing the Array Module – Indexing and slicing on Arrays – Types of Arrays – Working with Arrays using numpy – Creating Arrays using array() – Mathematical Operations on Arrays – Comparing, Aliasing, Viewing and Copying Arrays – Slicing and Indexing in numpy Arrays – Attributes of an Array – The reshape() and flatten() Method – Functions

UNIT III**(17 Hrs)**

Strings – Lists – Tuples – Dictionaries: Creating, Accessing and Operations

UNIT IV**(14 Hrs)**

Regular Expressions – Sequence Characters – Quantifiers – Special Characters – GUI : The Root Window – Fonts and colors – Working with containers - Canvas – Frame and Widgets – Arranging Widgets in the frame – Button, Label, Message, Text, Scrollbar, Check button, Radio button, Entry, Spin box, List box and Menu Widget

UNIT V**(16 Hrs)**

Introduction – Why Machine Learning – Framework for developing ML models – Why Python for ML? – Python Stack for Data Science – Getting started with Anaconda Platform – Working with Data Frames in Python – Handling Missing Values – Exploration of Data using Visualization

TEXT BOOKS

	AUTHOR	TITLE	PUBLISHERS/EDITION	YEAR OF PUBLICATION
	E. Balagurusamy	Problem Solving and Python Programming (Units: 1, 3)	McGraw Hill Education (India) Private Limited	2018
	Dr. R. Nageswara Rao	Core Python Programming (Units: 2, 4)	Dream Tech Press	2017
	Manaranjan Pradhan & U. Dinesh Kumar	Machine Learning using Python (Unit: 5)	Wiley India Pvt Limited	2019

REFERENCE BOOKS

S.NO	AUTHOR	TITLE	PUBLISHERS/EDITION	YEAR OF PUBLICATION
1.	Jason Cannon	Python Programming for Beginners	O'Reilly	2010
2.	David Beazley , Brain K Jones	Python CookBook	Third edition	2013

SEMESTER - V	PROGRAMMING IN PYTHON LAB	Hours/Week-4	
CORE – V PRACTICAL		Credits - 2	
Course Code- 19UIT5CC5P		Internal-40	External-60

COURSE OBJECTIVE

To understand the basics of Python and enhancing in depth knowledge to enable them to develop simple project giving hands-on experience on Python Programming and improves the practical skill set.

COURSE OUTCOME

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

CO Number	CO Statement	Knowledge Level
CO1	Develop programs using fundamental concepts	K1
CO2	Demonstrate the concepts of Arrays and Functions	K2
CO3	Make use of Regular Expressions and GUI	K3
CO4	Apply DataFrame operations in a dataset	K3

MAPPING PROGRAMME OUTCOMES

COs/POs	PO1	PO2	PO3	PO4
CO1	S	S	S	M
CO2	S	M	S	M
CO3	S	M	M	M
CO4	S	S	M	S

PROGRAMS

1. Simple programs in Python
2. Array Manipulations
3. Programs using Functions
4. Handling Strings
5. Programs using Lists, Tuples and Dictionaries
6. Executing Regular Expressions in Python
7. GUI programs
8. Load a dataset and perform the following:
 - a. Display first few records of the DataFrame
 - b. Finding Summary of the DataFrame
 - c. Slicing and Indexing of DataFrame
 - d. Creating New Columns, Grouping and Aggregating
 - e. Re-naming columns, Applying operations to Multiple Columns
 - f. Filtering Records based on Condition
 - g. Exploration of Data using Visualization

SEMESTER – V	COMPUTER NETWORKS	Hours/Week-5	
CORE -VI		Credits - 5	
Course Code- 19UIT5CC6		Internal-25	External-75

OBJECTIVE

To inculcate the knowledge about the computer network layers, transmission media, error correction techniques, routing algorithms and supporting protocols for various applications.

COURSE OUTCOMES

CO Number	CO Statement	Knowledge Level
CO1	Describe the structure and organization of computer network layers, responsibilities of each layer, and relationships between the layers.	K1
CO2	Discuss over the types of transmission media and various switching techniques	K2
CO3	Explain the data link layer properties including error-detection and correction techniques and flow control mechanisms and wireless communication.	K3
CO4	Illustrate the network layer concepts and protocols including datagram forwarding, routing algorithms and transport layer concepts that include connection oriented and connection-less models, techniques to provide reliable data delivery and algorithms for congestion control.	K3
CO5	Explain the concepts of application layer protocol for various applications like HTTP, FTP and Email and cryptography.	K3

Mapping with Programme Outcomes

COs\POs	PO1	PO2	PO3	PO4
CO1	S	M	S	M
CO2	S	M	S	M
CO3	S	S	S	M
CO4	S	M	S	S
CO5	S	M	S	S

SYLLABUS

UNIT I

(14 Hrs)

Data Communication – Networks – Protocols and standard – Line configuration-Topology – Transmission mode – Categories of networks – Internet works. The OSI model – Functions of the layers – TCP/IP protocol suite.

UNIT II

(14 Hrs)

Transmission media: Guided media – Unguided media- Multiplexing: FDM-TDM-WDM- Switching: Circuit Switching Networks-Datagram Networks– Virtual-Circuit Networks.

UNIT III

(14 Hrs)

Data Link Control -Flow and Error Control-Noiseless Channels-Noisy Channels- Wireless LANs: IEEE 802.11 – Bluetooth-Cellular Telephony - Satellite Networks

UNIT IV

(17 Hrs)

Networking and Internetworking devices: Repeaters – Bridges – Routers-Gateways. IPv4 Addresses - Address space, Classful addressing, Classless addressing – IPv6 - Routing algorithms – Distance Vector Routing –Link State Routing. Transport Layer: User Datagram Protocol-TCP- TCP services-TCP features-Segments-Congestion Control

UNIT V

(16 Hrs)

TCP/IP protocol suite: Client server model – Domain Name System – File Transfer Protocol (FTP) – Simple Mail Transfer Protocols (SMTP) – World Wide Web (www) – Hyper Text Transfer Protocol (HTTP). Cryptography: Introduction-Symmetric-Key Cryptography: Traditional Ciphers-Asymmetric-Key Cryptography-RSA

TEXT BOOK:

S.NO	AUTHORS	TITLE	PUBLISHERS/EDITION	YEAR
1.	Behrouz A. Forouzan	Data Communications and Networks	Tata McGraw-Hill, 5 th Edition	2017

REFERENCE BOOKS:

S.NO	AUTHORS	TITLE	PUBLISHERS/EDITION	YEAR
1.	Andrew S. Tanenbaum	Computer Networks	Pearson Publication, 5 th Edition	2012
2.	Achyut S.Godbole, Atul Kahate	Data Communications and Networks	Tata McGraw, 2 nd Edition	2011

SEMESTER - V	DIGITAL LOGIC AND COMPUTER DESIGN	Hours/Week-5	
CORE -VII		Credits - 5	
Course Code- 19UIT5CC7		Internal-25	External-75

OBJECTIVES

Conceptualize the basics of organizational and architectural issues of a digital computer.

COURSE OUTCOME

CO Number	CO Statement	Knowledge level
CO1	Recall the basic principles of digital electronics	K1
CO2	Understand different types of digital electronic circuits for particular operation	K2
CO3	Demonstrate the functions of combinational and sequential circuits	K2
CO4	Build micro operations and can experiment with basic design	K3
CO5	Sketch the microcomputer organization	K3

Mapping with Programme Outcomes

COs\POs	PO1	PO2	PO3	PO4
CO1	S	M	S	M
CO2	S	M	S	M
CO3	S	S	M	S
CO4	S	M	M	S
CO5	S	M	S	S

UNIT I:

(15 Hrs)

Digital Computers and Information: Digital Computers –Number Systems, Arithmetic Operations. Boolean algebra and Logic Gates – Simplification of Boolean Function: Map Method- Two, Three and Four variable Map - Product-of-Sums Simplification - Don't Care Conditions. NAND and NOR Implementation.

UNIT II:

(15 Hrs)

Combinational Logic Circuits: Binary Adders - Half and Full Adders – Binary Subtractors – Half and Full Subtractors – Multiplexers - Demultiplexers – Decoders -Encoders.

UNIT III:

(15 Hrs)

Sequential Logic Circuits: Flip Flops – State Reduction and Assignment – Excitation Tables – Design Procedure. Counters and Shift Registers: Counters – Asynchronous and Synchronous Counter – Shift Registers – The Memory Unit

UNIT IV:

(15 Hrs)

Microoperations and Processor Logic Design: Arithmetic, Logic and Shift Microoperations- Instruction Codes- Design of a Simple Computer. Processor Logic Design: Processor Organization – ALU - Design of Arithmetic and Logic Circuits - Design of ALU – Status Register – Design of Shifter and Accumulator – Processor Unit.

UNIT V:

(15 Hrs)

Microcomputer System Design: Introduction - Microcomputer Organization – Microprocessor Organization – Instructions and Addressing Modes – Stacks, Subroutines and Interrupt – Memory Organization – Input,Output Interface – Direct Memory Access.

TEXT BOOK

S.NO	AUTHORS	TITLE	PUBLICATION	YEAR
1	Morris M.Mano	Digital Logic and Computer Design	Pearson India Education	2017

REFERENCE BOOKS

S.NO	AUTHORS	TITLE	PUBLICATION	YEAR
1	William Stallings	Computer Organization & Architecture Designing for Performance	Pearson Education	2014
2	Thomas.L.Floyd	Digital Fundamentals, Global Edition	Pearson Education - 11 th Edition	2017

SEMESTER - V	SOFTWARE ENGINEERING	Hours/Week-5	
Major Based Elective I		Credits - 5	
Course Code- 19UIT5MBE1A		Internal-25	External-75

COURSE OBJECTIVE:

- The course is intended to influence the knowledge on constructing reliable software products.
- It also highlights several software testing to improve the quality of the software.

COURSE OUTCOMES:

The successful completion of the course will equip the students to

	CO Statement	Knowledge Level
CO1	Outline the progression in software and software engineering practice.	K1
CO2	Categorize the development phases and life cycle models of a project.	K2
CO3	Illustrate the model in software project design and quality.	K2
CO4	Discuss the fundamentals of software testing with its various types.	K3
CO5	Explain the method of performance and internationalization testing.	K3

Mapping with Programme Outcomes

CO Number	PO1	PO2	PO3	PO4
CO1.	S	S	S	S
CO2.	S	S	S	M
CO3.	S	S	M	S
CO4.	S	S	S	M
CO5.	S	S	M	S

S- Strong M-Medium L-Low

SYLLABUS

UNIT I

(15 hrs)

Overview of Software: The nature of Software–Web based systems and applications-**Introduction to Software Engineering:** Software engineering- Software engineering practice - Communication practices - Planning practices - Modeling practices - Construction practice- Deployment-Software myth

UNIT II

(15 hrs)

Software Development Process Model: Generic process model- Prescriptive process models-**Requirements Modeling**-Requirements Analysis- Analysis Modeling Approaches – Data Modeling concepts-Class based modeling -Flow Oriented Modeling

UNIT III**(15 hrs)**

Design Engineering - Design concepts - The design model-Component Level Design: Designing class Based components- **Quality concepts**- Software Quality-Achieving software Quality-Software Testing Strategies –Testing- Verification and Validation – Testing strategy

UNIT IV**(15 hrs)**

Testing Approaches: Software Testing Fundamentals -**Types of Testing:** White Box Testing - Static Testing-Structural Testing-Black Box Testing- Challenges in White Box and Black Box Testing. **Integration Testing:** Integration Testing- Integration Testing as Type of Testing. **System and Acceptance Testing:** System Testing Overview- Functional testing versus Non- functional Testing-Functional testing - Non-functional Testing – Acceptance Testing and its criteria

UNIT V**(15 hrs)**

Performance Testing: Factors governing Performance testing-What is Regression testing- Best Practices in Regression Testing. **Internationalization Testing:** Primer on Internationalization - Test Phase for Internationalization – Internationalization Validation – Fake Language Testing – Language Testing – Localization Testing

TEXT BOOKS:

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	Roger S. Pressman	Software Engineering: A Practitioner's Approach (Unit 1,2,3)	McGraw-Hill Education	7 th Edition 2010
2.	Srinivasan Desikan, Gopaldaswamy Ramesh	Software Testing Principles and Practices (Unit 4,5)	Pearson Education	2012

REFERENCE BOOKS:

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	Ian Somerville	Software Engineering	Pearson Education	7 th Edition 2010
2.	<u>Paul C. Jorgensen</u>	Software Testing: A Craftsman's Approach, Fourth Edition	Auerbach Publications	4 th Edition 2013
3.	Naresh Chauhan	Software Testing-Principles and Practices	Oxford University Press	2012

SEMESTER - V	OBJECT ORIENTED ANALYSIS AND DESIGN	Hours/Week-5	
Major Based Elective -I		Credits - 5	
Course Code- 19UIT5MBE1B		Internal-25	External-75

OBJECTIVES

- This course inculcate the student to explore various Object Oriented Design methodologies.
- It mostly emphasis on various applications of UML models in real time domain

COURSE OUTCOMES

On the successful completion of the course. Students will be able to

CO Number	CO Statement	Knowledge level
CO1	Analyse, Design, Document the requirements through the use case driven approach.	K1
CO2	Identify, analyse and model structural and behavioral concepts of the system.	K2
CO3	Explore the conceptual model into various scenarios and Applications.	K3
CO4	Apply the concepts of architectural design for deploying the code for software.	K3
CO5	Demonstrate a rudimentary understanding of UML interfaces	K3

Mapping with Programme Outcomes

COs\POs	PO1	PO2	PO3	PO4
CO1	S	M	M	M
CO2	S	M	S	M
CO3	S	S	M	M
CO4	S	M	S	S
CO5	S	M	S	S

SYLLABUS

UNIT I

(15 HRS)

Introduction to UML – Basic Structural Modelling – Advanced Structural Modelling advanced classes – Advanced Relationships

UNIT II

(17 HRS)

Interfaces, Types and Roles – Packages – Instances – Object Diagrams

UNIT III

(13 HRS)

Basic Behavioural modelling interactions – Interaction Diagram – Activity Diagrams – Events and Signals

UNIT IV

(17 HRS)

State machine – Process and Threads – Time and Space – State Chart Diagrams

UNIT V

(13 HRS)

Architectural modelling components – Architectural modelling component diagrams – Case Studies: Unified Library Applications

TEXT BOOKS:

SNO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	K.Venugopal reddy and Sampath Kora	Object Oriented Analysis and Design Using UML	BSP publications.	2018

REFERENCE BOOKS:

SNO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	Simon Bennett, Steve Mc Robb and Ray Farmer	Object Oriented Systems Analysis and Design Using UML”.	Mc-Graw Hill Education	2010
2.	Martin Fowler	UML Distilled: A Brief Guide to the Standard Object Modeling Language”.	Addison Wesley,	2003

SEMESTER - V	SOFTWARE PROJECT MANAGEMENT	Hours/Week-5	
MAJOR BASED ELECTIVE I		Credits - 5	
COURSE CODE- 19UIT5MBE1C		Internal-25	External-75

COURSE OBJECTIVES

- To provide the graduates to understand the software project planning and evaluation techniques.
- To develop and implement software projects that will support to attain organization's strategic goals.

COURSE OUTCOMES

The successful completion of the course will equip the students to

CO NUMBER	CO STATEMENT	Knowledge Level
CO1	Define the scope of software project management	K1
CO2	Describe the projects at each stage of the software development life cycle	K2
CO3	Outline the software cost estimation techniques	K2
CO4	Discuss about the activity planning and risk management principles	K3
CO5	To develop skills to manage the various phases involved in project management and people management	K3

Mapping with Programme Outcomes

CO NUMBER	PO1	PO2	PO3	PO4
CO1	S	S	M	S
CO2	S	S	M	S
CO3	S	S	S	S
CO4	S	S	S	S
CO5	S	S	S	S

S- Strong M-Medium L-Low

SYLLABUS

UNIT - I (15 hrs)

Introduction to Software Project Management: Introduction- Key characteristics of Software Project Management- Software Project versus the other types of object- -Activities covered by Software Project Management- Difference between main types of Software-Viewing project as a system- Management Activities-Addressing problems with software project-Project control cycle-Stakeholder-Hierarchical Management structure.

UNIT - II (15 hrs)

An overview of Software Process Models: Selecting of an Appropriate Project Approach: Project characteristics-Project Analysis-Software Process Models-RAD-The Waterfall Model-The Spiral Model- V-process model-Software Prototyping- Other ways of categorizing prototypes-Incremental prototyping.

UNIT - III (15 hrs)

Software Project Estimation Methods: Introduction- Stages of software project for Estimation - The Basis for Software Estimating-Software Effort Estimation Techniques- Expert Judgement-Albrecht Function Point Analysis-Mark II Method-Object Points Estimation Method-COCOMO Model- Activity Planning: Introduction-Objectives of activity planning-Project Scheduling and Activities-Planning and Formulating Network Model-Critical Path Method-Forward Pass-Backward Pass-Precedence Networks.

UNIT - IV (15hrs)

Risk Management: Introduction-Types of Risk-Managing Risk-Risk Analysis and identification-Risk Reduction- Evaluation of Risk in project schedule-Resource Allocation.

UNIT - V (15 hrs)

Monitoring and Controlling the Project Progress-Managing People and organizing team in Software environments.

TEXT BOOK

S.No	Authors	Title	Publishers	Year of Publication
1.	Bob Hughes, Mike Cotterell, Rajib Mall	Software Project Management	Tata Mc Graw Hill Publications	5 th Edition 2011

REFERENCE BOOKS

S.No	Authors	Title	Publishers	Year of Publication
1.	Roger S. Pressman	Software Engineering	Tata Mc Graw Hill Publications	7 th Edition 2014
2	Richard H. Thayer	Software Engineering and Project Management	Wiley publication	2nd edition 2010.

|

SEMESTER - V	CONTENT MANAGEMENT SYSTEM TOOL	HOURS/WEEK - 2	
SBE – II A PRACTICAL		CREDITS - 2	
COURSE CODE - 19UIT5SBE2AP		Internal - 40	External - 60

OBJECTIVE

- To introduce the creation of dynamic, interactive and fully functional website using word press
- To install and modify themes
- To develop blogs and post to manage the content

COURSE OUTCOMES

CO Number	CO Statement	Knowledge level
CO1	Apply the fundamental features to create a website	K1
CO2	Develop blogs and post	K2
CO3	Access images and media files	K2
CO4	Demonstrate website customization	K3
CO5	Implement the plugin capabilities	K3

Mapping with Programme Outcomes

COs\POs	PO1	PO2	PO3	PO4
CO1	S	M	M	S
CO2	S	M	M	M
CO3	S	M	M	M
CO4	S	S	M	S
CO5	S	S	M	S

List of Exercise

1. Create a Permanent link for user website and make it as public site
2. Set your website title and tagline
3. Pick a theme and design a website
4. Create categories for website post
5. Write a blog and post
6. Customize word press theme
7. Access word press media libraries
8. Create and publish pages in website
9. Adjust site navigation using menus and widgets
10. Create and Manage links in word press pages
11. Add and mange comments in blog posts
12. Add plugins to websites abilities

SEMESTER - V	GRAPHICS LAB	Hours/Week-2	
SBE-III B PRACTICALS		Credits - 2	
Course Code- 19UIT5SBE3BP		Internal-40	External-60

OBJECTIVES

Systematic understanding and practical experience of the drawing tools and applications

COURSE OUTCOMES

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Handle basics tools and include drawing in design of a web page	K1
CO2	Perform different operations on text	K2
CO3	Perform comprehensive processing of word and publishing integration	K3
CO4	Enable to create and modify objects for graphics design purposes.	K3
CO5	Create full-fledged document with various page backgrounds and layouts	K3

Mapping with Programme Outcomes

COs\POs	PO1	PO2	PO3	PO4
CO1	S	M	S	S
CO2	S	M	S	M
CO3	S	M	M	M
CO4	S	M	S	S
CO5	M	S	M	S

LIST OF EXERCISES

1. Handling Tools to draw Curve lines and Calligraphic lines
2. Performing operations like Rotate, Combine and Group on objects
3. Filling object
4. Wrapping paragraph text around objects
5. Cropping , Resampling and Resizing of bitmap
6. Applying special effects to bitmaps
7. Creation of Page and setting Page background and layout

SEMESTER - V	WEB DESIGNING LAB	Hours/Week-2	
SBE-III A PRACTICALS		Credits - 2	
Course Code- 19UIT5SBE3AP		Internal-40	External-60

OBJECTIVES

The course provides the hands on experience for designing, publishing and managing websites.

COURSE OUTCOMES

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

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL
CO1	Perform different operations on text and images	K1
CO2	Create forms with different types of controls	K2
CO3	Apply various Graphics effects	K3
CO4	Create links between multiple frames	K3
CO5	Design and finalize the web page using software	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	M
CO4	S	M	S	M
CO5	S	S	M	S

LIST OF EXERCISES

1. Working with Graphics to insert an image, create rollover image and image map
2. Working with text.
3. Creation various links in the document
4. Insert and manipulate table
5. Working with Templates
6. Create multiple frames and link them
7. Applying various styles using CSS
8. Creating forms with all kinds of controls
9. Creation of Dynamic slide show
10. Creation of a Web Page

SEMESTER - V	INTERACTIVE MULTIMEDIA SOFTWARE	Hours/Week-2	
SBE-II B PRACTICALS		Credits - 2	
Course Code- 19UIT5SBE2BP		Internal-40	External-60

OBJECTIVES

- To implement various effects in animation
- To design an animated video

COURSE OUTCOMES

CO Number	CO Statement	Knowledge level
CO1	Handling Layout with color and fonts	K1
CO2	Illustrate the operation for working on layers	K2
CO3	Create graphics using templates	K2
CO4	Demonstrate Masking technique	K3
CO5	Design an Animated video	K3

Mapping with Programme Outcomes

COs\POs	PO1	PO2	PO3	PO4
CO1	S	M	M	S
CO2	S	M	M	M
CO3	S	M	M	M
CO4	S	S	M	S
CO5	S	S	M	S

LIST OF EXERCISES

1. Layout with different colors and fonts
2. Working with Key frames to create animations
3. Automate with Templates
4. Applying Masking
5. Handling composition with multiple layers
6. Animate text letter by letter
7. Animation with 2D and 3D layers
8. Create an animated video on a specific topic

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

**Nationally Re-Accredited (III Cycle) with 'A' Grade (CGPA 3.41 out of 4) by
NAAC**

TIRUCHIRAPPALLI-620018



**SYALLBUS FOR
B.Sc., & M.Sc., MICROBIOLOGY
4th BOS copies**

1. Minutes

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
TIRUCHIRAPPALLI – 620018



PG DEPARTMENT OF MICROBIOLOGY
MINUTES OF THE VIRTUAL BOARD OF STUDIES MEETING IN THE PG
DEPARTMENT OF MICROBIOLOGY CONDUCTED ON 05.01.2021 AT 11.00
A.M.

The following members attended the meeting:

32) Dr. B. Thamilmaraiselvi	Chairperson, Professor & HOD
33) Dr. A. Veera Ravi University	Subject Expert, Alagappa
34) Dr. A. Panneer selvam University	Member, Bharathidasan
35) Dr. N. Thajuddin University	Special Invitee, Bharathidasan
36) Dr. R. Senthil Kumar Representative from	Member, Placement
	Industry
37) Ms. S. Priyadharshni	Member, Alumna
38) Dr. N. Pushpa	Member, Associate Professor
39) Dr. S. Jeyabharathi	Member, Assistant Professor
40) Ms. N. Jeenathunisa	Member, Assistant Professor
41) Ms. K. Sangeetha	Member, Assistant Professor
42) Ms. S. Sathya	Member, Assistant Professor
43) Ms.N.Sathammai Priya	Member, Assistant Professor
44) Dr. R. Nithyatharani	Member, Assistant Professor
45) Dr. P.F. Steffi	Member, Assistant Professor
46) Dr. S. Jenny	Member, Assistant Professor
47) Dr. E. Priya	Member, Assistant Professor
48) Dr. V. Aruna	Member, Assistant Professor
49) Dr. P. Bhuvaneshwari	Member, Assistant Professor

The Agenda for the meeting was as follows:

1. ITEM NO.BOS/04/01

To consider and approve the SWAYAM online course as extra credit course in V semester for B.Sc., Microbiology (2019-20 batch and onwards) and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

2. ITEM NO.BOS/04/02

Ratification to rename Part IV Soft skill Course with course code 19UGSD as UGC Jeevan kaushal life skills-Professional skills with course code 19UGPS and the syllabus to be framed as per the syllabus of Jeevan kaushal life skills programme

offered by UGC in Semester V in all Under graduate programme from 2019-20 batch and onwards.

3. ITEM NO.BOS/04/03

To consider and approve the syllabus of core course, Major based elective I and skilled based elective II & III of B.Sc., Microbiology (2019-20 batch and onwards) for V semester and recommend to the academic council, Cauvery College for Women (Autonomous), Trichy-18.

4. ITEM NO.BOS/04/04

Ratification to change the assessment criteria for Elective course III Microbiology competitive examination with course code 19PMB3EC3A in semester III for M.Sc., Microbiology (2019-20 batch and onwards) and recommend to the academic council, Cauvery College for Women (Autonomous), Trichy-18.

5. ITEM NO.BOS/04/05

To consider and approve the SWAYAM online courses as an extra credit course in II semester for B.Sc., & M.Sc., Microbiology (2019-20 batch and onwards) and forward to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

6. ITEM NO.BOS/04/06

Appreciation of Board of Studies Members who contributed to prepare syllabus.

7. ITEM NO.BOS/04/07

Any other item with the permission of Chair.

Dr. B. Thamilmaraivelvi, Professor & HOD, Chairperson of the meeting welcomed the members and introduced them.

ITEM NO.BOS/04/01

To consider and approve the SWAYAM online courses as extra credit course in V semester for B.Sc., Microbiology (2019-20 batch and onwards) and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

Dr. B.Thamilmaraivelvi, Professor & HOD, Chairperson briefed the members about the need of SWAYAM online courses as per the UGC norms for extra credits. According to the suggestions given by the experts the paper for V Semester to be incorporated for B.Sc., Microbiology with extra credits.

The discussion was held among the members and it was resolved as under:

“Resolved that the SWAYAM online courses as per UGC norms be approved and recommended to Academic Council, Cauvery College for Women (Autonomous), Trichy-18, for further action”

ITEM NO.BOS/04/02

Ratification to rename Part IV Soft skill Course with course code 19UGSD as UGC Jeevan kaushal life skills-Professional skills with course code 19UGPS and the syllabus

to be framed as per the syllabus of Jeevan kaushal life skills programme offered by UGC in semester V in all Under graduate programme from 2019-20 batch and onwards.

Dr. B.Thamilmaraiselvi, Professor & HOD, Chairperson informed that the members rename Part IV Soft skill Course with course code 19UGSD as UGC Jeevan kaushal life skills-Professional skills with course code 19UGPS and the syllabus to be framed as per the syllabus of Jeevan kaushal life skills programme offered by UGC in semester V in all Under graduate programme from 2019-20 batch and onwards.

ITEM NO.BOS/04/03

To consider and approve the syllabus of core course, Major based elective I and skilled based elective II & III of B.Sc Microbiology (2019-20 batch and onwards) for V semester and recommend to the academic council, Cauvery College for Women (Autonomous), Trichy-18.

Dr. B.Thamilmaraiselvi, Professor & HOD, Chairperson briefed the members about the core course, Major based elective I and skilled based elective II & III of B.Sc Microbiology (2019-20 batch and onwards) for V semester and recommend to the academic council, Cauvery College for Women (Autonomous), Trichy-18.

“Resolved the syllabus of B.Sc., Microbiology be approved and recommended to academic council, Cauvery College for Women (Autonomous), Trichy-18 for further action”

ITEM NO.BOS/04/04

Ratification to change the assessment criteria for Elective course III Microbiology competitive examination with course code 19PMB3EC3A in semester III for M.Sc., Microbiology (2019-20 batch and onwards) and recommend to the academic council, Cauvery College for Women (Autonomous), Trichy-18.

Dr. B.Thamilmaraiselvi, Professor & HOD, Chairperson briefed the members about the assessment criteria for Elective course III Microbiology competitive examination with course code 19PMB3EC3A in semester III for M.Sc., Microbiology (2019-20 batch and onwards) and it 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”

ITEM NO.BOS/04/05

To consider and approve the SWAYAM online courses as an extra credit course in II semester for B.Sc., & M.Sc., Microbiology (2019-20 batch and onwards) and forward to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

Dr. B.Thamilmaraiselvi, Professor & HOD, Chairperson briefed the members about the need of SWAYAM online courses as per the UGC norms for extra credits. According to the suggestions given by the experts, experts the paper for II Semester to be incorporated for B.Sc., & M.Sc.,Microbiology with extra credits.

The discussion was held among the members and it was resolved as under:

“Resolved that the SWAYAM online courses as per UGC norms be approved and recommended to Academic Council, Cauvery College for Women (Autonomous), Trichy-18, for further action”

ITEM NO.BOS/04/06

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 V Semester of B.Sc., Microbiology for the academic year 2020-2021.

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/03/07

There being no other matter, the meeting was concluded with a vote of thanks given by Dr. B. Thamilmaraivelvi, Professor & HOD, Chairperson.

Sd/-

**Dr. B. Thamilmaraivelvi,
Chairperson, Professor & Head,
PG Department of Microbiology,
Cauvery College for Women (Autonomous),
Tiruchirappalli-18.**

2. 2019-2020 Fifth Semester Core Structure with Syllabus

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	TITLE	SUBJECT 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 – II	(a) Biofertilizer Technology	19UMB5SBE2A	2	2	3	25	75	100
	(b) Solid Waste Management			19UMB5SBE2B							
	Skill Based Elective – II		(a) Medical Laboratory Technology	19UMB5SBE3A	2	2	3	25	75	100	
			(b) Basics of IPR	19UMB5SBE3B							
	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

CORE COURSE – V (CC)
MEDICAL MICROBIOLOGY

Semester V	Internal Marks: 25	External Marks: 75				
Sub Code	Title of the Paper	Category	L	T	P	Credits
19UMB5CC5	Medical Microbiology	Core	75	5	-	5

Preamble: To impart the students with advanced knowledge of the characteristics of medically important human diseases. To focus the pathogenicity of the medically important microorganisms. To familiarize the lab diagnosis, prophylaxis and treatment of the diseases.

Course Outcome:

CO Number	CO Statement	Knowledge level
CO1	Describe and Classify the various pathogens and its Characterization.	K3
CO2	Diagnose the various bacterial pathogens	K4
CO3	Analyze various human viral diseases	K4
CO4	Evaluate and compare the various fungal infections and protozoan diseases	K5
CO5	Identification of pathogens from sample	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

UNIT – I: INTRODUCTION (15 Hours)

History, Koch's and River's Postulates-Normal microbial flora of the healthy human body, Host-pathogen interactions: Definitions of infection, invasion, primary and opportunistic pathogens, pathogenicity - virulence - toxigenicity, carriers and its types, endemic, epidemic, pandemic diseases and epidemiology – Infectious disease cycle.

UNIT – II: BACTERIAL DISEASES (15 Hours)

Diseases of various organ systems: Causative agent, clinical symptoms, pathogenesis, mode of transmission, prevention and treatment of the following bacterial diseases (a) Streptococcal pneumonia infections (b) *Staphylococcus aureus* infections (c) Meningitis - Neisseria, (d) Leprosy (e) Leptospirosis, (f) Respiratory diseases: Tuberculosis (g) Gastrointestinal disorders: typhoid and cholera (h) Sexually transmitted diseases: syphilis (i) Anaerobic wound infection – tetanus.

UNIT – III: VIRAL DISEASES (15 Hours)

Diseases of various organ systems: Causative agent, clinical symptoms, pathogenesis, mode of transmission, prevention and treatment of the following viral diseases (a) Respiratory diseases: common cold and influenza. (b) Neurological diseases: Rabies (c) Muscular diseases – Polio (d) Liver diseases: Viral hepatitis (e) Immunodeficiency disease: - AIDS. A brief account on Prion diseases.

UNIT – IV: FUNGAL & PROTOZOAN DISEASES (15 Hours)

Causative agent, clinical symptoms, pathogenesis, mode of transmission, prevention and treatment of the following fungal and protozoan diseases (a) Fungal – superficial and subcutaneous mycoses, (b) Protozoan: Amoebiasis, Malaria (c) Helminths – Filariasis, Ascariasis. Zoonotic diseases, Nosocomial and Community acquired infections.

UNIT – V: LAB DIAGNOSIS (15 Hours)

Isolation and identification of pathogens from an infected patient: Collection and transport of various clinical specimens (Urine, stool, sputum and blood) for diagnosis – General methods of isolation and identification of bacterial, fungal, viral pathogens and protozoan parasites.

Text Books

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Aejaz Iqbal and Zafar Nowshad	Medical microbiology: Millennium Edition	Notion Press	2020
2.	Baveja V and Baveja C P	Medical Parasitology	Arya Publishing company	2019
3.	Mishra B	Text Book of Medica Virology	CBS	2018
4.	Ananthanarayan and Paniker	A Text book of Microbiology	Kindle Edition	2013
5.	Greenwood	Medical Microbiology	International Edition	2012

Reference Books

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Geo Brooks, Karen C Carroll, Janet Butel and Stephen Morse	Medical Microbiology	Mc Graw Hill Publication	2020
2	Sastry Apurba S and Bhat Sandhya	Essentials of Medical Microbiology	Jaypee brothers Medica publishers	2020
3	Patrick R Murray, Ken S Rosenthal and Michael A Pfaller	Medical Microbiology	Elsevier	2020
4	Ananthanarayan Paniker	A Text book of Microbiology	University Press	2020
5	Kenneth J Ryan, Nafees Ahmad and Andrew Alspaugh J	Sherris Medical Microbiology	McGraw-Hill Education	2018

Web References

- <https://www.cdc.gov/tb/education/corecurr/pdf/chapter2.pdf>
- http://apps.searo.who.int/PDS_DOCS/B5123.pdf
<http://loyce2008.free.fr/Microbiologie/%20Micro%20%20Gillespie%20Hawkey%20%20Principles%20And%20Practice%20Of%20Clinical%20Bacteriology%202Nd%20Ed.pdf>

Pedagogy

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

CORE COURSE - VI (CC)

AGRICULTURAL MICROBIOLOGY

Semester V	Internal Marks: 25	External Marks: 75				
Sub Code	Title of the Paper	Category	L	T	P	Credits
19UMB5CC6	Agricultural Microbiology	Core	75	5	-	5

Preamble: To transform the knowledge as an eco-friendly one by introducing the relationship between microbes and nature, its roles and its utilization for the creation of sustainable environment and their concepts, Biofertilizer role, Biogeochemical cycles and Plant diseases.

Course Outcome:

COs	CO Statement	Knowledge level
CO 1	Define the basic view of soil Microorganisms	K1
CO 2	Explain the Microbial association in soil & organic forming	K2
CO 3	Understand the production of Biofertilizer	K4
CO 4	Discuss about Biogeochemical cycles	K6
CO 5	Discuss about Plant diseases & Control measures	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 (15 hours)

Introduction to soil microorganisms–Bacteria- PGPR- Cyanobacteria and Actinobacteria, Algae- *Chlorella*, *Nostoc*, Fungi- VAM, Protozoans- *Amoeba*, *Flagellates*, Nematodes- *Ascarids*, *Filarias* and Viruses –Role of microbes in soil fertility.

UNIT-II (15 hours)

Microbial associations in phytosphere: rhizosphere – phyllosphere – spermosphere. Mycorrhiza – types and importance to agriculture – Organic farming- organic matter decomposition – humus formation.

UNIT-III (15 hours)

Biofertilizer –Isolation, mass inoculum production, quality control, field application, Importance and marketing of bioinoculants – *Rhizobium*, *Azotobacter*, *Azospirillum*, *Frankia*, *Cyanobacteria*, *Azolla* and phosphate solubilizing microorganisms.

UNIT-IV (15 hours)

Biogeochemical cycles – carbon, nitrogen, phosphorus, Sulphur cycles; nitrogen fixers – root nodule formation – nitrogenase, hydrogenase – biochemistry of nitrogen fixation.

UNIT-V (15 hours)

Plant diseases (Mode of entry of pathogens, Symptoms, Disease cycle and control measures)
Bacterial disease–Citrus canker, Fungal disease- Blast of paddy, Viral disease–*cauliflower mosaic*- Microbial Pesticides – types and applications – Bacteria: *Bacillus thuringiensis* – Fungi: *Beauveria bassiana*- Virus: Nuclear Polyhedrosis Virus (NPV). Biocontrol agents- *Pseudomonas fluorescens* and *Trichoderma viride*

Text Books

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Subba Rao	Soil Microbiology	Oxford Publishing	2020
2.	Mangesh Y Dudhe	Agriculture- Microbiology	New Vishal Publications	2020
3.	Krishnendu Acharya, Surjit Sen and Manjula Rai	Biofertilizers and Biopesticides	Techno World	2019
4.	Prabhakaran	Introduction-Soil-Agricultural- Microbiology	Himalaya Publishing House Pvt. Ltd.	2018
5.	Aneja	Fundamental- Agricultural- Microbiology	New Age International (P) Ltd Publishers	2017

Reference Books

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Pareek and Navneet Pareek	Agricultural Microbiology	Scientific Publishers	2019
2.	Madigan, Bender, Buckley, Sattley and Stahl	Brock Biology of Microorganisms	Global Edn	2017
3.	Paul	Soil Microbiology, Ecology and Biochemistry	Academic Press	2015
4.	Glick	Beneficial Plant Bacterial Interactions	Springer	2015
5.	Trivedi	Agriculture Microbiology and Microbial Applications	Pointer Publishers	2015

Web links

1. <https://agrimoon.com/agricultural-microbiology-icar-ecourse-pdf-book/>
2. <https://www.pdfdrive.com/principles-of-soil-microbiology-e19270224.html>
3. <https://www.pdfdrive.com/soil-microbiology-ecology-and-biochemistry-e44718717.html>
4. <https://www.pdfdrive.com/principles-and-practice-of-soil-science-the-soil-as-a-natural-resource-e34478756.html>
5. <https://www.pdfdrive.com/microbes-and-microbial-technology-agricultural-and-environmental-applications-e185517816.html>

Pedagogy

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

CORE COURSE – VII (CC)
MOLECULAR BIOLOGY

Semester V	Internal Marks: 25	External Marks: 75				
Sub Code	Title of the Paper	Category	L	T	P	Credits
19UMB5CC7	Molecular Biology	Core	90	6	-	5

Preamble: The paper Molecular Biology encompasses the basic study and understanding the central dogma. It helps in understanding the basic organization of the genome of prokaryotes and eukaryotes. It is followed by prokaryotic and eukaryotic replication, transcription, translation processes and regulation. This knowledge can be employed in determining the function of various genes and proteins for better understanding of cellular life processes.

Course Outcome:

Cos	CO Statement	Knowledge level
CO1	State the Basic concept of Prokaryotic Genes	K1
CO2	Define the Prokaryotic DNA Replication	K1
CO3	Explain the DNA & RNA Transcription in Prokaryotes	K2
CO4	Apply the view of Gene Transfer Mechanisms	K3
CO5	Prepare the Mutation and DNA Repair Mechanisms	K3

Mapping with Programme Outcomes:

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

S- Strong; M-Medium; L-Low

SYLLABUS

Unit–I (18 Hours)

Milestones in history–Definition of nucleic acids–Experimental proofs of DNA as the genetic material (Griffith and Hershey Chase) – Experimental proofs of RNA as the genetic material - Chemistry and molecular structure of DNA double helix – Discovery of DNA structure – Brief account on types and forms of DNA –Definition of a gene. Organization of DNA in eukaryotic cell; Palindromic DNA; Types of RNA-rRNA; mRNA, SnRNA the 5' cap, non- coding region, initiation, coding region, termination codon; Poly (A) region, post transcriptional modification. Brief note on plasmids: structure and its types.

Unit–II (18 Hours)

Watson and Crick's model of DNA replication (experimental evidence); Enzyme involved in DNA replication (DNA polymerase I, Pol II, Pol III, DNA ligase); Mechanism of DNA replication; Models of DNA replication, inhibitors of DNA replication. Exonuclease and endonuclease. Theta replication and Rolling circle replication. Replication of RNA – reverse transcriptase.

Unit–III (18 Hours)

DNA Transcription: Definition – Brief account on transcriptional machinery and mechanism of transcription — RNA Translation: Definition – Brief account on translational machinery, mechanisms of translation and Splicing mechanism. Regulation of gene expression: Concept of Gene, Genetic code & its properties. Wobble concept, prokaryotic and eukaryotic ribosomes, detailed account of structure, function and regulation of *lac* operon, *trp* operon and *ara* operon.

Unit–IV (18 Hours)

Gene transfer mechanisms: Conjugation, Transformation and Transduction. Discovery of Transformation, Natural competence and its mechanism - Conjugation - Discovery, F+ v/s F-, Hfr+ v/s F. Transduction – Generalized and specialized transductions. Transposons – Structure, genetic organization and mechanism of transposition. Polymerase Chain Reaction & types.

Unit–V (18 Hours)

Definitions of mutations, mutagenesis and mutants - types of mutations; Gene diversity; Split genes, overlapping gene; Molecular nature of Mutation, Spontaneous and Induced mutation; DNA damage repair – Types of damage (deamination, Oxidative damage, Alkylation, Pyrimidine dimmers. Hybridization techniques: Southern, Northern & Western Blotting. Physical and Chemical mutagens, Carcinogenicity testing (AMES Test)- Applications of Mutations.

Text Books:

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Clark David	Molecular Biology	Academic Cell	2019
2.	Gerald Karp, Janet Iwasa and Wallace Marshall	Karp's Cell and Molecular Biology	Wiley	2016
3.	Joanne Willey, Linda Sherwood and Christopher J Woolverton	Prescott's Microbiology	Mc-Graw – Hill Publishing Company Ltd.	2016
4.	Veer Bala Rastogi	Principles of Molecular Biology	Med tech	2015
5.	Verma P S and Agarwal V K	Cell biology, Genetics, Molecular Biology Evolution and Ecology	S. Chand and Company Ltd.	2015

Reference Books:

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Ahern and Kevin	Biochemistry and Molecular Biology	Teaching company	2019
2.	Bruce Alberts, Karen Hopkin, Alexander D Johnson, David Morgan, Martin Raff, Keith Roberts and Peter Walter	Essential Cell Biology	Norton Publisher	2018
3.	David Clark, Nanette Pazdernik and Michelle McGehee	Molecular Biology	Academic Cell	2018

4.	Bernard R Glick and Cheryl L Patten	Molecular Biotechnology: Principles and Applications of Recombinant DNA	ASM Press	2017
5.	Geoffrey M Cooper	Cell: A Molecular Approach	Sinauer Associates Inc.	2016

Web Links

1. https://pages.jh.edu/rschlei1/Random_stuff/publications/molbiogene.pdf
2. https://www.fmed.uniba.sk/uploads/media/Introduction_to_Medical_and_Molecular_Biology.pdf
3. <https://www.aacb.asn.au/documents/item/3400>
4. https://molbiomadeeasy.files.wordpress.com/2013/09/fundamental_molecular_biology.pdf
5. <https://users.ugent.be/~avierstr/pdf/principles.pdf>
6. https://pages.jh.edu/rschlei1/Random_stuff/publications/molbiogene.pdf

Pedagogy

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

**CORE PRACTICAL – III (CP) MEDICAL MICROBIOLOGY, AGRICULTURAL
MICROBIOLOGY MOLECULAR BIOLOGY PRACTICALS**

Semester V	Internal Marks: 40	External Marks: 60				
Sub Code	Title of the Paper	Category	L	T	P	Credits
19UMB5CC3P	Medical Microbiology, Agricultural Microbiology Molecular Biology Practicals	Core Practical	45	-	3	3

Preamble: To impart the knowledge on isolation, identification of medically important organisms. To perform water and soil analysis and isolation of chromosomal and plasmid DNA.

Course Outcome:

COs	CO Statement	Knowledge level
CO 1	Illustrate the isolation procedures	K2
CO 2	Explain the symptoms of diseases	K2
CO 3	Sketch out the water borne microbes	K3
CO 4	Demonstration of auxotrophic mutants	K3
CO 5	Analyze agarose gel electrophoresis	K4

Mapping with Programme Outcomes:

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

S- Strong; M-Medium; L-Low

SYLLABUS

MEDICAL MICROBIOLOGY (25 Hours)

1. Isolation of bacterial flora of skin by swab method.
2. Isolation of bacteria from urine, stool and sputum.
3. Identification of Gram-positive organisms (using laboratory strains): *Streptococcus pneumoniae*, *Staphylococcus aureus* and *Bacillus sp.* and Gram-negative organisms (using laboratory strains): *Escherichia coli*, *Proteus sp.* and *Klebsiella pneumoniae* on the basis of microbiological, cultural and biochemical characteristics.
4. Saline and iodine wet mount to demonstrate protozoan parasites
5. Giemsa staining for the demonstration of blood parasites
6. KOH and Lactophenol cotton blue mount to demonstrate fungi.
7. Antibacterial sensitivity test – Kirby- Bauer method.

AGRICULTURAL AND ENVIRONMENTAL MICROBIOLOGY (10 Hours)

9. Water analysis by MPN technique – presumptive coliform test – confirmed coliform test and completed coliform test.
10. Microbial assessments of air quality – open plate method and air sampler technique.
11. Isolation and counting of faecal bacteria from water.
12. Soil Analysis -pH, chlorides, nitrate, calcium, magnesium and total phosphorus.
13. Isolation of cyanobacteria from water.
14. Isolation of *Rhizobium* form legume nodule.
15. Isolation of phosphobacteria from soil.
16. Observation of VAM from plant root.

MICROBIAL GENETICS AND MOLECULAR BIOLOGY (10 Hours)

17. Isolation of Chromosomal DNA from bacteria
18. Isolation of Plasmid DNA from bacteria
19. Isolation of Auxotrophic mutants.
20. Demonstration of Bacterial transformation technique.
21. Demonstration of Agarose gel electrophoresis (to study DNA/ RNA) and SDS – PAGE (to study proteins).

References:

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Ananthanarayan and Paniker	Textbook of Microbiology	Universities Press	2020
2.	Subba Rao N S	Soil Microbiology	Oxford Publishing	2020
3.	Mangesh Y Dudhe	Agriculture-Microbiology	New Vishal Publications	2020
4.	Michael J Leboffe and Burton E Pierce	Microbiology: Laboratory Theory & Application	Morton Publishing Company.	2019
5.	Ashwani Kumar, Gakhar S K and Monika Miglani	Molecular Biology: A Laboratory Manual	Dreamtech Press	2019
6.	Tripathi K D	Essentials of Medical Pharmacology	Jaypee Brothers Medical publishers	2018
7.	Harsh Mohan	Textbook of Pathology with Pathology	Jaypee Brothers Medical publishers	2018
8.	Rajan S and Selvi Christy R	Experimental procedures in Life Sciences	CBS Publishers & Distributors Pvt Ltd	2018
9.	Aneja K R	Fundamental and Agricultural Microbiology	New Age International (P) Ltd	2017
10.	Koliantz G and Szymanski D B	Genetics: A Laboratory Manual	American Society of Agronomy	2016
11.	Ranganathan Kapilan	Laboratory Manual of Molecular Biology	LAP Lambert Academic Publishing	2015

Web links

1. https://mountainscholar.org/bitstream/handle/20.500.11919/4774/OERW_MOLB_2021_20190101_Spring%202019%20Micro%20Lab%20Manual.pdf?sequence=1
2. <https://microbiologyonline.org/file/7926d7789d8a2f7b2075109f68c3175e.pdf>
3. [https://batch.libretexts.org/print/url=https://bio.libretexts.org/Bookshelves/Ancillary_Materials/Laboratory_Experiments/Microbiology_Labs/Book%3A_General_Microbiology_Lab_Manual_\(Pakpourand_Horgan\).pdf](https://batch.libretexts.org/print/url=https://bio.libretexts.org/Bookshelves/Ancillary_Materials/Laboratory_Experiments/Microbiology_Labs/Book%3A_General_Microbiology_Lab_Manual_(Pakpourand_Horgan).pdf)
4. <https://readfreepdf.com/read/medical-books/221-microbiology-laboratory-theory-application-brief-3e/>
5. https://www.researchgate.net/publication/320508474_Molecular_Biology_Laboratory_manual

Pedagogy

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

MAJOR BASED ELECTIVE - I (A)
FUNDAMENTALS OF BOTANY AND ZOOLOGY

Semester V	Internal Marks: 25	External Marks: 75				
Sub Code	Title of the Paper	Category	L	T	P	Credits
19UMB5MBE1A	Fundamentals of Botany and Zoology	MBE	75	5	-	5

Preamble: To gain the basic knowledge about plants and animals. To impart knowledge on botanical nomenclature, classifications, merits and demerits of various systems of classifications. To understand the systematic of the selected families of the flowering plants with their economic importance. To help our students to distinguish various animal kingdoms to know the evolutionary sequence of them.

Course Outcome:

Cos	CO Statement	Knowledge level
CO 1	State the Basic knowledge of Plant Nomenclature	K1
CO 2	Describe the Salient features and Economic importance of Monocot and Dicot Plants	K2
CO 3	Illustrate the views of Plant Physiology and Reproduction	K2
CO 4	Prepare Animal Kingdom and Reproduction	K3
CO 5	Prepare the Process of Animal Cell reproduction	K3

Mapping with Programme Outcomes:

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

S- Strong; M-Medium; L-Low

SYLLABUS

UNIT– I (15 hours)

Binomial Nomenclature – ICBN rules – taxonomic types, systems of Classification – Phylogenetic Artificial and Natural. Bentham and Hooker classification - merits and demerits. Plant taxonomy, Plant Nomenclature - Forms of Scientific names. Technical description of flower and floral diagram.

UNIT– II (17 hours)

General characteristics and economic importance of Algae, Fungi, Lichens, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms.

UNIT–III (13 hours)

Plant Physiology – Photosynthesis, Respiration and Transpiration. Reproduction of plants in Angiosperms - Vegetative, Asexual and Sexual.

UNIT–IV (15 hours)

Introduction to principles of taxonomy and outline classification of Animal Kingdom – Invertebrates - Prolifera, Cnidaria, Worms, Echinoderms, Molluscs and Arthropods. Vertebrates - Mammals, Birds, Reptiles, Fish and Amphibians. Darwin’s and Lamarck’s theory of evolution.

UNIT–V (15 hours)

Animal Physiology – Digestive, Respiratory, Circulatory, Excretion and Nervous system. Cell division – Mitosis and Meiosis.

Text Books

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Kishore R Pawar and Ashok E Desai	An Introduction to Zoology	Nirali Prakashan	2020
2.	Sunidhi Miglani	Text Book of Economic Botany	ABS Publications	2016
3.	Kotpal R L	Modern text book of Zoology	Rastogi Publications	2016
4.	Afroz Alam	Textbook of Botany	I K International Publishing House Pvt. Ltd	2015
5.	Nanda A K	Text Book of Botany	Kitab Mahal - Cuttack	2015

Reference Books

S.No	Authors Name	Title of the book	Publishers Name	Year
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1.	James Bidlack and Shelley Jansky	Plant Biology	McGraw-Hill Education	2020
2.	James D Mauseth	An introduction to plant biology	Jones & Bartlett Learning	2019
3.	Smithsonian	Zoology	DK; Illustrated edition	2019
4.	NVS, KVS and DSSSB	Botany	Unique Publisher	2018
5.	Stephen Miller and Todd A Tupper	Zoology	McGraw-Hill Education	2018

Web References

1. <https://www.biologydiscussion.com/plant-taxonomy/quick-notes-on-plant-taxonomy/47582>
2. <https://www.studyandscore.com/studymaterial-detail/international-code-of-botanical-nomenclature-icbn-history-principles-and-aim>
3. <https://byjus.com/biology/plant-physiology/>
4. <https://www.slideshare.net/mjnepa/cell-reproduction-notes>
5. <https://biologywise.com/vertebrates-invertebrates>

Pedagogy

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

MAJOR BASED ELECTIVE – I (B)
ORGANIC FARMING

Semester V	Internal Marks: 25	External Marks: 75				
Sub Code	Title of the Paper	Category	L	T	P	Credits
19UMB5MBE1B	Organic Farming	MBE	75	5	-	5

Preamble: This course focuses on the need and generating knowledge and skill on various organic farming practices, so as to carry out organic agricultural production and management system that sustains the health of soils and ecosystems.

Course Outcome:

COs	CO Statement	Knowledge level
CO1	Determine the origin and importance of organic farming	K4
CO2	Explain the scope of organic farming	K5
CO3	Evaluate the methodology practiced in organic farming	K5
CO4	Generalize the management strategies in crop protection	K6
CO5	Compile the strategies for the commercialization of organic products	K6

Mapping with Programme Outcomes:

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

S- Strong; M-Medium; L-Low

SYLLABUS

UNIT–I (15 hours)

Introduction- concept, Principles and development of organic farming. Types - Natural farming- Biodynamic farming. Conventional farming v/s Organic farming.

UNIT–II (15 hours)

Scope of organic farming - requirements for organic farming. Organic nutrients resources and their management, organic ecosystems and their concepts- Bioinoculants.

UNIT–III (15 hours)

Composting - principles – stages - types and factors. Composting methods – Vermicomposting. Biofertilizers - methods of application, advantages and limitations.

UNIT–IV (15 hours)

Plant protection- Insect Pest and disease management in organic farming- biopesticides, - biocontrol agents, Weed management in organic farming- preventive practices, biological control of weeds- mechanical control.

UNIT–V (15 hours)

Organic crop production, certification process and standards of organic farming in India, economic viability of organic farming, marketing and export potential of organic products.

Text Books

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Maliwal P L	Principles of Organic Farming	Scientific Publisher	2020
2.	Joanne M Willey, Kathleen M Sandman and Dorothy H Wood	Prescotts microbiology	McGraw-Hill Education	2019

3.	Unni M R and Sabu Thomas	Organic Farming Global Perspectives and Methods	Woodhead publishing	2018
4.	Amitava Rakshit and H B Singh	ABC of Organic Farming	Jain Brothers	2018
5.	Reddy S R	Principles of Organic Farming	Kalyani Publisher	2017

References Books

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Bansal M	Basics of Organic Farming	CBS publishers and Distributors Pvt. Ltd.	2020
2.	Janet Wilson	Composting: Sustainable and Low-Cost Techniques for Beginners	Drip Digital Publisher	2020
3.	Debabrata Biswas, Shirley A Micallef	Safety and Practice for Organic Food	Academic press Elsevier Science	2019
3.	Rhonda Sherman	The Worm Farmer's Handbook	Chelsea Green Publishing Company	2018
4.	Vinaya Kumar Sethi	Organic farming and bio-fertilizers	Discovery publishing house Pvt. Ltd.	2018

Web References

1. <http://agrimoon.com/organic-farming-pdf-book/>
2. <https://www.britannica.com/topic/organic-farming>
3. https://agritech.tnau.ac.in/org_farm/orgfarm_introduction.html
4. https://agritech.tnau.ac.in/org_farm/orgfarm_vermicompost.html
5. https://agritech.tnau.ac.in/org_farm/IPM%20Booklet%20for%20OF-Dr.P.D.pdf
6. https://agritech.tnau.ac.in/org_farm/orgfarm_oc%20guidelines.html

Pedagogy

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

SKILL BASED ELECTIVE – II (A) BIOFERTILIZER TECHNOLOGY

Semester V	Internal Marks: 25	External Marks: 75				
Sub Code	Title of the Paper	Category	L	T	P	Credits
19UMB5SBE2A	Biofertilizer Technology	SBE	30	2	-	2

Preamble: The aim of the course is to make the student to know the importance of biofertilizers in agriculture and about the field applications and production technologies.

Course Outcome:

COs	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 mass cultivation methods	K4
CO4	Create Knowledge about Phosphate solubilization and study the mass cultivation methods	K6
CO5	Expand view of Mycorrhizae and Bioinsecticides and study the mass 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

UNIT–I (6 Hours)

Introduction, Definition and types of biofertilizers, Application methods of biofertilizers-seed treatment, seedling root dip and Soil application- sowing and trip irrigation. Advantages of biofertilizers and limitations of biofertilizers. Biofertilizer formulation- carrier based, liquid based. Biofertilizer production methods- Preparation of mother inoculums, pre-starter culture, starter culture.

UNIT–II (6 Hours)

Biological nitrogen fixation–symbiotic and asymbiotic. Genetics of Nitrogen fixation. Isolation, identification, characterization, mass cultivation, formulation, field application and benefits of *Rhizobium* and *Frankia*.

UNIT–III (6 Hours)

Isolation, identification, characterization, classification, mass cultivation, formulation, field application and benefits of *Azospirillum*, *Azotobacter*, Cyanobacteria, and *Azolla*.

UNIT–IV (6 Hours)

Phosphate solubilization, Isolation, identification, characterization, mass cultivation, formulation, field application and benefits of phosphate solubilizing bacteria.

UNIT–V (6 Hours)

Isolation, identification, characterization, mass cultivation, formulation, field application and benefits of Mycorrhizae – Ecto, Endo (Arbuscular mycorrhizae) and Ectendo mycorrhizae. Bioinsecticides- *Bacillus thurengiensis*, *Verticillium* sp, *Beauveria* sp.

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.	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	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

Weblinks:

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

**SKILL BASED ELECTIVE –
II (B) SOLID WASTE
MANAGEMENT**

Semester V	Internal Marks: 25	External Marks: 75				
Sub Code	Title of the Paper	Category	L	T	P	Credits
19UMB5SBE2B	Solid Waste Management	SBE	30	2	-	2

Preamble: To make the students conversant with the types, sources, generation, storage, collection, transport, processing and disposal of municipal solid waste.

Course Outcome:

COs	CO Statement	Knowledge level
CO1	Explain the Ecosystem Structure and Functions	K2
CO2	Understanding of the nature and characteristics of municipal solid wastes	K4
CO3	Elaborate the collection and transport of solid waste	K6
CO4	Discuss about the Processing techniques of solid waste	K6
CO5	Determine Design and operation of sanitary landfill	K4

Mapping with Programme Outcomes:

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

S- Strong; M-Medium; L-Low

SYLLABUS

UNIT - I (6 Hours)

Introduction to Environment Ecosystem –meaning- Types -Components- Structure – Functions, Levels of organization in nature –Food chain and Trophic structure, Biogeochemical Cycles, Energy flow.

UNIT – II (6 Hours)

Solid waste and sewage Definition - Sources and types of solid waste-domestic, industrial, municipal and agricultural solid waste. Composition and its determinants of Solid waste-factors influencing generation-Physical, chemical, biological properties. Quantity assessment of solid wastes-methods of sampling and characterization.

UNIT – III (6 Hours)

Collection: Collection of Biological Solid waste – collection services – collection system, Transfer and Transport: Need for transfer operation – transfer stations – types. Solid waste treatment techniques –Purposes mechanical volume reduction – necessary equipment – chemical Treatment –Incinerators, drying and dewatering. Biological Treatment –Treatment methods–primary and secondary (anaerobic – methanogenesis) aerobic: trickling activated sludge, tertiary Treatment-oxidation pond, Saccharification, gasification.

UNIT – IV (6 Hours)

Biological Monitoring of Hazardous wastes- Biodegradation of xenobiotics, degradation of hydrocarbons, Pesticides, polychlorinated Biphenyl compounds. Superbug - construction, Selection and Mass culture of Superbug, Strain development by genetic engineering. Biodegradation of Plastics.

UNIT – V (6 Hours)

Reuse of sewage and solid waste as Raw Materials-Environment Benefits of Biochemical and Thermo chemical Conversion; Fuels from biomass- Biogas, Bio fuels and Bio hydrogen, Compost making-Indore Method, Bangalore method, Vermicomposting, mushroom production-Overview on Processes involved, and from biomass.

Text Books

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Maulin P Shah, Gaurav Saxena 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.	Ammayappan Selvam, Rao Y Surampalli, R D Tyagi and Jonathan W Wong	Sustainable Solid Waste Management	American Society of Civil Engineers	2016
5.	M N V Prasad	Bioremediation and Bioeconomy	Elsevier Science	2015

Reference Books

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Devin J Sapsford, Lynne E Macaskie and Will M Mayes	Resource recovery from wastes towards a circular economy	Royal Society of Chemistry	2019
2.	Ashok Pandey, Jonathan Wong, Kim Bolton and Mohammad Taherzadeh	Sustainable resource recovery and zero waste approaches	Elsevier Science	2019
3.	Abhilash, Hossain Md Anawar and Vladimir Strezov	Sustainable and economic waste management resource recovery technique	CRC Press	2019
4.	Charles R Rhyner, Leander J Schwartz, Robert B Wenger and Mary G Kohrell	Waste management and resource recovery	All India Publishers and Distributors	2017

5.	By Zhao Youcai and Lou Ziyang	Pollution Control and Resource Recovery Municipal Solid Wastes at Landfill	Elsevier Science	2016
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Web References

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>
5. <http://www.ilo.org/oshenc/part-vii/environmental-pollution-control/item/514-%20solidwaste-management-and-recycling>

Pedagogy

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

SKILL BASED ELECTIVE – III (A)
MEDICAL LABORATORY TECHNOLOGY

Semester V	Internal: 25	External: 75				
Sub Code	Title of the Paper	Category	L	T	P	Credits
19UMB5SBE3A	Medical Laboratory Technology	SBE	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 employment opportunities.

Course Outcome:

COs	CO Statement	Knowledge level
CO1	Understand the basic human biology	K2
CO2	Interpret the features of basic equipment of laboratory	K3
CO3	Analyze the metabolism and classification of biomolecules	K4
CO4	Explain the components of blood and	K4
CO5	Determine the significance of microbiology, clinical pathology and histopathology	K5

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	S	S
CO4	S	S	S	S	M
CO5	S	M	S	M	S

S- Strong; M-Medium; L-Low

SYLLABUS

UNIT – I: Anatomy and Physiology (6 Hours)

Definitions and terms in anatomy and physiology. Structure and function of human cell. Organ Systems: Cardio Vascular, Respiratory, Digestive, Urinary, Reproductive, Musculoskeletal, Nervous and Endocrine.

UNIT – II: Instrumentation (6 Hours)

Autoclave, Hot Air Oven, Incubators, Laminar Air Flow, Filtration, colony counter, Centrifuge, pH meter, Colorimeter, Spectrophotometer and Microscopy. Glassware – Description of Glassware, its use, handling and care.

UNIT – III: Biochemistry (6 Hours)

Metabolism of Carbohydrate (Glycolysis, Kerbs cycle), Proteins (Urea cycle), Lipids (Cholesterol biosynthesis) and disorders of Carbohydrate (Diabetes mellitus), Proteins, Lipids. Enzymes: Definition, type and functions. Classification, functions, deficiency of vitamins and minerals. Functional test: LFT, RFT and GFT.

UNIT – IV: Hematology and Blood Bank (6 Hours)

Origins, development and morphology of blood cells, composition of blood and its functions. Basic concepts of anemia, leukemia and hemorrhagic disorder. Methods of estimation of hemoglobin, determination of PCV. Blood group - methods and typing and Blood transfusion.

UNIT – V: Microbiology, Clinical Pathology and Histopathology (6 Hours)

Good Laboratory Practice (GPL), Biosafety in Microbiology Laboratory and Professional Ethics of Medical Technologists. Sterilization and Disinfection: Methods and Principles. Collection, Transportation and processing of clinical samples. Analysis of urine, sputum, semen, gastric and stool samples. Histopathology - methods of examination of tissues and cell, Fixation of tissues, tissues processing, section cutting, staining cytology.

Text Books

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Kanai L. Mukherjee	Medical Laboratory Technology	Tata Mcgraw Hill	2017
2.	Kanai L. Mukherjee and Anuradha Chakravarthy	Medical Laboratory Technology, Procedure Manual for Routine Diagnostic Tests	Mc Graw Hill India	2017
3.	Chaurasia B D	Human Anatomy	CBS publishers	2016
4.	Solomon E P	Introduction to Human Anatomy and Physiology	Saunders	2016
5.	Vasudevan D M, Sreekumari S and Vidhyanathan K	Textbook of Biochemistry for Medical students	Jaypee& Brothers Medical Publishers (P) Ltd	2016
6.	Arora D R and Arora B B	Textbook of Microbiology	CBS Publishers & Distributors	2016
7.	Nanda M	Clinical Pathology Hematology and Blood Banking (For DMLT Students)	Jaypee Brothers Medical Publishers (P) Ltd	2016

Reference Books

S.No	Authors Name	Title of the Books	Publishers Name	Year
1.	Harsh M	Textbook of Pathology	Jaypee Publications	2017
2.	Praful B Godkar	Text book of Medical Laboratory Technology	Bhalani Publications	2016
3.	Gary W Procop and Elmer W Koneman	Koneman's Color Atlas and Textbook of Diagnostic Microbiology	Wolters Kluwer Health	2016
4.	SoodRamnik	Text book of Medical Laboratory Technology	Jaypee Publications	2015
5.	BakerF 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://downloadinfobook1.firebaseio.com/Medical-Laboratory-Technology-Kanai-Mukherjee-PDF-c3f0077fe.pdf>

Pedagogy

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

SKILL BASED ELECTIVE –

III (B) BASICS OF IPR

Semester V	Internal: 25	External: 75				
Sub Code	Title of the Paper	Category	L	T	P	Credits
19UMB5SBE3B	Basics of IPR	SBE	30	2	-	2

Preamble: The course is designed to provide comprehensive knowledge to the students regarding the general principles of IPR, Concept and Theories, Criticisms of Intellectual Property Rights, International Regime Relating to IPR, Patent, Trademark and copyrights.

Course Outcome:

COs	CO Statement	Knowledge level
CO1	Define the basics of IPR	K1
CO2	Recite the knowledge about theories of IPR	K1
CO3	Critique knowledge about Patents	K4
CO4	Generalize the basic idea of Trademarks	K6
CO5	Expand the role of Copyrights	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 (6 Hours)

Introduction to Intellectual Property, Concept & Meaning of Intellectual Property, Nature and Characteristics of Intellectual Property, Origin and Development of Intellectual Property, Kinds of Intellectual Property.

UNIT –II (6 Hours)

Theories of Intellectual Property, Justification and Rationale for Protecting Intellectual Property, Balancing the Protection of IPR and Public Policy, Theories of IPR-Natural Theory, Hegelian Philosophy (Personality Theory), Locke's Theory of Property, Social Contract Theory, Social Planning Theory, Incentive Theory, Reward Theory, Prospect Theory, Schumpeterian Theory, Economic Theory.

UNIT – III (6 Hours)

Patents - Meaning, Criteria for obtaining patents - Novelty, Inventive step, Utility, Non patentable inventions, Procedure for registration, Term of patent, Rights of patentee, Basic concept of Compulsory license and Government use of patent.

UNIT – IV (6 Hours)

Trade Marks - Meaning of mark, trademark, Categories of Trademark: Certification Mark, Collective Mark and Well-known Mark and Non-conventional Marks, Concept of distinctiveness, Absolute and relative grounds of refusal, Doctrine of honest concurrent user, Procedure for registration and Term of protection, Assignment and licensing of marks.

UNIT-V (6 Hours)

Copyright – Meaning, Ownership of copyright, Term of copyright, Rights of owner, Assignment and license (including basic concept of statutory and compulsory license) of rights Performers rights and Broadcasters rights, Infringement of copyright.

Text Books

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Damodar Reddy S V	Intellectual Property Rights -Law and Practice	Asia Law House	2019
2.	Ramesh Shahabadkar and S Sai Satyanarayana Reddy	Intellectual Property Rights	Notion Press	2019
3.	Narayanan	Intellectual Property Law	Eastern Law House	2018
4.	Vijayasekhar R D and Nataraja Reddy C	Intellectual Property Rights Law Guide	Vijay Law Series	2018
5.	Ahuja V K	Law Relating to Intellectual Property Rights	Lexis Nexis	2017

Reference Books

S.No	Authors Name	Title of the book	Publishers Name	Year
1.	Sia	Intellectual Property Rights	SIA Publishers & Distributors	2020
2.	Myneni S R	Patent Drafting & Specification Writing	New Era Law Publication	2019
3.	Myneni S R	Law of Copyright	New Era Law Publication	2018
4.	Reddy G B	Intellectual Property Rights and The Law	Gogia Law Agency	2017
5.	Kailasam K C and RamuVedaraman	Law of Trademarks – Including International Registration under Madrid Protocol & Geographical Indications	Lexis Nexis	2017

Web links:

1. <https://www.greyb.com/types-of-intellectual-property-rights/>
2. <https://www.sgrlaw.com/ttl-articles/919/>
3. <https://www.itu.int/en/ITU-T/ipr/Pages/default.aspx>
4. <https://www.dubaicustoms.gov.ae/en/IPR/Pages/WhatIsIPR.aspx>
5. https://www.wto.org/english/tratop_e/trips_e/intell_e.htm

Pedagogy

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

3. 2020-2021 Core Structure

CAUVERYCOLLEGE FOR WOMEN

(AUTONOMOUS)

TIRUCHIRAPPALLI-620018

B.Sc., Microbiology Course Structure

(For the candidates admitted for the Academic year 2020-2021 onwards)

SEM.	PART	COURSE	TITLE	SUBJECT CODE	INST. HOURS / WEEK	CREDIT	EXAM HOUR	MARKS		TOTAL
								INT	EXT	
I	I	Language Course-I (LC) –Tamil/Other Languages	இக்கால இலக்கியம்	19ULT1	6	3	3	25	75	100
			Story, Novel, Hindi, Literature & Grammar – I	19ULH1						
			History of Popular Tales, Literature and Sanskrit Story	19ULS1						
			Communication in French - I	19ULF1						
	II	English Language Course – I(ELC)	Functional Grammar for Effective Communication - I	19UE1	6	3	3	25	75	100
			Core Course-I (CC)	General Microbiology	19UMB1CC1	6	6	3	25	75
	III	Core Practical-I (CP)	General Microbiology & Microbial Physiology-Practicals	19UMB1CC1P	3	-	-	-	-	-
			First Allied Course-I (AC)	Fundamentals of Biochemistry I	19UMB1AC1	4	4	3	25	75
		First Allied Practical-II (AP)	Fundamentals of Biochemistry I & II Practicals	19UMB1AC1P	3	-	-	-	-	-
			IV	UGC Jeevan Kaushal life skills	Universal human values	20UGVE	2	2	3	25
TOTAL					30	18				500
I	I	Language Course-II (LC)–Tamil /Other Languages	இடைக்கால இலக்கியமும் புதினமும்	19ULT2	6	3	3	25	75	100
			Prose, Drama, Hindi Literature – 2 & Grammar – II	19ULH2						
			Poetry, Textual Grammar and Alakara	19ULS2						

II		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)	Microbial Physiology	19UMB2CC2	6	6	3	25	75	100
		Core Practical–I (CP)	General Microbiology & Microbial Physiology-Practicals	19UMB1CC1P	3	3	3	40	60	100
		First Allied Practical–II(AP)	Fundamentals of Biochemistry I & II Practicals	19UMB1AC1P	3	3	3	40	60	100
		First Allied Course–III(AC)	Fundamentals of Biochemistry-II	19UMB2AC2	4	2	3	25	75	100
	IV	Environmental 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	22	-	-	-	700	

4. 2019 – 2020 Core Structure**CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)****TIRUCHIRAPPALLI-620018****M.Sc., Microbiology Course Structure under CBCS****(For the candidates admitted from the academic year 2019-2020 onwards)**

Sem.	Course	Title	Sub code	Inst./ Hour / Week	Credit	Exam Hours	Marks		Total
							Int	Ext	
III	Core Course– VII(CC)	Industrial Microbiology	19PMB3CC7	6	5	3	25	75	100
	Core Course – VII(CC)	Clinical Microbiology	19PMB3CC8	6	5	3	25	75	100
	Core Practical– III(CP)	Practicals – (CC-VII&CC-VIII)	19PMB3CC3P	8	4	3	40	60	100
	Elective Course– III(EC)	a.Recent trends in Microbiology	19PMB3EC3A	5	5	3	-	100	100
		b.Food Adulteration c.Biomedical Laboratory Technology	19PMB3EC3B 19PMB3EC3C	5	5	3	25	75	100
	Elective Course– IV(EC)	a.r-DNA Technology	19PMB3EC4A	5	5	3	25	75	100
b.Microbes in Solid Waste Management		19PMB3EC4B							
c.Microbial Nanotechnology		19PMB3EC4C							
Extra Credit Course	SWAYAM Online Course	As per UGC norms	To be fixed later						
			TOTAL	30	24	-	-	-	500

5. 2020 - 2021 Core Structure

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	Title	Sub code	Inst./ Hours / Week	Credit	Exam Hours	Marks		Total
							Int.	Ext.	
I	Core Course – I(CC)	Essentials of Microbiology	19PMB1CC1	6	4	3	25	75	100
	Core Course – II(CC)	Biological Macromolecules	19PMB1CC2	6	4	3	25	75	100
	Core Course – III(CC)	Virology	19PMB1CC3	5	4	3	25	5	100
	Core Course – IV(CC)	Microbial Ecology	19PMB1CC4	5	4	3	25	75	100
	Core Practical – I(CP)	Practical- (CC-I,CC-II, CC-III & CC-IV)	19PMB1CC1P	8	4	3	40	60	100
TOTAL				30	20	-	-	-	500
II	Core Course – V(CC)	Microbial Metabolism	19PMB2CC5	6	5	3	25	75	100
	Core Course – VI(CC)	Immunology	19PMB2CC6	6	5	3	25	75	100
	Core Practical– II(CP)	Practicals – (CC-V&CC-VI)	19PMB2CC2P	8	4	3	40	60	100
	Elective Course –I	(a) Microbial Techniques	19PMB2EC1A	5	5	3	25	75	100
		(b) Organic Farming	19PMB2EC1B						
		(c) Microbial Cytology	19PMB2EC1C						
	Elective Course –II	(a) Biofertilizer Technology	19PMB2EC2A	5	5	3	25	75	100
		(b) Public Health Microbiology	19PMB2EC2B						
		(c) Marine Microbiology	19PMB2EC2C						
	Extra Credit Course	Swayam Online Course	To be Fixed Later	As per UGC Recommendation					
TOTAL				30	24	-	-	-	500



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

DEPARTMENT OF BIOTECHNOLOGY

BOARD OF STUDIES

MINUTES OF THE VIRTUAL MEETING HELD ON THURSDAY, 4TH JANUARY, 2021 AT

2.00 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. R. Thirumurugan University Nominee
4. Dr. Umashankar Ponnusamy Industrial Expert
5. Ms. S. Solaipriya Member Alumna
6. Dr. R. Rameshwari Chairperson & Head
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

The Agenda for the meeting was as follows:

1. ITEM NO. BoS/04/01

To consider and approve Extra credit course in the Fifth semester for the Batch 2019-2020 of B.Sc., Biotechnology and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

2. ITEM NO. BoS/04/02

To consider and approve extra credit course in the Second semester for the Batch 2020-2021 of B.Sc., Biotechnology and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

3. ITEM NO. BoS/04/03

To consider and approve fifth semester Syllabus for B.Sc., Biotechnology and recommend to Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

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/04/01

Board of Studies members considered and approved Swayam Online Course as an Extra credit course in the Fifth semester for the Batch 2019-2020 of B.Sc., Biotechnology and recommended to the Academic Council. The course content, hours, exam pattern and credits would be followed as per UGC recommendations.

Resolution No. BoS/04/02

Board of Studies members considered and approved Swayam Online Course as an Extra credit course in the Second semester for the Batch 2020-2021 of B.Sc., Biotechnology and recommended to the Academic Council. The course content, hours, exam pattern and credits would be followed as per UGC recommendations.

Resolution No. BoS/04/03

To consider and approve fifth semester Syllabus for B.Sc., Biotechnology

Panel members suggested the following changes:

Dr. A. Veera Ravi suggested the following:

- In Unit III of Plant Biotechnology Course, instead of Pros and Cons, advantages and disadvantages of GM Crops could be given. And also Biosafety concerns and regulations of transgenic plants could be included in the content.
- Topics like Stages of embryonic development – morula, blastulation, gastrulation and organogenesis must be included in Unit III and related embryology text books also to be included in Animal Biotechnology Course.
- For Cancer Biology Course, the topic of Unit II must be changed as causative agents of cancer cells.
- Microbial diseases like bacterial, viral & fungal infections could be included in Unit I of Molecular diagnostics and therapeutics paper.
- Specific markers could be given in Unit II and Diagnostic techniques like Metagenomics could be included in Unit III of Molecular diagnostics and therapeutics course.

- Development of drug resistance concept could be added in the fourth unit and DNA Polymerase could be included in the fifth unit of Molecular diagnostics and therapeutics course.
- Nanocomposites with specific example could be given in Unit IV of Basics of Nanotechnology course.
- In DNA fingerprinting course, the contact hours could be modified according to the content of the units.

Dr. K. Ruckmani suggested the following:

- In Unit IV of Plant Biotechnology Course, examples for therapeutic proteins such as edible vaccines & industrial enzymes could be given.
- Recent Reference books not less than 5 years must be included in Plant Biotechnology Course.
- Ethical issues could be renamed as ethical challenges in the fifth unit of Animal Biotechnology Course.
- Adulteration concepts could be included in Unit I of Pharmacognosy paper.
- In Unit III of Pharmacognosy course, contents must be in sequential order.
- Based on the pharmacological aspects the contents must be elaborated in the fourth unit of Pharmacognosy course.
- Pharmaceutical aids like Olive oil could be included in Unit V of Pharmacognosy course.
- Planta medica book must be included as text books & instead of Pharmacognosy Lab manual, Ayurvedic formulary books could be included for Pharmacognosy course.
- Disease based markers could be included in the Second Unit of Molecular Diagnostics and Therapeutics Course.
- Mechanism of drug action could be renamed as Pharmacodynamics and Pharmacokinetics in Unit IV of Molecular Diagnostics and Therapeutics Course.
- Instead of DLS, Zetasizer could be given in Unit III and Biodegradability & Biocompatibility concepts could be added in Unit V of Basics of Nanotechnology paper.
- Biofortification of food could be given and Food packing could be renamed as food packaging. Enhanced shelf life & sensors could be added in Unit II of Nanotechnology in Health care course.

- Nanoprobes could be included in Unit III of Nanotechnology in Health care course.
- In Unit V of Nanotechnology in Health care paper, Regulatory guidelines on nanoparticles in European Union, USA & India could be added.

Dr. R. Thirumurugan suggested the following:

- In the Core Practical Plant and Animal Biotechnology, permanent slides depicting different stages of chick embryo development could be shown additionally.
- Role of Ayush concepts could be included in Pharmacognosy course.
- Title of the first unit could be changed and Second unit could be restructured for Molecular diagnostics and therapeutics paper.

Dr. Umashankar Ponnusamy

- Thermosensitive Genic Male Sterility (TGMS) could be added in Unit II of Plant Biotechnology course.
- SNPs & Genomic enabled breeding methods could be included in Unit V of Plant Biotechnology course.
- Plant variety protection could be given in Unit IV of DNA fingerprinting course.
- In Unit I of Nanotechnology in Health Care paper, crop improvement could be renamed as Improvement of Crop productivity.

Ms. S. Solai Priya

- Freezing medium could be included in the First Unit of Animal Biotechnology Course.
- Amniocentesis could be added in Unit III of Molecular diagnostics and therapeutics course.

The Board of Studies meeting was resolved and concluded by recommending the syllabus of fifth 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 2020 -2021 onwards)

Semester	Part	Course	Title	Subject Code	Inst. Hour/ Week	Credit	Exam Hours	Marks		Total		
								Int	Ext			
I	I	Language Course–I (LC) – Tamil/Other Languages	இக்கால இலக்கியம்	19ULT1	6	3	3	25	75	100		
			Story, Novel, Hindi, Literature & Grammar – I	19ULH1								
			History of Popular Tales, Literature and Sanskrit Story	19ULS1								
			Communication in French - I	19ULF1								
	II	English Language Course – I(ELC)	Functional Grammar for Effective Communication - I	19UE1	6	3	3	25	75	100		
	III	Core Course–I (CC)	Cell Biology	Cell Biology	19UBT1CC1	6	4	3	25	75	100	
				Lab in Cell Biology	19UBT1CC1P	3	3	3	40	60	100	
				First Allied Course–I (AC)	General Microbiology	19UBT1AC1	4	4	3	25	75	100
				First Allied Course–II (AP)	Lab in Microbiology	19UBT1AC1P	3	-	-	-	-	-
	IV	The Universal Human Values	The Universal Human Values	20UGVE	2	2	3	25	75	100		
Total					30	19				600		
II	I	Language Course–II (LC)– Tamil /Other Languages	இடைக்கால இலக்கியமும் புதினமும்	19ULT2	6	3	3	25	75	100		
			Prose, Drama, Hindi Literature – 2 & Grammar – II	19ULH2								
			Poetry, Textual Grammar and Alakara	19ULS2								
			Communication in French – II	19ULF2								
	II	English Language Course– II(ELC)	Functional Grammar for Effective Communication – II	19UE2	6	3	3	25	75	100		
	III	Core Course–II (CC)	Molecular Biology	Molecular Biology	19UBT2CC2	6	4	3	25	75	100	
				Lab in Molecular Biology	19UBT2CC2P	3	3	3	40	60	100	
				First Allied Course–II (AP)	Lab in Microbiology	19UBT1AC1P	4	2	3	40	60	100
				First Allied Course–III (AC)	Bioinstrumentation	19UBT2AC2	3	3	3	25	75	100
	IV	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	20				700		



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)Basics of Nanotechnology	19UBT5SBE2B						
		Skill Based Elective – III	A)DNA Fingerprinting	19UBT5SBE3A	2	2	3	25	75	100
			B)Nanotechnology in Healthcare	19UBT5SBE3B						
		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			

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)



DEPARTMENT OF BIOTECHNOLOGY UG SYLLABUS

(For the candidates admitted from the academic year 2019 -2020 onwards)

B.Sc., BIOTECHNOLOGY **PROGRAMME EDUCATIONAL** **OBJECTIVES**

THE PROGRAMME AIMS

1. To make our student competent in various areas of biotechnology.
2. To inculcate the capability to work as entrepreneurs with strong ethics and communication skills.
3. To equip the students to pursue higher education and research in reputed institutes at national and international levels.
4. To develop a working knowledge of biotechnological product and processes.

PROGRAMME OUTCOMES

1. Apply ethical principles and commit to professional ethics and responsibilities in technology usages.
2. Function effectively as an individual and as a member in multidisciplinary settings.
3. Demonstrate knowledge in various environment with respect to sustainable development.
4. Recognize the need for and have the preparation & ability to engage independent and lifelong learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES

1. Acquire knowledge on the fundamentals of biotechnology for sound and solid base which enables them to understand the emerging and advance concepts in life sciences.
2. Acquire knowledge in domain of biotechnology enabling their applications in industry and research.
3. Empower the students to acquire technological knowhow by connecting disciplinary and interdisciplinary aspects of biotechnology.
4. Recognize the importance of biotechnological applications as to usher next generation entrepreneurship.



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				
I	I	Language Course–I (LC) –Tamil/Other Languages	இக்கால இலக்கியம்	19ULT1	6	3	3	25	75	100			
			Story, Novel, Hindi, Literature & Grammar – I	19ULH1									
			History of Popular Tales, Literature and Sanskrit Story	19ULS1									
			Communication in French – I	19ULF1									
	II	English Language Course – I(ELC)	Functional Grammar for Effective Communication - I	19UE1	6	3	3	25	75	100			
	III	Core Course–I (CC)	Cell Biology	Cell Biology	19UBT1CC1	6	4	3	25	75	100		
				Core Practical – I (CP)	Lab in Cell Biology	19UBT1CC1P	3	3	3	40	60	100	
				First Allied Course–I (AC)	General Microbiology	General Microbiology	19UBT1AC1	4	4	3	25	75	100
						Lab in Microbiology	19UBT1AC1P	3	-	-	-	-	-
	IV	Value Education	Value Education	19UGVE	2	2	3	25	75	100			
Total					30	19				600			
II	I	Language Course–II (LC)–Tamil /Other Languages	இடைக்கால இலக்கியமும் புதினமும்	19ULT2	6	3	3	25	75	100			
			Prose, Drama, Hindi Literature – 2 & Grammar – II	19ULH2									
			Poetry, Textual Grammar and Alakara	19ULS2									
			Communication in French – II	19ULF2									
	II	English Language Course–II(ELC)	Functional Grammar for Effective Communication – II	19UE2	6	3	3	25	75	100			
	III	Core Course–II (CC)	Molecular Biology	Molecular Biology	19UBT2CC2	6	4	3	25	75	100		
				Core Practical – II (CP)	Lab in Molecular Biology	19UBT2CC2P	3	3	3	40	60	100	
				First Allied Course–II (AP)	Lab in Microbiology	Lab in Microbiology	19UBT1AC1P	4	2	3	40	60	100
						First Allied Course–III (AC)	Bioinstrumentation	19UBT2AC2	3	3	3	25	75
	IV	Environmental Studies	Environmental Studies	19UGES	2	2	3	25	75	100			
Total					30	20				700			

I	Language Course – III (LC)–Tamil/Other Languages	காப்பியமும் நாடகமும்	19ULT3	6	3	3	25	75	100	
		Medieval, Modern Poetry & History of Hindi Literature - 3	19ULH3							
		Prose, Textual Grammar and Vakyarachana	19ULS3							
		Communication in French – III	19ULF3							
II	English Language Course-III(ELC)	Writing for General and Specific Purposes – I	19UE3	6	3	3	25	75	100	
III	Core Course – III (CC)	rDNA Technology	19UBT3CC3	6	4	3	25	75	100	
		Core Practical – III (CP)	Lab in rDNA Technology	19UBT3CC3P	3	3	3	40	60	100
		Second Allied Course – I(AC)	Biochemistry	19UBT3AC3	4	4	3	25	75	100
		Second Allied Course-II (AP)	Lab in Biochemistry	19UBT3AC2P	3	-	-	-	-	-
IV	Non Major Elective I-for those who studied Tamil under Part-I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree programme	Basics of Biotechnology	19UBT3NME1	2	2	3	25	75	100	
		Basic Tamil	19ULC3BT1							
		Special Tamil	19ULC3ST1							
V	Extra Credit Course	SWAYAM ONLINE COURSE	To be Fixed Later	-	-	As per UGC Recommendation				
Total				30	19				600	

I	Language Course –IV (LC) -Tamil/Other Languages	பண்டைய இலக்கியம்	19ULT4	6	3	3	25	75	100	
		Letter writing, General essays, Technical Terms, Proverbs, Idioms & Phrases, Hindi Literature – 4	19ULH4							
		Drama, History of Drama Literature	19ULS4							
		Communication in French - IV	19ULF4							
II	English Language Course – IV(ELC)	Writing for General and Specific Purposes - II	19UE4	6	3	3	25	75	100	
III	Core Course – IV (CC)	Immunology	19UBT4CC4	5	4	3	25	75	100	
		Core Practical – IV (CP)	Lab in Immunology	19UBT4CC4P	3	3	3	40	60	100
		Second Allied Course - II (AP)	Lab in Biochemistry	19UBT3AC2P	3	2	3	40	60	100
		Second Allied Course – III(AC)	Plant Anatomy and Physiology	19UBT4AC4	3	3	3	25	75	100
IV	Non Major Elective II-for those who studied Tamil under Part-I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto +2 but opt	Applied Biotechnology	19UBT4NME2	2	2	3	25	75	100	
		Basic Tamil	19ULC4BT2							
		Special Tamil	19ULC4ST2							

		for other languages in degree programme									
		Skill Based Elective -I	A) Information in Omics and Applications	19UBT4SBE1A	2	2	3	25	75	100	
			B) Bioinformatics	19UBT4SBE1B							
	V	Extra Credit Course	SWAYAM ONLINE COURSE	To be Fixed Later	-	-	As per UGC Recommendation				
	Total				30	22				800	
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)Basics of Nanotechnology	19UBT5SBE2B							
	Skill Based Elective – III	A)DNA Fingerprinting	19UBT5SBE3A	2	2	3	25	75	100		
		B)Nanotechnology in Healthcare	19UBT5SBE3B								
	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)Industrial Biotechnology	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	28				600
	Grand Total				180	140				4100	

CORE COURSE – V
PLANT BIOTECHNOLOGY
2019 -2020 Onwards

Semester - V	PLANT BIOTECHNOLOGY	Hours/Week - 5	
Core Course - V		Credits - 5	
Course Code – 19UBT5CC5		Internal 25	External 75

Objectives

- To know the basic principles and techniques involved in plant tissue culture.
- To study the importance of plant models.
- To acquire knowledge about the concepts of transformation in Plant Biotechnology.
- To understand the achievements of biotechnology in plant system.

Course Outcomes

CO Number	CO Statement	Knowledge Level
CO 1	Demonstrate the plant tissue culture, types and production of triploids.	K1
CO 2	Describe the plant nuclear, mitochondrial and chloroplast genome organization and genomic interactions.	K2
CO 3	Illustrate about the Genetic engineering of plants.	K2
CO 4	Outline the clear and concise idea about Plant products.	K3
CO 5	Obtain Knowledge in role of RFLP in plant breeding.	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 – V
PLANT BIOTECHNOLOGY
2019 -2020 Onwards

Unit – I Plant Tissue Culture

(16 Hours)

Establishment of plant tissue culture : Culture media (types of media), explant: selection and preparation, Types of culture (Callus, Suspension, Meristem, #Embryo, #Anther and Root). Regeneration of plants (Organogenesis and somatic embryogenesis), Somaclonal variations and applications. Production of triploids (Endosperm culture).

Unit – II Plant Genome Organization

(14 Hours)

Genome Organization (*Arabidopsis thaliana*): Nuclear Genome, Chloroplast and its Genome, Mitochondrion and its Genome, Cytoplasmic Male Sterility (CMS), Thermo sensitive genic Male sterility (TGMS), Genomic Interaction – Protoplast isolation, culture and fusion.

Unit – III Transgenic Plants

(15 Hours)

Genetic engineering and crop improvement – Transgenic plants: Biotic stress resistance (Insect, Virus, Bacteria). Abiotic stress resistance (Herbicide, Drought). Crop Improvement (FlavrSavr tomato, Golden Rice). Advantages and disadvantages of transgenic crops – Biosafety concerns and regulations of transgenic plants, Production of Organic food.

Unit–IV Biofertilizers and Molecular Pharming

(18 Hours)

Crop production : Production of biofertilizers (Azolla): Criteria for strain selection, steps for preparing biofertilizers (Seed pelleting, inoculant carriers, quality standards for inoculants), Green manuring.

Transgenic plants as Bioreactors: Medical Pharming – Therapeutic proteins (Serum albumin, Hirudin, Collagen and Somatotrophin), Plantibodies, Edible Vaccines (Potato, Banana, Tomato, Lettuce and Alfalfa). Non medical Pharming – Industrial Enzymes (Cellulase and α -amylase), Bioplastics.

Unit –V Role of Molecular techniques in Plant Breeding

(12 Hours)

Markers based on DNA Hybridization (RFLP) –Markers based on PCR amplification (RAPD, AFLP, STS, SNPs and Microsatellites). Genomic enabled breeding methods– Linkage analysis and Quantitative Trait Loci. Biosafety and bioethics in plant breeding.

Self Study

Text Books

S.No	Author	Title	Publisher	Year of Publication
1	KaporRenu, RanabhattHiru	Plant Biotechnology	Woodhead Publishing, India	2018
2	Neal Stewart Jr	Plant Biotechnology and Genetics : Principles,	John Wiley & Sons, Inc	2016

		techniques and applications		
3	Shaileash Kumar, Sweta Mishra, Mishra A.P.	Plant Tissue Culture: Theory and Techniques	Scientific Publisher	2016
4	Palmiro Paltronieri, Yiguo Hong	Applied Plant Genomics and Biotechnology	Woodhead Publishing, India	2015
5	Muhammad SK, Iqar AK, Debmalaya Barh	Applied Molecular Biotechnology. The Next Generation of Genetic Engineering.	CRC Press	2016

Reference Books

S.No	Author	Title	Publisher	Year of Publication
1	Bishun Deo Prasad, Sangita Sahini, Prashant Kumar, Mohammed Wasin Siddih	Plant Biotechnology Vol I : Principles, Techniques and Applications	Apple Academic Press	2018
2	Abdin MZ, Kiran U, Kamaluddin M, Ali A	Plant Biotechnology : Principles and Applications	Springer, Singapore	2017
3	Bahadur B, Rajam B, Sahijram MV, Krishnamoorthy KV	Plant Biology and Biotechnology	Springer, India	2015
4	Bob.B. Buchanan, Wilhelm and Cruissem and Russel L. Jones	Biochemistry and Molecular Biology of Plants	John Wiley & Sons, Ltd	2015
5	Hae Jong Koh and Michael Thomson	Current technologies in Plant Molecular Breeding	Springer	2016

Pedagogy

- Lecture (Chalk and Talk – OHP- LCD)
- Quiz, Seminar, Assignment, Group Discussion,
- Videos and Animations.

Weblinks

- <https://www.z-lib.org>
- <https://www.pdfdrive.org>
- <https://nptel.ac.in/courses/102/103/102103016/#watch>
- <https://www..dcu.ie>
- <https://www.edx.org>
- <https://unacademy.com>
- <https://www.sciencedirect.com>
- <https://khanacademy.org>

**CORE COURSE VI
ANIMAL BIOTECHNOLOGY
2019-2020 Onwards**

Semester - V	Animal Biotechnology	Hours/Week - 5	
Core Course - VI		Credits - 5	
Course Code - 19UBT5CC6		Internal 25	External 75

Objectives

- To understand the basic requirements and techniques about Animal Cell Culture.
- To provide the knowledge about the manipulation of Embryo.
- To provide basic concepts about Cloning.
- To provide an overview and current developments in different areas of animal biotechnology.

Course outcome

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

CO No	CO statement	Knowledge level
CO1	Explain the fundamental scientific principles that underlie cell culture and its importance.	K1
CO2	Acquire knowledge for isolation, maintain and growth of cells.	K2
CO3	Develop techniques for the production of Growth Hormones, monoclonal antibodies etc.	K3
CO4	Explain proficiency in establishing and maintaining of cell lines.	K3
CO5	Analyze principles and applications of animal cloning and gene therapy along with ethical concerns.	K1

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4
CO1	M	S	S	S
CO2	S	S	S	S
CO3	S	S	S	S
CO4	S	M	M	S
CO5	S	S	S	S

S-Strong, M-Medium, L-Low

**CORE COURSE VI
ANIMAL BIOTECHNOLOGY
2019-2020 Onwards**

UNIT I: Animal Cell Culture

(15 Hours)

Animal cell culture - Introduction and History. Lab Facilities – Infrastructure- Equipment – Culture Vessels. Media Composition – Types – Natural – Synthetic – Semisynthetic – Freezing Media. Reagents – Antibiotics – Trypsin – Indicators.

UNIT II: Types of Animal Cell Culture**(13 Hours)**

Types of Cultures – Primary – Secondary – Established Cultures. Culture – Finite – Continuous Culture -Histotypic – Organotypic. Biology of Cultured Cells – Cell Synchronization –Cell Viability– Cytotoxicity – Cryopreservation.

UNIT III: Gene transfer & Reproductive Cloning**(17 Hours)**

Gene transfer methods in Animals –Physical- Chemical - Biological methods. Biological vectors –Bacteria-Virus.Hybridoma technology.

Gametogenesis. Stages of embryonic development – Morula, Blastulation, Gastrulation and Organogenesis. Cryopreservation - Sperm - Ova - Embryo of livestock. Artificial Insemination - Super ovulation - In vitro Fertilization- Culture of Embryos - Embryo transfer- Embryo Splitting- Embryo Sexing.

UNIT VI: Trangenesis**(15 Hours)**

Animal Cloning - Basic Concepts. Cloning from Embryonic Cells - Adult cells. Cloning of different Animals - Transgenic Animals – Mice – Sheep - Fish. Products from Transgenic Animals – Insulin – Growth Hormones – Blood Clotting Factors. Merits - demerits.

UNIT V: Gene Therapy**(15 Hours)**

Gene Therapy - Types of Gene Therapy- Somatic – Germline Gene Therapy. Approaches – Ex vivo – In vivo Gene Therapy. Gene knock out technology. #Global Ethical Challenges in Animal Biotechnology.

Self Study #**Text Books**

S.No.	Author	Title	Publisher	Year of Publication
1.	Ashish Verma&Anchal Singh	Animal Biotechnology – Models in Discovery& Translation2 nd Edition	Elsevier, India	2020
2.	Birbal Singh Gorakh Mal Sanjeev K. Gautam Manishi Mukesh	Advances in Animal Biotechnology	Springer, Switzerland	2019
3.	Daniel Scherman	Advanced Textbook On Gene Transfer, Gene Therapy And Genetic Pharmacology: Principles, Delivery And Pharmacological And Biomedical Applications Of Nucleotide-based Therapies- 2nd Edition	World Scientific Europe Ltd	2019

4.	Niemann H and Christine Wrenzycki	Animal Biotechnology 1 – Reproductive Biotechnologies	Springer International Publishing AG, Switzerland	2018
5.	Inderbir Singh's	Human Embryology – 11 th Revised Edition	Jaybee Brothers Medical Publishers, India	2017
6.	B. Singh, & S.K. Gautam	Textbook of Animal Biotechnology	The Energy and Resources Institute, TERI	2013

Reference Books

S.No.	Author	Title	Publisher	Year of Publication
1.	U. satyanarayana, U. chakrapani	Biotechnology 12th Edition	Books, India	2019
2.	Uma Lakshmipathy & Bhaskar Thyagarajan	Primary And Stem Cells: Gene Transfer Technologies And Applications	Wiley, <u>New Jersey.</u>	2011
3.	Glick, B.R. and Pasternak, J.J.	Molecular biotechnology- Principles and applications of recombinant DNA	ASM press, Washington, USA	2009
4.	Watson, J.D., Myers, R.M., Caudy, A. and Witkowski, J.K.	Recombinant DNA genes and genomes- A short course	Freeman & Co., N.Y., USA	2007

Pedagogy: e-content, Lecture, Power Point Presentation, Seminar, Assignment, Quiz, Group Discussion, Video/Animation.

Web References:

- www.whatisbiotechnology.org
- <https://youtu.be/ON2e1VsBhJk>
- <https://youtu.be/UV7T9JsxdXA>
- https://youtu.be/UMdC6m_BxfM

CORE COURSE – VII (CC)
BIostatISTICS
2019-2020 Onwards

Semester - V	BIostatISTICS	Hours/Week – 5	
CORE COURSE – VII (CC)		Credits – 5	
Course Code –19UBT5CC7		Internal 25	External 75

Objectives

- To study the basic concepts of statistics and sampling design
- To equip analytical thinking to solve biological problems

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 biostatistics, functions and limitations	K3
CO2	Classify the data and sampling design	K3
CO3	Compute the measures of central tendency and measures of dispersion	K3
CO4	Apply the concepts of skewness, moments, kurtosis, correlation and regression to solve the problems.	K4
CO5	Examine the various testing of hypothesis and also analysis of variance based on one-way classification and two-way classification	K4

Mapping with Programme Outcomes

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

S-Strong, M-Medium, L-Low

BIostatISTICS
2019-2020 Onwards

UNIT- I

(15 Hours)

Introduction to biostatistics - definition, statistical methods, biological measurement, kind of biological data, functions of statistics and limitation of statistics - Collection of data, sampling and sampling design.

UNIT-II

(15 Hours)

Tabulation and Frequency distribution, types of representations graphic-bar diagrams, pie diagrams and curves

UNIT- III**(15 Hours)**

Measures of central tendency- Mean, Median, Mode, Geometric mean, Harmonic mean -
Measures of dispersion and variability changes- Mean deviation, standard deviation, coefficient of variation

UNIT-IV**(15 Hours)**

Analysis Skewness, Moments and Kurtosis - Meaning - test of skewness, characteristics of dispersion and skewness. Measures of skewness, objectives - Karl Pearson's coefficient of skewness, Bowley's Coefficient of skewness- Correlation and regression

UNIT-V**(15 Hours)**

Testing of hypothesis for small samples-Students' T -Test- Chi square test-F-test or Fisher's F test – Analysis of Variance: Introduction – The Technique of Analysis of Variance – One-way Classification – Two-way Classification.

Text Books:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	P.N. Arora & P.K. Malhan	Biostatistics	Himalaya Publishing house	2008
2	Suranjan Saha	Mathematics and Statistics	New Central Book Agency (P) LTD	2009

Reference Books:

S. No.	Authors Name	Title of the Book	Publishers Name	Year of Publication
1	R.S.N. Pillai & V.Bagavathi	Statistics Theory and Practice	S.Chand	2016
2	Bernard Rosner	Fundamentals of Biostatistics	Lengage learning	2006
3	Stephen Bernstein & Ruth Bernstein	Elements of Statistics	Tata McGraw – Hill Edition 2005	2005
4	Veer Bala Rastogi	Fundamentals of Biostatistics	Ane Books India	2006

5	Samuel Delvin	Biostatistics	Sarup & Sons	2007
6	John E. Freund	Mathematical Statistics	Pearson Education Asia	2002

Pedagogy

Power Point Presentation, Group Discussion, Seminar, Assignment

Web Links

https://www.youtube.com/watch?v=_e4mwlqCQrc

<https://www.youtube.com/watch?v=AdH5vfobH5E>

<https://www.youtube.com/watch?v=fNLeogEjMmM>

<https://www.youtube.com/watch?v=0zZYBALbZgg>

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 skilled in handling plant tissue culture experiments.
- ❖ To acquire hands-on training in maintaining aseptic conditions and formulation of specific media.
- ❖ To understand and learn the establishment of various animal cell and tissue culture experiments.

Course Outcomes

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

CO No.	CO Statement	Knowledge Level
CO1	Establish and maintain aseptic conditions and media formulation based on requirement.	K1
CO2	Demonstrate the method DNA isolation from various sources and identification in agarose gel electrophoresis.	K2
CO3	Handle and establish various explants and induce callus formation	K2
CO4	Isolate and culture protoplast from plant sources	K3
CO5	Understand 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	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 – V
LAB IN PLANT AND ANIMAL BIOTECHNOLOGY
2019-2020 ONWARDS

1. Introduction to safety and aseptic maintenance of plant tissue culture laboratory.
2. Formulation of basal media and preparation of stock solutions.
3. Selection and sterilization of explants and establishment of callus.
4. Isolation of Plant genomic DNA.
5. Isolation of *Rhizobium* species from root nodules of legumes.
6. *In vitro* propagation of apical meristem.
7. Cytological examination of regenerated plants.
8. Isolation of protoplast from spinach leaves by mechanical and enzymatic methods.
9. Protoplast fusion by using polyethylene glycol.
10. Isolation of VAM fungi from *Canna indica*.
11. Isolation of genomic DNA from animal liver tissue.
12. Identification of stages during chick embryo development.
13. Assessment of cell viability by cell counting in Haemocytometer.
14. Media preparation and Establishment of Primary and secondary animal cell culture* .
15. Cryopreservation and thawing of cells* .

* 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	R. Ian Freshney	Culture of Animal Cells: A Manual of Basic Technique and Specialized Applications, 7 th Edition	Wiley - Blackwell	2016
5	Cornelia Kasper, Verena Charwat and Antonina Lavrentieva	Cell Culture Technology	Springer	2018

**MAJOR BASED ELECTIVE – I
PHARMACOGNOSY
2019 -2020 ONWARDS**

Semester - V	PHARMACOGNOSY	Hours/Week - 5	
Major Based Elective – I		Credits - 5	
Course Code – 19UBT5MBE1A		Internal 25	External 75

Objectives:

- To know the fundamentals of Pharmacognosy like scope, classification of crude drugs, their identification and evaluation, phytochemicals present in them and their medicinal properties.
- To know the techniques in the cultivation and production of crude drugs
- To analyse the crude drugs, their uses and chemical nature
- To evaluate the techniques for the herbal drugs

Course Outcomes

CO Number	CO Statement	Knowledge Level
CO 1	.Understand the importance of drugs in the treatment of diseases	K1
CO 2	Demonstrate the. Physical, Chemical and sensory characters of crude drugs of plant and mineral origin	K2
CO 3	Outline the scope and importance of Ethnomedicine,	K2
CO 4	Design the Drug Preparation Methods from medicinal plants	K3
CO 5	Analyse the effects of drugs in allopathy with traditional systems of medicine	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	S	S	S

S- Strong, M- Medium, L-Low

**MAJOR BASED ELECTIVE – I
PHARMACOGNOSY
2019 -2020 ONWARDS**

Unit I: Introduction to Pharmacognosy

(15 hours)

Definition, #History and Scope of Pharmacognosy including indigenous system of medicine - Ayurveda, Siddha, Unani, Yoga, Homeopathy and Naturopathy. Various systems of classification of drugs and natural origin. Adulteration -Types of Adulteration: Intentional and Accidental adulteration. Drug evaluation -Organoleptic evaluation, Anatomical evaluation, Physical evaluation. Chemical evaluation,

Biological evaluation, and organoleptic evaluation: significance of pharmacopoeial standards.

Unit II: Classification & Sources of Drugs (15 hours)

Classification of Crude drugs - Unofficial and non-official drugs. Based on Morphology, Taxonomy, Therapeutic application and Chemical Constituents. Alphabetical Classification of Crude drugs, biological Classification of Crude drugs, chemical Classification of Crude drugs-, pharmacological Classification of Crude drugs-, taxonomical Classification of Crude drugs-, chemo taxonomical Classification of Crude drugs and Serotaxonomical Classification of Crude drugs.

Unit III: Production of Natural drugs (15 hours)

Brief outline of occurrence, distribution, outline of isolation, identification tests, therapeutic effects of alkaloids, terpenoids, glycosides, volatile oils, and tannins. Steps involved in Crude drug production- Cultivation, collection, Drying, Extraction, Isolation, Bioassaying, Quality control, and preparation of crude drugs of natural origin.

Unit IV: Modern pharmacognosy (15 hours)

The development of modern pharmacognosy in organic chemistry - structure prediction using analytic chemistry techniques, including paper, HPTLC and Gas chromatography Mass spectrophotometry for pharmacologically bio-synthesised substances from the plants - Strychnine, Quinine, caffeine, Nicotine and Vinca alkaloids-vincristine and vinblastine

Unit V: Application of Pharmacognosy (15 hours)

Pharmaceutical applications of secondary metabolites like Alkaloids: Vinca, Rauwolfia.. Flavonoids: Lignans, Tea. Triterpenoids: Dioscorea. Volatile oils: Mentha, Clove, Cinnamon, Coriander. Tannins: Catechu, Pterocarpus. Resins: Ginger, Asafoetida, Glycosides: Senna, Aloes, Bitter Almond.

Self Study #

Text Books:

S. No.	Author	Title	Publisher	Year of Publication
1	Shagufta Perveen	Pharmacognosy Medicinal plants	eBook (PDF) ISBN:978-1-83880-874-7	2019
2	Mohammed Ali	Text Book of Pharmaceutical Chemistry -I	CBS Publishers & Distributors	2019
3	P Suresh Narayana D.Varalakshmi T.Pullaiiah	Text Book of Pharmacognosy	CBS Publishers & Distributors	2016
4	Pathania JS	Text Book of Pharmacology for Paramedical students	CBS Publishers & Distributors	2020
5	Dr.Kuntal Das	Pharmacognosy AND Phytochemistry -II	Nirali Publishers	2019
6	Veronika Butterweck and Robert furst	Planta Medica Journal of Medicinal Plant and Natural Product	Thieme.de	2020

		Research		
7	Government of India	THE AYURVEDIC FORMULARY OF INDIA (PART - 1,2 AND 3)	Hand cover	2011

Reference Books:

S. No.	Author	Title	Publisher	Year of Publication
1	J. S. Qadry	Pharmacognosy	CBS Publishers& Distributors	2018
2	<u>Simone Badal</u> <u>McCreath</u> and <u>Rupika Delgoda</u>	Pharmacognosy: Fundamentals, Applications and Strategies	Academic Press	2016
3	M. A. Iyengar and S.G.K. Nayak	Pharmacognosy Lab Manual	Pharma Med press	2018
4	M.S. Krishnamurthy and JV Hebbar	Easy Ayurveda Home Remedies: Based On Authentic, Traditional Ayurveda Practice Paperback – 1 January	Hand Cover	2018
5	Dr.Kuntal Das	Pharmacognosy AND Phytochemistry -II	Nirali Publishers	2019

Pedagogy: e-content, Lecture, Powerpoint presentation, Seminar, Assignment, Quiz, Group Discussion, Video/Animation

Weblinks

<https://www.youtube.com/watch?v=MSabeRbl7fA>

https://www.youtube.com/watch?v=3_wo0H92sOU

<https://www.hrpatelpharmacy.co.in/pharmacognosy>

http://www.pharmacognosy.us/wp-content/uploads/ASPNL_53-1IX2017.pdf

MAJOR BASED ELECTIVE – I**CANCER BIOLOGY****2019 -2020 ONWARDS**

Semester - V	Cancer Biology	Hours/Week - 5	
Major Based Elective – I		Credits - 5	
Course Code – 19UBT5MBE1B		Internal 25	External 75

Objectives

- To identify criteria for various staging of cancer.
- To learn the risks of cancer treatment (experimental and non-experimental)
- To prevent the occurrence of cancer and to get awareness about prevalence of cancer
- To Analyze how the stage of cancer impact goals of treatment, prognosis and progression.

Course Outcomes

CO Number	CO Statement	Knowledge Level
CO 1	Demonstrate the types of carcinomas.	K1
CO 2	Infer recent incidents and mortality of Global Cancer	K2
CO 3	Outline the clear and concise idea about Lifestyle& Dietary factors causing cancer.	K2
CO 4	Apply concepts of prevention of cancer, cancer-related deaths and cancer-related disabilities	K3
CO 5	Analyse the molecular mechanisms of cancer establishment and its progression by the process of metastasis and angiogenesis	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	S	S	S

S- Strong, M- Medium, L-Low

**MAJOR BASED ELECTIVE – I
CANCER BIOLOGY
2019 -2020 ONWARDS**

Unit I- Introduction to Cancer

(15 hours)

Historical and Basic Aspects of Cancer. Hallmarks of cancer. Biological properties of normal and cancer cells. Cancer-Benign and Malignant neoplasms. Types of cancer- Carcinoma, Sarcoma, Leukemia, Lymphoma and myeloma Global Cancer incidents and mortality#. Epidemiology studies.

Unit II- Causative Agents of Cancer

(15 hours)

Biology - Genetic Factor, Viruses, Hormones. Lifestyle& Dietary factors-Tobacco, Alcohol and Cigarette. Environmental & occupational Exposure-Chemical carcinogens and Mutagens.

Unit III- Biology of Cancer Cells

(15 hours)

Cell Cycle Regulation in Cancer Cell. Cyclin Dependent Protein Kinase, CDK inhibitors. Apoptosis. Molecular Mechanism-Intrinsic and Extrinsic pathway. Oncogene and Tumor suppressor gene-p53. Metastasis and Angiogenesis.

Unit IV- Cancer Diagnosis

(15 hours)

Clinical Examination-Biopsy, Blood Test, Bone marrow Aspiration, Pap Test. Imaging-X-ray, CT-Scan, MRI Scan, Endoscopy and Mammography

Unit V-Prevention and Treatment

(15 hours)

Dietary Supplements-Retinoid, Carotenoids, Vitamin D, Soy Products, Lifestyle Practices-Yoga and Exercise. Treatment- Chemotherapy, Radiotherapy, Immunotherapy, Gene therapy, Stem Cell Therapy and Surgery

Self Study#

Text Books

S.No	Author name	Title of the book	Publishers name	Year of Publication
1	Gibbons J P	Khans the Physics of Radiation Therapy with Access Code 6ed (HB 2020)	LWW US Reprint	2020
2	Edward Chu , Vincent T. Devita Jr.	Physicians' Cancer Chemotherapy Drug Manual 2019	Jones and Bartlett Publishers, Inc; 19th edition	2018
3	Philip J. DiSaia MD William T. Creasman MD ,Robert S Mannel MD	Clinical Gynecologic Oncology	Elsevier; 9th edition	2017
4	Clifford L. K. Pang	Hyperthermia in Oncology, 1st Edition	CRC Press	2015
5	Robert E. Bristow, Beth Y. Karlan, Dennis S. Chi	Surgery for Ovarian Cancer, 3rd Edition	CRC Press	2015

Reference Books

S.No	Author name	Title of the book	Publishers name	Year of Publication
1	Paul Scotting	Cancer: A Beginner's Guide	Beginner's Guides	2017
2	Klein smith	Principles of Cancer Biology	UBS Publishers	2016
3	Martha Robles-Flores	Cancer Cell Signaling: Methods and Protocols (Methods in Molecular Biology (1165)	Humana; Softcover reprint of the original 2nd ed. 2014 edition	2016
4	<u>Sayan Paul</u>	The Bethesda Handbook of Clinical Oncology	Wolters Kluwer India Pvt. Ltd.	2020
5	Devita V. T.	Evita hellman and Rosenbergs cancer principles and Practice of oncology 11ED (HB 2019)	LWW; 11th edition	2019

Pedagogy: e-content, Lecture, Power point presentation, Seminar, Assignment, Quiz, Group Discussion, Video/Animation

Weblinks

<https://nptel.ac.in/courses/108/108/108108124/>

<https://www.youtube.com/watch?v=46Xh7OFkkCE>

https://www.youtube.com/watch?v=U5vAO_f2LDQ

<https://www.biologydiscussion.com/cancer/study-notes-on-cancer/27314>

SKILL BASED ELECTIVE – II A
MOLECULAR DIAGNOSTICS AND THERAPEUTICS
2019 – 2020 Onwards

Semester - V	MOLECULAR DIAGNOSTICS AND THERAPEUTICS	Hours/Week – 2	
Skill Based Elective - II		Credits – 2	
Course Code – 19UBT5SBE2A		Internal 25	External 75

Objectives

- To know the basic concepts underlying in the pathogenesis of human diseases.
- To study the different techniques involved in the diagnosis of diseases.
- To understand the principle of therapeutics for the betterment of healthcare

Course Outcome

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

CO No.	CO Statement	Knowledge Level
CO1	Define the principle behind various types of human diseases	K1
CO2	Outline the molecular markers and its sources	K2
CO3	Explain the molecular techniques involved in the disease diagnosis.	K2
CO4	Apply the approaches pertaining to the treatment of disease.	K3
CO5	Identify recombinant products that are made with the help of cell machinery.	K3

Mapping with Programme Outcomes

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

S-Strong, M-Medium, L-Low

SKILL BASED ELECTIVE – II A
MOLECULAR DIAGNOSTICS AND THERAPEUTICS
2019 – 2020 Onwards

Unit – I Overview of Human Diseases

(6 Hours)

Types of Human Diseases: Microbial infections – Bacterial (Cholera & Tuberculosis), Viral (Chicken Pox & HIV) & fungal (Ringworm & Athletes foot), Genetic disease (Sickle cell anemia), Physiological disease (Diabetes), Immune system malfunction & disease (SCID & Rheumatoid arthritis).

Unit – II Biomarkers**(6 Hours)**

Biomarkers – Definition & Types. Biomarkers in disease diagnosis - Sweat chloride in Cystic Fibrosis, Blood Sugar or HbA1c in Type 2 Diabetes. Serum Creatinine in Kidney Disease, Bilirubin & Alkaline phosphate in Liver Disease, Cardiac troponin in Myocardial infarction and Bronchoalveolar lavage fluid containing C-peptide & Cytokeratin in Pulmonary fibrosis.

Unit – III Techniques in Molecular diagnostics**(6 Hours)**

Techniques in Molecular diagnostics – Random Amplified Polymorphic DNA (RAPD), Restriction Fragment Length Polymorphism (RFLP), Simple Sequence Repeats (SSR), Fluorescence *In situ* Hybridization (FISH), DNA Microarray, Metagenomics, Amniocentesis.

Unit – IV Introduction to therapeutics**(6 Hours)**

Introduction to therapeutics, Pharmacodynamics, Pharmacokinetics, Development of drug resistance. Cell based & Recombinant DNA therapies – Gene therapy & Stem cell therapy.

Unit – V Recombinant Products**(6 Hours)**

Applications of Recombinant products – Insulin[#], DNA Polymerase, Tissue Plasminogen Activator, Interferons, Erythropoietin, DNase I.

Self Study**Text Books**

S. No	Author	Title	Publisher	Year of Publication
1.	Nader Rifai, Andrea Rita Horvath & Carl T. Wittwer	Tietz Fundamentals of Clinical Chemistry and Molecular Diagnostics	Elsevier	2019
2.	Barbara G Wells, Terry L Schwinghammer, Joseph T. DiPiro & Cecily V. DiPiro	Pharmacotherapy Handbook	Mc Graw Hill	2017
3.	William B. Coleman, Gregory J. Tsongalis	Diagnostic Molecular Pathology: A Guide to Applied Molecular Testing	Academic Press	2016
4.	Lela Buckingham	Molecular Diagnostics-Fundamentals, Methods, & Clinical Applications – Second Edition	E.A.Davis Company, Philadelphia	2012
5.	Roger Walker & Cate Whittlesea	Clinical Pharmacy and Therapeutics - Fifth Edition	Elsevier	2012

Reference Books

S. No	Author	Title	Publisher	Year of Publication
1.	R S Satoskar, Nirmala N. Rege, Raakhi K. Tripathi & Sandhya K. Kamat	Pharmacology and Pharmacotherapeutics, 26 th Edition	Elsevier	2020
2.	Arthur P. Bollon	Recombinant DNA Products: Insulin, Interferon and Growth hormone by	CRC Press	2018
3.	Chao-Min Cheng, Chen-Meng Kuan & Chien-Fu Chen	In-Vitro Diagnostic Devices: Introduction to Current Point-of-Care Diagnostic devices	Springer	2016
4.	Dr Jayanti Tokas	Immunology and Molecular Diagnostics	University Science Press	2015
5.	Harald Seitz, Sarah Schumacher	Molecular Diagnostics (Advances in Biochemical Engineering/ Biotechnology Book 133)	Springer	2013

Pedagogy: Lecture, Power point presentation, Seminar, Assignment, Quiz, Group Discussion, Video/Animation

Weblinks

<https://www.cdc.gov/labquality/molecular-methods.html>

<https://wyss.harvard.edu/keywords/Diagnostics/?section=technology>

<https://nptel.ac.in/content/storage2/courses/102103013/pdf/mod3.pdf>

SKILL BASED ELECTIVE – II B
BASICS OF NANO TECHNOLOGY
2019 – 2020 Onwards

Semester - V	BASICS OF NANOTECHNOLOGY	Hours/Week – 2	
Skill Based Elective - II		Credits – 2	
Course Code – 19UBT5SBE2B		Internal 25	External 75

Objectives

- To impart basic knowledge in Nano Science & Technology
- To illustrate the use of techniques for synthesis and characterization of nanomaterials.
- To give knowledge about the health risks of nanomaterials.

Course Outcomes

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

CO No.	CO Statement	Knowledge Level
CO1	Explain the basic concepts of nanotechnology, its fundamental principles & properties.	K1
CO2	Discuss various methods of nanomaterial synthesis.	K1
CO3	Exploit different techniques in the characterization of nanomaterials.	K2
CO4	Describe the concepts and fundamentals of nanostructures.	K2
CO5	Explicate the influence of physicochemical properties of nano materials on biological systems	K3

Mapping with Programme Outcomes

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

S-Strong, M-Medium, L-Low

SKILL BASED ELECTIVE – II B
BASICS OF NANO TECHNOLOGY
2019 – 2020 Onwards

UNIT I: Introduction to Nanotechnology

(6 Hours)

Nanotechnology: Introduction, History[#], Top down and bottom up approach for building nanomaterials. Classification of nanomaterials – Zero, one, two and three dimensional nanostructures. Properties of nanomaterials – Electronic, optical, magnetic and thermal properties.

UNIT II: Synthesis of nanomaterials

(6 Hours)

Synthesis of nanomaterials: Physical methods - mechanical grinding, milling & laser ablation. Chemical methods – Microemulsion methods, sol-gel processes & Co-precipitation, Biological methods using plants, microorganisms & biomolecules.

UNIT III: Characterization of nanomaterials**(6 Hours)**

Characterization of nanomaterials using UV, FTIR, Scanning Tunneling Microscopy, Atomic Force Microscopy, Zetasizer and Inductively Coupled Plasma Atomic Emission Spectroscopy.

UNIT IV: Nano Structures**(6 Hours)**

Carbon Nanostructures – Carbon nanotube, graphene & fullerenes. Nanopolymers – Chitosan nano particles. Nano conjugates - DNA & Protein based nanostructures. Nanocomposites – Cellulose based nanocomposites.

UNIT V: Nanotoxicology**(6 Hours)**

Basics of cellular & organ level toxicity. Effect of nano size, shape & composition on toxicity. Biodegradability & Biocompatibility. Case studies : Toxicity of Silver, Zinc oxide & gold nanoparticles.

Self Study**Text Books:**

S. No	Author	Title	Publisher	Year of Publication
1.	Asim K Das & Mahua Das	An Introduction To Nanomaterials And Nanoscience	CBS Publishers & Distributors Pvt Ltd.	2017
2.	T. Pradeep	NANO: The Essentials: Understanding Nanoscience and Nanotechnology	McGraw Hill Education	2017
3.	M.S. Ramachandra Rao & Shubra Singh	Nanoscience and Nanotechnology: Fundamentals to Frontiers	Wiley	2013
4.	B S Murty, P Shankar, Baldev Raj, B B Rath & James Murday	Textbook of Nanoscience and Nanotechnology	Universities Press - IIM	2012
5.	Paras N. Prasad	Introduction to Nanomedicine and Nanobioengineering	Wiley	2012

Reference Books:

S. No	Author	Title	Publisher	Year of Publication
1.	Hossein Hosseinkhani	Nanomaterials in Advanced Medicine	Wiley	2019
2.	Vineet Kumar, Nandita Dasgupta & Shivendu Ranjan	Nanotoxicology: Toxicity Evaluation, Risk Assessment and Management	CRC Press, Taylor & Francis Group	2018
3.	Zeynep Altintas	Biosensors and Nanotechnology: Applications in Health Care Diagnostics	Wiley	2017
4.	Thomas Varghese & K.M. Balakrishna	Nanotechnology: An Introduction to Synthesis, Properties and Applications of Nanomaterials	Atlantic Publishers & Distributors Pvt Ltd.	2011
5.	Chris Binns	Introduction to Nanoscience and Nanotechnology	Wiley	2010

Pedagogy: Lecture, Power point presentation, Seminar, Assignment, Quiz, Group Discussion, Video/Animation

REFERENCE WEBSITE(S)

1. www.nanohub.org/education/nanotechnology101
2. <https://www.nano.gov/>
3. www.utexas.edu/research/ceer/greenmaterial/lecture_notes.html

**SKILL BASED ELECTIVE – IIIA
DNA FINGERPRINTING
2019-2020 ONWARDS**

Semester - V	DNA FINGERPRINTING	Hours/Week - 2	
Skill Based Elective – IIIA		Credits - 2	
Course Code - 19UBT5SBE3A		Internal 25	External 75

Objectives

- To understand the basic concepts in DNA profiling
- To familiarise with analytical tools and sample preparation methods for DNA testing
- To apply the DNA fingerprinting technique to solve various research and real life problems

Course Outcomes

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

CO No.	CO Statement	Knowledge Level
CO1	Understand the basis of DNA fingerprinting	K1
CO2	Demonstrate the sample preparation and processing from various specimens	K2
CO3	Familiarise with the available analytical tools and techniques for DNA fingerprinting	K2
CO4	Analyse various case studies based on DNA fingerprinting	K3
CO5	Apply the knowledge in various problem solving aspects	K3

Mapping with Programme Outcomes

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

S-Strong, M-Medium, L-Low

**SKILL BASED ELECTIVE – III A
DNA Fingerprinting
2019-2020 ONWARDS**

Unit -I

Introduction to DNA fingerprinting

(4 Hours)

Introduction and history of DNA Fingerprinting –Discovery and advancements, Basis of molecular genetics – Organization of human genome, Pedigree analysis, DNA Polymorphisms.

Unit -II

Sample preparation for DNA fingerprinting

(8 Hours)

Sample preparation techniques – extraction of DNA sample from various sources, isolation and quantification of DNA, Purity analysis of DNA and sample processing. Primer designing and applications Application of PCR technology in Forensic DNA profiling Amplification of variable regions using PCR Agarose gel Electrophoresis for amplified products

Unit- III

Analytical tools

(6 Hours)

Analytical tools for studying DNA polymorphism –PCR amplifications; Single nucleotide polymorphism (SNuPs); Genetic linkage mapping; Physical mapping of the genome;

Unit -IV

Applications of DNA fingerprinting

(6 Hours)

Applications of DNA fingerprinting in genome research, medicine – diagnosis and drug development, forensic investigation – identification of suspects, kinship analysis, Agriculture – Plant varieties protection.

Unit- V

Case studies

(6 Hours)

Case study based on DNA fingerprinting[#]– Disputed property, paternity, criminal identification.

- Self study

Reference Books

S.No	Author	Title	Publisher	Year of Publication
1	Hirakranjan Dash, Pankaj Shrivastava, Braja Kishore Mohapatra and Surajit das	DNA Fingerprinting: Advancements and endeavours	Springer	2018
2	Bernard R. Glick and Cheryl L. Patten	Molecular Biotechnology: Principles and Applications of Recombinant DNA. 5 th Edition	ASM Press, Washington DC	2017
3	Nessacarey	Junk DNA: A Journey through the Dark Matter of the Genome	Columbia University Press	2017
4	Jo – Anne Bright and Michael Coble	Forensic DNA Profiling: A practical guide to assigning likelihood Ratios	CRC Press	2019
5	Pankaj Shrivastava, HirakRanjann Dash,	Forensic DNA typing: Principles, Applications and Advancements	Springer	2020

Text Books

S.No	Author	Title	Publisher	Year of Publication
1	Jeremy W. Dale and Malcom von Schantz	From genes to genomes: Concepts and applications of DNA technology	Wiley	2002
2	MunisDundar	Current Applications of Biotechnology	European Biotechnology Thematic Network Association	2015
3	T. A. Brown	Gene Cloning and DNA Analysis: An Introduction.7 th Edition	Wiley Blackwell	2016
4	Hoffman A	Wilson and Walkers Principles and Techniques of Biochemistry and Molecular Biology	Cambridge University Press	2018
5	Sue Carson Heather Miller Melissa Srougi D. Scott Witherow	Molecular Biology Techniques A Classroom Laboratory Manual, 4th Edition	Academic Press	2019

Pedagogy

Power point presentation, Group Discussion, Case study analysis, Seminar, Assignment, Animations and virtual lab.

Web Links

1. <https://www.genome.gov/genetics-glossary/DNA-Fingerprinting#:~:text=DNA%20fingerprinting%20is%20a%20laboratory,evidence%20came%20from%20that%20suspect.>
2. <https://nptel.ac.in/courses/102/103/102103017/>
3. <https://www.youtube.com/watch?v=AkBUriMK9u8>
4. <https://www.nature.com/scitable/topicpage/forensics-dna-fingerprinting-and-codis-736/>
5. <https://jolt.law.harvard.edu/assets/articlePDFs/v03/03HarvJLTech223.pdf>

**SKILL BASED ELECTIVE – III B
NANOTECHNOLOGY IN HEALTH CARE
2019 – 2020 Onwards**

Semester - V	NANOTECHNOLOGY IN HEALTH CARE	Hours/Week – 2	
Skill Based Elective - III		Credits – 2	
Course Code – 19UBT5SBE3B		Internal 25	External 75

Objectives

- To understand broad outline of Nanotechnology.
- To provide knowledge based on the various Applications of Nanotechnology.
- To provide an overview on the impact of nonmaterial's on environment.

Course Outcomes

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

CO No.	CO Statement	Knowledge Level
CO1	Infer Nano approaches of scientific inquiry and problem solving for various fields.	K2
CO2	Summarize the potential to reshape the world around us and to revolutionize in fields ranging from manufacturing to healthcare.	K2
CO3	Relate nanotechnology to make the world a better place by designing more sustainable energy.	K3
CO4	Illustrate state-of-the-art characterization methods for nonmaterial's and its various forms	K4
CO5	Evaluate current constraints, such as regulatory, ethical, political, social and economical, encountered when solving problems in living systems.	K5

Mapping with Programme Outcomes

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

S-Strong, M-Medium, L-Low

**SKILL BASED ELECTIVE – III B
NANOTECHNOLOGY IN HEALTH CARE
2019 – 2020 Onwards**

UNIT I: NANOTECHNOLOGY IN AGRICULTURE

Improvement of Productivity: Nano Fertilizer- slow release, controlled release. Carbon nanomaterials and crop growth: Graphene Nano Mesh production and characterization and toxicology.

UNIT II: NANOTECHNOLOGY IN FOOD SECTOR

Introduction-Food processing and Biofortification-Enhancement, Texture, Taste, Appearance and Nutritive Values. Enhanced Shelf-life, Food packaging-Active and Improved packaging.

UNIT III: NANOTECHNOLOGY IN DISEASE DIAGNOSIS

Diagnosis and Detection - Nano pores, Nano tube, Quantum dots, Nano wires, Nano gels, Nano Probes and Nano pyramids.

UNIT IV: NANOTECHNOLOGY IN THERAPY

Treatment-Nano shells, Nano bombs, Nanobots, Dentrimeres and Lipsomes.

UNIT V: ETHICS OF NANOTECHNOLOGY

Potential risk of Nanotechnology, * Guidelines and Regulation on Nanoparticles -Europe, USA and India (DBT).

#Self Study

Text Books

S.No.	Author	Title	Publisher	Year of Publication
1.	V.Ravishankar & Jumuna A Bai	Nanotechnology Applications in Food Industry	Taylor & Francis Group	2018
2.	Ali Demir Sezer	Applications of Nanotechnology in drug industry	InTech	2014
3.	Alexendra Elena Oprea & Alexendru Mihai Grumezescu	Nanotechnology applications in Food Industry	Academic Press	2017
4.	Devarajan Thangadurai, Jeyabalan Sangeetha and Ram Prasad	Nanotechnology for Food, Agriculture and Environment	Springer	2020
5.	Sunipa Roy, Chandan Kumar Ghosh and Chandan Kumar Sarkar	Nanotechnology synthesis to Applications	CRC Press	2018

Reference Books

S.No.	Author	Title	Publisher	Year of Publication
5.	Mark R. Wiesner and Jean-Yves Bottero	Environmental Nanotechnology Applications and Impacts of Nanomaterials	Mc Graw Hill	2007
6.	Faheem A. Sheikh	Application of Nanotechnology in Biomedical Sciences	Springer	2020
7.	Charles P. Poole and Frank J. Owens	Introduction to Nanotechnology	John Wiley & Sons	2003
8.	T.Pradeep	A Textbook of Nanoscience and Nanotechnology	Tata MsGraw Hill Education Private Limited	2012
9.	B. S. Murty, P. Shankar, Baldev Raj, B. B. Rath and James Murday	A Textbook of Nanoscience and Nanotechnology	Universities Press	2013

Pedagogy: e-content, Lecture, Power Point Presentation, Seminar, Assignment, Quiz, Group Discussion, Video/Animation.

Web References:

<https://nptel.ac.in/courses/118/104/118104008/>

<https://nptel.ac.in/courses/118/102/118102003/>

<https://nptel.ac.in/courses/113/106/113106093/>

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 04 /01/ 2021 at 2 pm through virtual mode.

<https://meet.google.com/rtb-pmak-kym>

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	Subject Expert, Indian Institute of Food Processing Technology.
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

AGENDA

1. ITEM NO.BOS/04/01

Approved to include Online course offered by SWAYAM as an extra credit course in Semester V of B.Sc., Nutrition and Dietetics(2019-2020 Batch and onwards).

2. ITEM NO.BOS/04/02

The Semester V syllabus of B.Sc., Nutrition & Dietetics was discussed and the following changes were recommended

- Core Course V – Diet Therapy I – In Unit III – Recommended to add special nutritional care and Dietary Management for pandemic fevers and also in unit V feeding difficulties for special children .

- Core Course VI – Dietary Food Service Management – In Unit III remove Waiter and Waitress service classification. Include diet distribution system in Unit III and in Unit V waste management system.
- Major Based Elective I.A in Food Standards and Quality Control in Unit III and as related experience recommended to include application of statistical design for sensory evaluation.
- Major Based Elective I.B –Techniques of Food Evaluation –Include basic instrumentation, techniques of extraction and specification of food standards.
- Skill Based Elective – II. A – Bakery & Confectionary give hands on training as a certificate course to get practical experience.
- Skill Based Elective – II. B – Computer Applications in Nutrition and Dietetics – Include Data Science in Public health and epidemiology in Unit V.
- Skilled Based Elective III .A – Food Preservation – In Unit IV ,Mention Classification of preservatives in detail
- Skill Based Elective III. B – Food Packaging – Encompass mini project or related experience on food product development and packaging.

3. ITEM NO.BOS/04/03

Approved to change the assessment criteria for Core Course VII-Principles of Home Science with Course Code 19PFS3CC7 in Semester III for M.Sc., Food Service Management and Dietetics (2019-2020 Batch and onwards) .

4. ITEM NO.BOS/04/04

Approved to include Online course offered by SWAYAM as an extra credit course in Semester II of B.Sc., Nutrition and Dietetics & M.Sc., Food Service Management and Dietetics (2020-2021 Batch and onwards).

5. ITEM NO.BOS/04/05

The following suggestions were given for Dietary Internship (Semester II) for M.Sc., Food Service

Management and Dietetics;

- To proceed with virtual mode
- Recommended to expand horizon to other states.

6. ITEM NO.BOS/04/06

The following suggestions were made for the conduct of Project work (Semester IV)for M.Sc., Food Service Management and Dietetics;

- Select topic according to pandemic situation.
- Data collection can be done through online mode.

ITEM NO.BOS/04/01

To include Online course offered by SWAYAM as an extra credit course in Semester V in the Programme Structure of B.Sc., Nutrition and Dietetics(2019-2020 Batch and onwards) and forward to the Academic Council,Cauvery College for Women (Autonomous),Trichy-18.

ITEM NO.BOS/04/02

To consider and approve the syllabus of Core Course, Core Practical, Major Based Elective I, Skill Based Elective II & IIIof B.Sc., Nutrition and Dietetics (2019-2020 Batch and onwards) for Semester V and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

ITEM NO.BOS/04/03

Ratification to change the assessment criteria for Core Course VII-Principles of Home Science with Course Code 19PFS3CC7 in Semester III for M.Sc., Food Service Management and Dietetics (2019-2020 Batch and onwards) and recommend to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

ITEM NO.BOS/04/04

To include Online course offered by SWAYAM as an extra credit course in Semester II in the Programme Structure of B.Sc., Nutrition and Dietetics & M.Sc., Food Service Management and Dietetics (2020-2021 Batch and onwards) and forward to the Academic Council, Cauvery College for Women (Autonomous), Trichy-18.

ITEM NO.BOS/04/05

To discuss and plan about Virtual Dietary Internship (Semester II) for M.Sc., Food Service Management and Dietetics.

ITEM NO.BOS/04/06

To discuss and plan about conduct of Project work (Semester IV)for M.Sc., Food Service Management and Dietetics.

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
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	19UND5SBE2A	2	2	3	25	75	100
			II.B. Computer Applications in Nutrition and Dietetics	19UND5SBE2B						
		Skill Based Elective – III	III.A. Food Preservation	19UND5SBE3A	2	2	3	25	75	100
			III.B. Food Packaging	19UND5SBE3B						
		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 - V	DIET THERAPY I	HOURS / WEEK - 5	
CORE COURSE – V		CREDIT - 5	
COURSE CODE – 19UND5CC5		INTERNAL 25	EXTERNAL75

Objectives

- To know the principles of diet therapy.
- To study the metabolic changes of disease conditions.
- To understand the modification of normal diet for therapeutic purpose.

Course Outcomes

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

Co Number	CO statement	Knowledge level
CO 1	Identify the role and responsibilities of dietitian	K1
CO 2	Explain the special feeding methods	K2
CO 3	Define the causes, symptoms and complications of diseases	K2
CO 4	Interpret causes and symptoms of diseases	K3
CO 5	Apply dietary principles in planning and preparing diet for various diseases and compute nutritive value	K3

Mapping with Programme Outcomes

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

S- Strong; M-Medium

UNIT I

(15 Hours)

a)Dietitian

- Definition and classification of dietitian
- Qualities and responsibilities of dietitian
- Role of dietitian in hospitals and community
- Professional ethics and code of conduct of dietitian

b)Diet therapy

- Definition, purposes of a therapeutic diet,
- Routine Hospital diets and progressive modifications - Clear fluid diet, Full fluid diet, Soft diet, regular normal diet, bland diet, pre-operative diet, post-operative diet.
- Specially modified therapeutic diets – High and low calorie, high and low protein, high and low residue diets, high and low fat diets, high and Low sodium diet, Restricted potassium diet and ketogenic diet.

UNIT II

(15 Hours)

a)Drug nutrient interaction

Modification of diet according to medical prescription – Diet effects on drug disposition, drug effects on nutrients and interaction of drugs.

b)Special feeding methods

Enteral Nutrition – Types of feeds, feeding requirements. Parenteral Nutrition – Formula , feeding requirements

UNIT III

(15 Hours)

a)Nutritionalcare for diseases of gastro intestinal tract

Peptic ulcer, Diarrhoea, Constipation, Haemorrhoids and Malabsorptionsyndrome –Meaning, aetiology, symptoms ,clinical findings and dietary modifications.

b)Nutritionalcare for febrile condition

Metabolic changes during fever and types of fever.

- **Fevers of short duration:** Typhoid, Influenza and Malaria - Meaning, metabolic changes, causes, clinical features and dietary management.
- **Fevers of long duration:** Tuberculosis – Causes, clinical features and dietary management.
- Dietary treatment and nutritional care for pandemic fevers.

UNIT IV**(15 Hours)****a) Nutritional care for diseases of biliary system**

Fatty liver, hepatitis, cirrhosis and Hepatic coma: Meaning, etiology, symptoms and clinical findings and dietary management.

Cholelithiasis and Cholecystitis: Meaning, etiology, symptoms and dietary management.

b) Nutritional care in obesity and underweight

Obesity and overweight: Definition, etiology, theories of obesity, types, metabolic changes, assessment, complications, prevention and dietary treatment , fad diets.

Under weight: Definition, etiology, prevention and dietary treatment.

UNIT V**(15 Hours)****a) Nutritional care for allergy**

Definition, food allergens, clinical manifestations, diagnosis of food allergy and dietary advice.

b) Nutritional care for the children with special needs

Down's syndrome, Cerebral Palsy, Autism, Attention Deficit Hyperactivity Disorder - Overview of the disability and nutritional care, feeding difficulties and special feeding equipment.

Text Books

S.No.	Author name	Year of Publication	Title of the book	Publisher name
1.	Antia F P	2005	Clinical Dietetics and Nutrition	Oxford University Press, New Delhi
2.	Srilakshmi B	2009	Dietetics	New Age International Publications, New Delhi
3.	Shubhangini A Joshi	2010	Nutrition and Dietetics	McGraw Hill Education Private Limited, New Delhi
4.	Joshi Y K	2003	Basis of Clinical Nutrition	Jaypee Brothers, Medical Publishers, New Delhi
5.	Mahan Kathleen.L	2004	Krause's Food, Nutrition and Diet Therapy	Pennsylvania; Saunders (2004)
6.	Raheena Begum M	2005	Textbook of Foods, Nutrition and Dietetics	Sterling Publishers, New Delhi

Reference Books

S.No.	Author name	Year of Publication	Title of the book	Publisher name
1.	Anjali Saxena	2007	Therapeutic Nutrition,	Aavishkar Publishers
2.	Bhardwaj and Kalpana	2006	Food and Nutrition,	Vista International Publishing house, New Delhi
3.	Indrani T K	2008	Nursing Manual of Nutrition and Therapeutic Diet	Jaypee Brothers medical publishers (P) Ltd.
4.	Maity S P	2016	Pharmacology for Second Professional Students	Books & Allied Pvt Ltd
5.	Mary Marian	2008	Clinical Nutrition for surgical patients	Jones and Barlett Publishers
6.	Sari Edelstein	2015	Life Cycle Nutrition – An Evidence based Approach	Jones and Barlett Publishers, London

Journals

- Canadian Journal of Dietetic Practice and Research, Dieticians Canada, Canada
- Journal of Human Nutrition and Dietetics, Wiley-Blackwell, England
- Journal of the Academy of Nutrition and Dietetics, Elsevier,
- Journal of Human Nutrition and Dietetics, Wiley online library, UK
- Nutrition and Health-SAGE Journals

Web links

<https://www.sciencedirect.com/topics/medicine-and-dentistry/full-liquid-diet>

<https://www.webmd.com/allergies/allergies-elimination-diet>

<https://www.iffgd.org/upper-gi-disorders.html>

<https://pinnt.com/Enteral-Nutrition.aspx>

<https://www.urmc.rochester.edu/childrens-hospital/nutrition/special-needs.aspx>

Pedagogy: Lecture, Seminar, Assignment, E-Content, PowerPoint presentation, Quiz.

Course Designers:

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

SEMESTER - V	DIETARY FOOD SERVICE MANAGEMENT	HOURS / WEEK - 5	
CORE COURSE – VI		CREDIT - 5	
COURSE CODE – 19UND5CC6		INTERNAL 25	EXTERNAL 75

Objectives

- To gain knowledge about various types of food service operations.
- To learn about the principles and functions of management.
- To understand the food laws governing food service establishments.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Identify different types of food service institutions	K1
CO2.	Describe steps involved in purchasing, receiving and storage	K2
CO3.	Explain effective use of leftover foods	K2
CO4.	Apply principles of management in managerial process	K3
CO5.	Classify components of hygiene and sanitation in food service institutions	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

UNIT I**(15 hours)**

a) Classification of food service institutions: Objectives and types - profit oriented, service oriented and publichealth facility oriented.

b) Menu Planning: Definition, functions and types of menu, Principles of menu planning, menu writing, designing and format, Standardization of recipes -Definition, standard recipe format and uses. Portion control and portioning equipment.

c) Equipment: Classification, selection, materials used for construction (bases and finishes), care and maintenance of equipment.

UNIT II**(15 hours)**

a)Purchasing: Food buyer, purchasing procedure, methods of purchasing, standard purchase specification.

b)Receiving: Receiving area - Location, space allocation, floor planning and layout, records maintained in storage area,process and methods.

c)Storage: Storage area - Location, Space allocation, planning and layout, general procedure for storage, store keeping records, maintenance of food quality in different type of storage.

UNITIII**(15 Hours)**

a)Food Production: Location, Space allocation, planning and layout,Pre preparation techniques, objectives and methods of cooking, effective use of leftover foods.

b) Food Service systems: Conventional system, commissary system ready prepared (cook –chill, cook –freeze) and fast food service systems.

c)Dietary Food Distribution and Service-Patient meal service (Tray assembly, Centralised, and Decentralised Assembly Systems), Tray delivery, Insulated tray, Hot and cold cart, Tray cart, Chill delivery system, Tray service. Non –patient meal services-Cafeteria services, Counter service.

d)Cooking fuel: Types, uses, merits, limitations, fuel economy.

UNIT IV**(15 hours)**

a)Introduction to Management: Definition, principles, functions and tools of management.

b)Human Resource Management: Man power planning –definition, steps and benefits. Sources of recruitment, selection process, induction, orientation. Training – Benefits and types. Performance appraisal process and methods.

c)Financial Management: Budget - Importance, types (Master, Cash, Operating and Capital budget), steps in budget planning. Components of costs, behaviour of costs, food cost control, methods of controlling food costs. Cost calculation - break even and contribution and standard dish costing. Book keeping, systems of book keeping, books of accounts

UNIT V**(15 Hours)**

a)Hygiene and Sanitation: Environmental hygiene and sanitation, hygiene in food handling, personnel hygiene.Food Waste management- Food waste disposers.

b)Safety: Accident from structural inadequacies, accidents from improper placement of equipment , accidents due to nature and behavior of people at work, accidents from improper selection, maintenance and storage of equipment. Safety- “3 Es of safety” (safety engineering, safety education, safety enforcement), legal responsibilities of a food service manager.

c)Laws Governing food service establishments: Labour laws governing working conditions, welfare, health and safety, harmonious working relations, payments. Food laws, Food standards in India, role of consumers in maintaining standards.

Text Books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Dr.Premavathy N	2008	Principles of Management (Business management)	Sri Vishnu Publications
2.	Anil Bhat	2016	Principles of Management	Oxford university press
3.	Sudhir Andrews	2009	Hotel front office A training Manual	Tata McGraw-Hill Publishing company Ltd
4.	SingaravelanR	2016	Food and beverage service	Oxford University Press

Reference Books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	MalhotraR.K	1998	Food Service and Catering Management	Anmol Publications Pvt.Ltd
2.	Dr.ChakravartiB.K	2011	Hotel and Hospitality management	A.P.H.Publishing Corporation
3.	Parvinder.S.Bali	2011	Quantity food production operations and Indian cuisine	Oxford University Press
4.	Raphael.R.Kavanaugh	1995	Hospitality Supervision	Educational Institute
5.	Ruby P .Puckett	2004	Food Service Manual for Health Care Institutions	Jossey-Bass

Journals

- Non-profit Management and Leadership, Wiley Periodicals, Inc, United States
- Journal of General Management, Mercury House Publications, United Kingdom

Web link

<https://djubo.com/blog/different-styles-service/>

<https://www.mgtssystem.com/tools>

<https://managementhelp.org/humanresources/index.htm>

Pedagogy: E-content, Lecture, Power point presentation, Seminar, Assignment, Industrial visit.

Course Designers

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

SEMESTER - V	DIETARY INTERNSHIP	HOURS / WEEK - 5	
CORE COURSE – VII		CREDIT - 5	
COURSE CODE – 19UND5CC7		INTERNAL 40	EXTERNAL 60

Objectives

- To study the importance and role of dietitian in hospitals.
- To gain knowledge in the formulation of therapeutic diet.
- To gain experience in diet counselling with different health conditions

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	State principles of diet therapy	K1
CO2.	Explain the disease conditions of the patients with the help of case sheet	K2
CO3.	Illustrate the nutritive value of therapeutic diets	K2
CO4.	Describe the different types of diet counseling tools	K2
CO5.	Prepare diet formula for different diseased conditions.	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

- The Practical work consists of internship in a multispecialty hospital for 10-15 days.
- Visits to different wards to observe patients requiring special diets.
- Experience in calculating and planning modified diets.
- Supervising and handling the food preparation and service in the dietary department of the hospital.
- Calculating the diet according to medical prescription.
- Accompanying the doctor while visiting the patient.
- Counsel the patient with different health condition.
- Case study- Selecting and observing 5 patients requiring a therapeutic diet in relation to Patient's dietary history - income, occupation, food habits and social factors.

Preparation of the report should include

- History of the hospital
- Facilities provided
- Organization structure
- Duties of the dietitian
- Layout of the dietary unit
- Dietary Department facilities
- Records
- Types of services
- Special dietary preparation
- Storage of food
- Handling of leftovers and shortages
- Sanitation and hygiene
- Case study

Text books

S.No.	Author name	Year of Publication	Title of the book	Publisher name
1.	Shubhangini A Joshi	2010	Nutrition and Dietetics	McGraw Hill Education Private Limited, New Delhi
2.	Anne Payne, Hellen Barker	2010	Advancing Dietetics and Clinical Nutrition	Churchill Livingstone Elsevier, UK
3.	Srilakshmi B	2015	Dietetics	New Age International Publications, New Delhi
4.	Gopalan C, Rama Sastri B V and Balasubramaniyan S C	2016	Nutritive value of Indian Foods	National Institute of Nutrition, Hyderabad
5.	Sharma A	2017	Principles of Therapeutic Nutrition and Dietetics	CBS Publishers & Distributors

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.	C.R. Pennington	2013	Therapeutic Nutrition – A Practical Guide	Springer, US

Pedagogy: Internship, E-content, Lecture, Seminar, Assignment, Demonstration

Course Designers

- Ms.M.Vinothini
- Ms.E.Agalya

SEMESTER - V	DIET THERAPY I - PRACTICAL	HOURS / WEEK - 4	
CORE PRACTICAL - V		CREDIT - 3	
COURSE CODE – 19UND5CC5P		INTERNAL 40	EXTERNAL 60

Objectives

- To understand the modification of normal diet for therapeutic purpose.
- To calculate nutritive value based on therapeutic modification.
- To acquire the skills of preparing diet for various disease conditions.

Course Outcomes

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

Co Number	CO statement	Knowledge level
CO 1	Define therapeutic diet and state characteristics of routine hospital diets such as clear liquid diet, full liquid diet and soft diet and compute nutritive value	K1
CO 2	Describe the process of planning and preparing diet for gastro intestinal tract diseases such as peptic ulcer, diarrhoea and constipation and compute nutritive value	K2
CO 3	Interpret the process of planning and preparing diet for febrile conditions like typhoid and tuberculosis and compute nutritive value	K2
CO 4	Describe the process of planning and preparing diet for obesity and underweight and compute nutritive value.	K2
CO 5	Prepare diet for liver diseases such as hepatitis and cirrhosis by applying principles of menu planning	K3

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1.	S	S	M	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 and Preparation of Therapeutic diets –
 - Clear liquid diet
 - Full liquid diet
 - Soft diet

- Planning , Preparation of diet and diet counseling for
 - Peptic ulcer, Diarrhoea, Constipation
 - Fevers - Typhoid and Tuberculosis ; Pandemic Fevers
 - Obesity and Under weight
 - Hepatitis and Cirrhosis

Text books

S.No.	Author name	Year of Publication	Title of the book	Publisher name
1.	V.Vimala	2009	Advances in Diet Therapy: A Practical Manual	New Age International Pvt Ltd, New Delhi
2.	Shubhangini A Joshi	2010	Nutrition and Dietetics	McGraw Hill Education Private Limited, New Delhi
3.	Staci Nix	2013	William's Basic Nutrition and Diet Therapy	Elsevier, Missouri
4.	Gopalan C, Rama Sastri B V and Balasubramaniyan 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-Module.

Course Designers:

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

SEMESTER - V	I.A.FOOD STANDARDS AND QUALITY CONTROL	HOURS / WEEK - 5	
MAJOR BASED ELECTIVE - I		CREDIT - 5	
COURSE CODE – 19UND5MBE1A		INTERNAL	EXTERNAL
		25	75

Objectives

- To gain knowledge about standards of food quality.
- To Know the techniques of evaluation of food quality.
- To understand about common food adulterants and toxins.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Define food safety and food regulations in India and cite examples for quality checking of raw food materials	K1
CO2.	Describe specification for different food products and give examples for food additives	K2
CO3.	Explain and demonstrate the method of sensory and objective evaluation for assessing food quality indices	K2
CO4.	Interpret the possible food toxins and microbes for quality deterioration of food	K2
CO5.	Apply and compute quality management systems to food processing unit	K3

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1.	S	M	S	S	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

UNIT I

FOOD SAFETY AND QUALITY- AN INTRODUCTION

(15 Hours)

Introduction to Food Safety, History of food regulations in India, Quality features of foods, quality checking of raw material and processed foods, Food quality indices – cereals, pulses, nuts and oil seeds, vegetables, fruits, milk and milk products, non – vegetarian foods, oils, spices and condiments, processed foods – canned foods, baked products and preserved foods.

UNIT II

(15 Hours)

QUALITY CONTROL MEASURES

a) Advantages of quality control and stages of quality control.

b) Food specifications: objectives and advantages, Food specifications for various food products – starchy foods, milk and milk products, fruit products, beverages, spices and condiments, oils and fats.

c) Food Additives and their specifications: - Classification of food additives, usages and optimal level recommended for usage as specification – Food colors, Flavoring agents, leavening agents, preservatives, Acidity regulators, Anticaking agent, Antifoaming agent, Bulking agent, Foaming agent, Artificial sweeteners, Emulsifier and Stabilizers.

UNIT III

(15 Hours)

QUALITY EVALUATION OF FOOD

a) Subjective evaluation: Sensory characters of food, organs involved in assessment – physiological process, types of sensory tests - **Scoring Tests, Paired Comparison Tests 1, Paired Comparison Tests 2, Triangle Test, Duo Trio Test, Ranking test**, requirements to conduct sensory evaluation, Role and defects in sensory evaluation – panel member, essential qualities of a panel member, procedure of sensory evaluation, popular centers for sensory evaluation in India and their role.

b) Objective evaluation: objectives, requirements, different tests and instruments used for objective evaluation: sugar content - Refractometer, acidity - Ph meter, viscosity - Rheometer, moisture - Moisture balance, colour - Colorimetry, Texture – Penetrometer, advantages and limitations.

c) Score card: Hedonic Rating Scale, Importance of score card and Points to be remembered while preparing score card and Sample Construction of score card.

UNIT IV**(15 Hours)****FOOD CONTAMINANTS AND ADULTERANTS**

a) Food Toxins: Mycotoxins – aflatoxins, aspergillus and penicillium species, mushroom poisoning, sea food toxins. Other toxins naturally occurring in foods: Lathyragens, haemagglutinins, goitrogens.

b) Toxic minerals and other inorganic compounds in food and water; selenium, fluorine, nitrates and nitrites, oxalates and phytates.

c) Food adulteration: Definition, Common food adulterants; tests for detecting food adulterants, contamination with toxic metals, pesticides and insecticides; effects of food adulteration and contamination, measures to control food adulteration.

UNIT V**(15 Hours)****FOOD STANDARDS AND FOOD LAWS**

- Voluntary standards and Certification system – BIS and AGMARK
- International Food Standards - Codex Alimentarius Commission (IFS)
- Food Safety and Standards Authority of India (FSSAI)
- Hazard Analysis Critical Control Point (HACCP)
- Good Manufacturing Practice (GMP)
- Food and Drug Administration (FDA)

RELATED EXPERIENCE

- Detect food adulterants by simple tests
- Application of Statistical techniques in sensory evaluation

Text books

S.No.	Author name	Year of Publication	Title of the book	Publishers name
1.	Dr.A.N.Jha	2009	Environmental Regulation and Food Safety	ALP Books, New Delhi
2.	Swaminathan, M	2014	Essentials of Food and Nutrition	BAPCO, Bangalore
3.	Swaminathan, M	2018	Hand Book of Food Science and Experimental Foods	BAPCO, Bangalore

Reference books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Neal D. Fortin	2016	Food Regulation Law, Science, Policy, and Practice	Wiley
2.	Hui, Y.H	2003	Food Plant Sanitation,	Marcel Dekker, Inc.
3.	Potter N, and Hotchkiss J.H	2008	Food Science	CBS Publications and Distributors, Daryaganji, NewDelhi
4.	Srilakshmi B	2016	Food Science	New Age International Publishers, NewDelhi

Journals

- Food Analytical Methods, Springer, United States
- Food and Drug Law Journal, Food Drug Law Inst, United States

Web Links

<https://www.ams.usda.gov/selling-food/product-specs>

https://link.springer.com/chapter/10.1007/978-1-4615-6998-5_39

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

Course designers:

- Ms.S.Fathima
- Ms.T.R.Revathi

SEMESTER - V	I.B. TECHNIQUES OF FOOD EVALUATION	HOURS / WEEK - 5	
MAJOR BASED ELECTIVE – I		CREDIT - 5	
COURSE CODE – 19UND5MBE1B		INTERNAL 25	EXTERNAL 75

Objectives

- To gain knowledge on food quality evaluation.
- To study the various types of sensory tests.
- To understand the importance of objective evaluation of food quality.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Identify the importance of evaluating the food quality	K1
CO2.	Describe the sensory characteristics of food	K2
CO3.	Illustrate the techniques of objective evaluation	K2
CO4.	Interpret the various food analysis techniques	K3
CO5.	Predict the microbiological examinations of foods	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	M	M	M	M
CO4.	S	M	M	M	M
CO5.	S	S	S	M	M

S- Strong; M-Medium

Syllabus

UNIT I

(15 hours)

Introduction to Food Evaluation and Food Samples

Definition, objectives, importance of evaluating the food quality, Reasons for testing quality, Methods of food Evaluation. Factors affecting food evaluation

Types of Sampling, requirements, Collection of food samples, Preparation, Sampling procedure for various food items, Sampling techniques or methods, problems in sampling.

UNIT II

(15 hours)

Sensory Evaluation

- a. Sensory characteristics of food – Appearance, colour, flavour, texture and psychological factors.
- b. Role and defects in sensory evaluation – panel member, essential qualities of a panel member, procedure of sensory evaluation, popular centers for sensory evaluation in India and their role.

Sensory tests

- a. Types of test - Different test, Rating tests, Sensitivity tests and Descriptive test. Conducting Sensory test - Training panel members, testing laboratory, preparation of samples, testing time, design of experiment.
- b. Score card - Hedonic Rating Scale, Importance of score card and Points to be remembered while preparing score card and Sample Construction of score card.

UNIT III

(15 hours)

Objective Evaluation

- a. Basic guidelines, Tests used for Objective evaluation – Chemical methods, Physico – chemical methods, Microscopic examination and Physical methods
- b. Objective evaluation: objectives, requirements, different tests and instruments used for objective evaluation: sugar content - Refractometer, acidity - Ph meter, viscosity - Rheometer, moisture - Moisture balance, colour - Colorimetry, Texture – Penetrometer, advantages and limitations of objective evaluation.

UNIT IV

(15 hours)

Analysis of Food

- a. Moisture analysis -Oven drying method, distillation method, Karl-Fischer Titration method, San – Pan Technique. Ash analysis- Dry, wet, Low temperature, plasma ashing, soluble and insoluble in water
- b. Carbohydrate analysis –Starch analysis, Fibre analysis – Crude fibre analysis, dietary fibre analysis by AOAC method
- c. Protein analysis –Kjeldahl method, Biuret method, Lowry method, BCA method, Barford's method, Ninhydrin method, Amino acid analysis
- d. Fat analysis – Continuous solvent extraction, non solvent wet extraction method.

UNIT V

(15 hours)

Evaluation of Microbial quality of foods and Basic Food Analytical Techniques

- a. Methods of Analysis – Dilution, Pour Plating , Microbiological examination of different foods– Monoclonal Anti bodi Test, Biosensor, Polymerase Chain Reaction (PCR) method, Hybridization

Assays, DNA Probes, Types of contaminating organisms, sampling and microbiological limits.

b. Methods of Shelf life Analysis – Methods used to predict the microbial quality.

c. Analytical and Testing Instruments for Food – Basic principles and Function – Calorimetry, pH meter, lactometer, spectrometers, chromatographs (e.g. GC and HPLC), titrators, spectrometers, particle size analyzers, rheometers, elemental analyzers, thermal analyzers,

Text books

S.No.	Author name	Year of Publication	Title of the book	Publishers name
1.	Andrew L.Winton Kate Barber Winton	2001	Techniques in Food Analysis	Agrobios. India
2.	Harry T.Lawless	2010	Sensory Evaluation of Food Principles and Practices	Springer Science
3.	S.M Reddy	2015	Basic Food Science and Technology	New Age International (P) Ltd, Chennai
4.	B.Srilakshmi	2016	Food Science	New Age International (P) Ltd, Delhi

Reference books

S.No.	Author name	Year of Publication	Title of the book	Publishers name
1.	Adrian Jones	2012	Shelf life Evaluation of foods	Springer science and Business Media
2.	Semih Otles	2011	Methods in Analysis of food Components and Additives	CRC Press
3.	Yolanda Pico'	2012	. Chemical Analysis of Food: Techniques and Applications	Acedemic Press
4.	S.Suzanne Nielsen	2010	Food Analysis	Springer New York Dordrecht Heidelberg London
5.	Rui M.S. Cruz et.al.,	2014	Methods in Food Analysis	CRC Press

Journals

Journal of Food Science, Wiley-Blackwell, United States

Journal of Food and Nutrition Research, Vup Food Research Inst, Bratislava, Slovakia

Web links

http://samples.jbpub.com/9781449694777/9781449603441_CH03.pdf

<https://www.researchgate.net/publication/8182058> Microbiological quality of food samples from restaurants and sweet shops in developing countries A case study from the Occupied Palestinian Territory

<https://www.researchgate.net/publication/37889931> Manuals of Food Quality Control Microbiological Analysis

[https://delishably.com/food-industry/Three-Common-Methods-for-Microbiological-Testing-of-Food-](https://delishably.com/food-industry/Three-Common-Methods-for-Microbiological-Testing-of-Food-Products#:~:text=Different%20methods%20are%20involved%20in,used%20to%20differentiate%20various%20organisms.)

[Products#:~:text=Different%20methods%20are%20involved%20in,used%20to%20differentiate%20various%20organisms.](http://www.old.fssai.gov.in/Portals/0/Pdf/15Manuals/MICROBIOLOGY%20MANUAL.pdf)

<http://www.old.fssai.gov.in/Portals/0/Pdf/15Manuals/MICROBIOLOGY%20MANUAL.pdf>

Pedagogy: E-content, Lecture, Power point presentation, Seminar, Assignment

Course designers

- Ms.S.Agalya
- Ms.T.R.Revathi

SEMESTER - V	II.A.BAKERY AND CONFECTIONARY	HOURS / WEEK - 2	
SKILL BASED ELECTIVE - II		CREDIT - 2	
COURSE CODE – 19UND5SBE2A		INTERNAL 25	EXTERNAL 75

Objectives

- To enable the students to obtain basic knowledge in bakery and confectionary.
- To develop skills to evaluate quality of bakery products.
- To learn preparation techniques of baked products.

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 requirements	K2
CO3.	Illustrate different types of cake and evaluate its quality	K2
CO4.	Formulate cookies and biscuits	K2
CO5.	Prepare different confectionary products	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

UNIT I

(6 Hours)

Introduction to Bakery and Confectionary: Scope of bakery industry, units of measurements, bakery terms, role of equipment in bakery units, baking temperatures for various baked items . Concept of hygiene and its importance in bakery, personal hygiene, work area hygiene ,safety and precautionary measures.

UNIT II

(6 Hours)

a)Role of major ingredients in baking (Essential): Flour, salt, yeast, sugar, eggs, water, fats.

b)Role of minor ingredients in baking (Optional)- milk and milk products, nuts, chemicals, colours, cocoa powder, corn flour, custard powder, flavours, setting materials, fresh fruits & dry fruits, spices, mixed fruit jam.

c)Role of ingredients in Confectionary – Sugar, types of sugar, Alternative sugars, Gelling & Whipping agents, Confectionary fats, food colours and flavour.

UNIT III

(6 Hours)

a)Cakes: Ingredients of cakes and principles involved in preparation of cakes, types of Cake, Characteristic of cake or scoring of cake.

b)Bread: Methods of Bread Making - Straight dough method, Sponge and dough method, Sour dough method.Characteristics of Good Bread-External: Volume, symmetry, shape, colour. Internal: Texture, aroma, clarity, elasticity.

UNIT IV

(6 Hours)

a) Cookies and Biscuits: Ingredients of cookies, principles involved in cookies preparation, methods for mixing cookies, Types of cookies, Ingredients of biscuits, principles involved in biscuits preparation, methods for mixing biscuits, Types of biscuits.

b) Pastry – Short cut pastry, Puff pastry, flaky pastry, filo pastry, choux pastry, Danish pastry. Tart, Pie.

UNIT V

(6 Hours)

a) Bakery Confectionary:Icing/frosting – Butter Cream, fondant icing, water icing, Glace icing, Decoration of Cakes.

b)Sugar Confectionary: Candy, candied fruits and nuts, chewing gum, fondant, fudge, chocolates, caramels, hard toffee (Butterscotch).

Related Experience

- Demonstration on preparation of Bakery Products
- Demonstration on preparation of Confectionery Products

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	o Publishers, New Delhi
5.	YogambalAshok kumar	2012	Text book of Bakery and Confectionary	Learning

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-bf11-1c49812cd4f3/Draft_Special_Bakery_Units_Manual_English_08_11_2017.pdf

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

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 – 19UND5SBE2B		INTERNAL 25	EXTERNAL 75

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

Unit I

(6 hours)

Basics in computer

Basic applications of computer, classifications of computers, components of computer system, Input /output devices, computer memory, concepts of hardware and software.

Unit II

(6 hours)

MS - Word

Word processing basic, text, table and graph creation and manipulation. Formatting the text and table, handling multiple documents, project documentation.

Unit III

(6 hours)

MS - Excel

Spread sheet creation and manipulation of cells, spread sheets for small accounting billing, calculation of food cost, nutritive value, inventory of storage unit, linen room. Maintaining invoices / budgets, maintaining daily and monthly sales, reports, income, expenditure account and statistical analysis

Unit IV

(6 hours)

MS - Power point

Power point presentations, Creation of presentation, providing aesthetics, slide manipulation and slide show, animations, presentation of the slides, basics of multimedia for menu card and display of menu.

Unit V

(6 hours)

Role of computer in nutrition and dietetics

Computer Communication and Basics of computer networks, LAN, WAN and internet, mails, software packages, maintaining customer data base, reservations, sales promotion through internet. Computer in management of nutrition care practice-Communication in patient care, nutritional service, diet counselling and nutrition education. Nutrition on web. Development of e-content.

Application of data science in public health epidemiology

Related Experiences:

- Typing a text and alignment with different format using MS-word.
- Inserting a table with proper alignment using MS- word.
- Preparing a slide show with transition, animation and sound effect using MS-Power point.

- Customizing the slide show and inserting pictures and tables in the slides using MS-Power point
- Creating a worksheet using MS-Excel with data.
- Preparing a chart and pie diagrams using MS-Excel
- Using internet for searching, uploading files, downloading files.
- Development of E-content using animation

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

Journals

- Journal of Nutrition and Dietetics, OMICS International Publishers, United Kingdom
- The Computer Journal, Oxford University Press, United Kingdom

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

Pedagogy :Demonstration, lecture cum discussion, E-content, Practical Demonstrations.

Course Designers

- Ms.S.Agalya
- Ms.E.Agalya

SEMESTER - V	III.A.FOOD PRESERVATION	HOURS / WEEK - 2	
SKILL BASED ELECTIVE - III		CREDIT - 2	
COURSE CODE – 19UND5SBE3A		INTERNAL 25	EXTERNAL 75

Objectives

- To understand importance of food preservation.
- To gain knowledge on usage of materials for food packaging.
- To know the role of chemical preservatives in food preservation.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Define basic principles of food preservation	K1
CO2.	Explain preservation techniques using sugar and salt	K2
CO3.	Utilize temperature based preservation techniques	K2
CO4.	Apply drying, dehydration and radiation in food preservation	K2
CO5.	Predict use of chemicals in food preservation	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

(6 Hours)

a)Basic principles of food preservation-Meaning, objectives and basic principles of food preservation (Asepsis, Removal, anaerobic conditions).

b)Food spoilage-Definition, Causes, Types (Physical, Enzymatic and Microbial – Moulds, Yeast and Bacteria), prevention.

UNIT II

(6 Hours)

a)Preservation by addition of sugar - Procedure of Jams, jellies and fruit preserves, common defects and their causes.

b)Preservation by addition of salt- Pickling, Curing of meat.

UNIT III

(6 Hours)

a)Food preservation using high temperature- Principle, canning process, spoilage encountered and aseptic canning.

b)Food Preservation using low temperature-Principle, Refrigeration and Freezing – Principle, methods, advantages and disadvantages.

UNIT IV

(6 Hours)

a)Food preservation using drying and dehydration- Principle, advantages, mechanical devices and methods employed for drying and dehydration, Pre-treatment of foods, factors affecting drying and dehydration.

b)Food preservation using radiation- Principle, advantages, radiation types, uses and safety limits.

UNIT V

(6 Hours)

a)Food preservation using Chemicals-Types of Chemical preservatives- Class I - Sugar, Salt, Vinegar, Spices, Smoke and Oil, Class II – Benzoic acid, Sulphurous acid, Nitrates and Nitrites of potassium and sodium, Propionic acid and Sorbic acid, advantages and disadvantages, permissible limits.

b)Packaging in food preservation-Definition, functions of packaging, Types of packaging, packaging materials, Modified Atmosphere Packaging, Trends in packaging.

Text Books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	SivasankarB	2007	Food Processing and Preservation	Phi Learning, New Delhi
2.	Devaraj, Rakesh Sharma & V.K.Joshi	2011	Quality Control for Value Addition in Food Processing	New India Publishing agency, New Delhi
3.	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

Journals

- Food Processing and Preservation, Wiley Periodicals Inc, United States.
- Journal of Food Processing and Preservation, United States Department of Agriculture, United States.
- Journal of Food Technology and preservation, Allied academics, United Kingdom.
- International Journal of food and fermentation technology , New Delhi Publishers ,India.
- International Journal of food and fermentation technology,New Delhi Publishers ,India.

Web links

<http://mofpi.nic.in/>

<https://reporter.mcgill.ca/>

<http://www.iitmandi.ac.in/istp/projects/2014/reports/Group%2007%20Food%20Preservation.pdf>

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

Course designers

- Ms. S. Fathima
- Ms. S.Agalya

SEMESTER - V	III.B.FOOD PACKAGING	HOURS / WEEK – 2	
SKILL BASED ELECTIVE– III		CREDIT – 2	
COURSE CODE – 19UND5SBE3B		INTERNAL 25	EXTERNAL 75

Objectives

- To obtain knowledge on the scientific and technical aspects of food packaging.
- To study the different methods of food packaging.
- To know about the food packaging machine.

Course outcomes

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

CO Number	CO Statement	Knowledge Level
CO1.	Define food packaging and functions of food packaging	K1
CO2.	Explain the materials used for food packaging	K2
CO3.	Illustrate the package design	K2
CO4.	Describe the packaging testing procedures	K2
CO5.	Predict the role of machinery and systems 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

Syllabus

UNIT I (6 Hours)

Introduction to Food Packaging

Definition, need of food packaging, role of food packaging in extending shelf life of foods, principles in the development of safe and protective packing, functions of food packaging.

UNIT II (6 Hours)

Materials used for Food Packaging

Types of packaging materials their characteristics and uses - paper, plastics, biodegradable material, metal, glass.

UNIT III (6 Hours)

Package Design

Package design for perishable, semi – perishable, non – perishable, frozen foods, fats and oils, processed foods and beverages.

UNIT IV (6 Hours)

Testing and Regulatory aspects of food packaging

Testing procedures for packaging material and packaged foods. Food Packaging Law and Regulations.

UNIT V (6 Hours)

Food Packaging Machines and handling

Packaging technology – Active packaging, modified atmospheric packaging, aseptic packaging. Packaging equipment and machinery- Vacuum packaging machine, gas packaging machine, seal and shrink packaging machine, bottling Machines, form and fill sealing machines, carton making machines, package printing machine.

Related Experience

Mini Project – Food Product Development and Packaging

Text books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Paine FA	1992	A Handbook of Food Packaging	Springer, New Delhi
2.	Anne Emblem and Henry Emblem	2012	Packaging Technology- Fundamentals, Materials, Processes	Wood Head Publishing, UK
3.	Anuradha Roy	2010	Food Processing	Yking Books, Jaipur

Reference books

S.No.	Author name	Year of publication	Title of the book	Publishers name
1.	Coles R	2003	Food Packaging Technology	Blackwell Publishing, Australia
2.	Luciano Piergiovanni	2016	Food Packaging Materials	Springer International Publishing, New York

Journals

- International Journal of Food Science and Technology, Wiley Black Well, England
- Food Packaging and Shelf Life, Elsevier, Netherland

Web links

https://en.wikipedia.org/wiki/Food_packaging

<http://www.ift.org/knowledge-center/read-ift-publications/science-reports/scientific-status-summaries/food-packaging.aspx>

<https://www.foodpackagingforum.org/food-packaging-health/regulation-on-food-packaging/food-packaging-regulation-in-the-us>

Pedagogy: E-content, Lecture, Power point presentation, Seminar, Assignment, Industrial visit

Course Designer

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

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
PROGRAMME STRUCTURE -B.Sc., NUTRITION AND DIETETICS
UNDER CHOICE BASED CREDIT SYSTEM
(For the candidates admitted from the academic year 2020-2021)

II	I	Language Course – II (LC) – Tamil/Other Languages	Idaikala ilakkiyamum pudhinamum	19ULT2	6	3	3	25	75	100		
			Prose, Drama, Hindi Literature-2 & Grammar-II	19ULH2								
			Poetry Textual Grammar and Alakara	19ULS2								
			Communication in French-II	19ULF2								
	II	English Language Course II (ELC)	Functional Grammar for Effective Communication-II	19UE2	6	3	3	25	75	100		
	III	II	Core Course – II (CC)	Human Physiology	19UND2CC2	6	6	3	25	75	100	
				Core Practical – II (CP)	Human Physiology – Practical	19UND2CC2P	3	2	3	40	60	100
		III	First Allied Course – II (AP)	Food Microbiology and Food Chemistry –Practical	19UND1AC1P	3	3	3	40	60	100	
				First Allied Course – III (AC)	Food Chemistry	19UND2AC2	4	2	3	25	75	100
					IV	Environmental studies	Environmental Studies	19UGES	2	2	3	25
V	Extra Credit Course	SWAYAM ONLINE COURSE	To be fixed Later	As Per UGC Recommendation								
			TOTAL		30	21				700		

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)

III	Core Course – VII (CC)	Principles of Home Science	19PFS3CC7	6	5	3	-	100	100	
	Core Course – VIII (CC)	Research Methods and Statistical Techniques	19PFS3CC8	6	5	3	25	75	100	
	Core Practical – III (CP)	Catering Internship	19PFS3CC3P	6	5	-	40	60	100	
	Elective Course – III (EC)	III.A. Food Microbiology and Sanitation	19PFS3EC3A	6	4	3	25	75	100	
		III.B. Nutrition in Clinical Critical Care	19PFS3EC3B							
	Elective Course – IV (EC)	IV.A. Food Product Development	19PFS3EC4A	6	4	3	25	75	100	
		IV.B. Basic Food Analytical Techniques	19PFS3EC4B							
	Extra Credit Course	SWAYAM ONLINE COURSE	To be Fixed Later	As per UGC Recommendation						
		TOTAL		30	23					500

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 2020-2021)

SEM	COURSE	COURSE TITLE	SUBJECT CODE	INS. HRS / WEEK	CREDIT	EXAM HRS	MARKS		TOTAL
							INT	EXT	
I	Core Course – I (CC)	Advanced Food Science	19PFS1CC1	6	5	3	25	75	100
	Core Course – II (CC)	Human Nutrition and Public Health	19PFS1CC2	6	5	3	25	75	100
	Core Course – III (CC)	Biochemical Changes in Diseases	19PFS1CC3	6	5	3	25	75	100
	Core Course – IV (CC)	Advanced Dietetics I	19PFS1CC4	6	5	3	25	75	100
	Core Practical – I (CP)	Human Nutrition and Public Health – Practical	19PFS1CC1P	6	4	3	40	60	100
		TOTAL			30	24			
II	Core Course – V (CC)	Advanced Dietetics II	19PFS2CC5	6	5	3	25	75	100
	Core Course – VI (CC)	Hospital Administration	19PFS2CC6	6	5	3	25	75	100
	Core Practical II (CP)	Advanced Dietetics – I & II - Practical and Dietary Internship	19PFS2CC2P	6	4	3	40	60	100
	Elective Course – I (EC)	I.A. Functional Foods and Nutraceuticals	19PFS2EC1A	6	4	3	25	75	100
		I.B. Paediatric Nutritional Care	19PFS2EC1B						
	Elective Course – II (EC)	II. A. Applied Physiology	19PFS2EC2A	6	4	3	25	75	100
		II. B. Nutrition for fitness	19PFS2EC2B						
	Extra Credit Course	SWAYAM ONLINE COURSE	To be Fixed Later	As per UGC Recommendation					
	TOTAL			30	22				500

ANNEXURE : O

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY -18

Special Note on Conduct of End Semester Examination and Result Declaration during Covid 19

- The results for regular papers of April 2020 End Semester Examinations were declared based on the Tamil Nadu Government Higher Education (K2) Department, GO(D) No. 111 dated 27.07.2020
- The November 2019 arrear exams were conducted along with November 2020 regular End Semester Examinations
- November 2020 End Semester Examinations were conducted for 50 Marks and the time duration was 2 hours
- The answer scripts were valued internally by the respective Department faculty members adhering to the norms of paper valuation
- With regard to the Internal Components instead of Library hours (5 Marks) one unit test marks was considered for 5 marks

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY -18

END SEMESTER EXAMINATION – APRIL 2020

RESULT ANALYSIS

UG

S.NO.	DEPARTMENT	SEM	NUMBER REGISTERED	NUMBER APPEARED	NUMBER OF PASS	PASS PERCENTAGE
1	TAMIL	II	36	36	36	100
2	ENGLISH	II	136	136	136	100
3	B. COM	II	226	226	226	100
4	B.COM CA	II	60	60	60	100
5	BBA	II	101	101	101	100
6	BSW	II	48	48	48	100
7	MATHEMATICS	II	110	110	110	100
8	PHYSICS	II	109	109	109	100
9	CHEMISTRY	II	84	84	84	100
10	MICROBIOLOGY	II	71	71	71	100
11	BIOTECHNOLOGY	II	71	71	71	100
12	COMPUTER SCIENCE	II	149	149	149	100
13	COMPUTER APPLICATIONS	II	106	106	106	100
14	INFORMATION TECHNOLOGY	II	40	40	40	100
15	NUTRITION & DIETETICS	II	34	34	34	100

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY -18

END SEMESTER EXAMINATION RESULTS – APRIL 2020

RESULT ANALYSIS

PG

S.NO.	DEPARTMENT	SEM	NUMBER REGISTERED	NUMBER APPEARED	NUMBER OF PASS	PASS PERCENTAGE
1	TAMIL	II	10	10	10	100
2	ENGLISH	II	32	32	32	100
3	M. COM	II	18	18	18	100
4	MSW	II	15	15	15	100
5	MATHEMATICS	II	55	55	55	100
6	PHYSICS	II	32	32	32	100
7	CHEMISTRY	II	24	24	24	100
8	MICROBIOLOGY	II	12	12	12	100
9	COMPUTER SCIENCE	II	27	27	27	100
10	FSM & D	II	17	17	17	100

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY -18

END SEMESTER EXAMINATION – NOVEMBER 2020

RESULT ANALYSIS

I UG

S.NO.	DEPARTMENT	SEM	NUMBER REGISTERED	NUMBER APPEARED	NUMBER OF PASS	PASS PERCENTAGE
1	TAMIL	I	35	35	35	100
2	ENGLISH	I	122	118	118	100
3	BSW	I	40	39	38	97.44
4	BBA	I	89	88	88	100
5	B.COM	I	253	252	252	100
6	B.COM (CA)	I	66	66	66	100
7	MATHEMATICS	I	82	82	82	100
8	PHYSICS	I	47	47	46	97.87
9	CHEMISTRY	I	53	53	53	100
10	MICROBIOLOGY	I	78	78	78	100
11	BIOTECHNOLOGY	I	75	74	74	100
12	COMPUTER SCIENCE	I	148	148	148	100
13	COMPUTER APPLICATIONS	I	121	120	119	99.17
14	INFORMATION TECHNOLOGY	I	40	40	40	100
15	NUTRITION & DIETETICS	I	39	38	38	100

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY -18

END SEMESTER EXAMINATION RESULTS – NOVEMBER 2020

RESULT ANALYSIS

I PG

S.NO.	DEPARTMENT	SEM	NUMBER REGISTERED	NUMBER APPEARED	NUMBER OF PASS	PASS PERCENTAGE
1	TAMIL	I	6	6	6	100
2	ENGLISH	I	38	37	37	100
3	COMMERCE	I	24	24	24	100
4	MSW	I	27	26	26	100
5	MATHEMATICS	I	66	66	66	100
6	PHYSICS	I	44	44	44	100
7	CHEMISTRY	I	27	27	27	100
8	MICROBIOLOGY	I	27	27	27	100
9	COMPUTER SCIENCE	I	33	33	33	100
10	FSM & D	I	28	28	28	100

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY -18

END SEMESTER EXAMINATION – NOVEMBER 2020

RESULT ANALYSIS

II UG

S.NO.	DEPARTMENT	SEM	NUMBER REGISTERED	NUMBER APPEARED	NUMBER OF PASS	PASS PERCENTAGE
1	TAMIL	III	36	34	34	100
2	ENGLISH	III	134	133	133	100
3	BSW	III	47	46	44	95.65
4	BBA	III	92	91	90	98.90
5	B.COM	III	221	221	221	100
6	B.COM (CA)	III	60	60	60	100
7	MATHEMATICS	III	110	110	110	100
8	PHYSICS	III	107	107	107	100
9	CHEMISTRY	III	83	83	81	97.59
10	MICROBIOLOGY	III	68	68	68	100
11	BIOTECHNOLOGY	III	68	68	68	100
12	COMPUTER SCIENCE	III	149	148	148	100
13	COMPUTER APPLICATIONS	III	102	101	101	100
14	INFORMATION TECHNOLOGY	III	40	40	40	100
15	NUTRITION & DIETETICS	III	34	34	34	100

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY -18

END SEMESTER EXAMINATION RESULTS – NOVEMBER 2020

RESULT ANALYSIS

II PG

S.NO.	DEPARTMENT	SEM	NUMBER REGISTERED	NUMBER APPEARED	NUMBER OF PASS	PASS PERCENTAGE
1	TAMIL	III	10	10	10	100
2	ENGLISH	III	31	31	30	96.77
3	COMMERCE	III	18	17	17	100
4	MSW	III	15	15	10	66.67
5	MATHEMATICS	III	55	55	55	100
6	PHYSICS	III	32	32	32	100
7	CHEMISTRY	III	24	24	24	100
8	MICROBIOLOGY	III	12	12	12	100
9	COMPUTER SCIENCE	III	27	26	26	100
10	FSM & D	III	17	17	17	100

