MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE

(An Autonomous College)

Affiliated to Periyar University, Salem | Accredited by **NAAC** with '**A**' Grade

Recognized by **UGC** under Section 2(f) & 12 (B)

MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE (Autonomous)

ESTD-1994

A UNIT OF VANETRA GROUP

Learn. Lead

DEGREE OF BACHELOR OF SCIENCE

Learning Outcomes - Based Curriculum Framework

- Choice Based Credit System

Syllabus for B.Sc., Computer Technology

(Semester Pattern)

(For Candidates admitted from the academic year 2024-2025 and onwards)

Regulation and Syllabus for B.Sc., Computer Technology

(With effect from the Academic Year 2024-25)

Vision:

To redefine the scope of higher education by infusing into each of our pursuits, initiatives that will encourage intellectual, emotional, social and spiritual growth, thereby nurturing a generation of committed, Knowledgeable and socially responsible citizens.

Mission:

*To Ensure State of the world learning experience

*To Espouse value-based Education

*To Empower rural education

*To Instill the sprite of entrepreneurship and enterprise

*To create a resource pool of socially responsible world citizens

QUALITY POLICY

To Seek – To Strive – To Achieve greater heights in Arts and Science, Engineering, Technological and Management Education without compromising on the Quality of Education.

DEPARTMENT OF COMPUTER TECHNOLOGY

Vision:

- To attain global recognition in computer technology research and training to meet the growing needs of the industry and society.

Mission:

- To impart quality education Imparting through a well-designed curriculum in turn with the challenging software needs of the industry.
- To provide state-of-art research facilities to generate knowledge and develop technologies in the thrust areas of computer technology.
- To develop linkages with world class organizations to strengthen industry-academia relationships for mutual benefit.

PREAMBLE

The B. Sc. (Computer Technology) course is systematically designed three-year degree program under the faculty of Science and Technology. The objective of the course is to prepare students to undertake careers involving problem solving using computer technology, or to pursue advanced studies and research in computer technology. The syllabus which comprises of Computer Technology subject along with that of the three allied subjects (Mathematics and Statistics) covers the foundational aspects of computing technology and also develops the requisite professional skills and problem solving abilities using computing sciences.

Introduction: At the first year of under-graduation, the basic foundations of two important skills required for software development are laid. A course in problem solving and programming along with a course in database fundamentals forms the preliminary skill set for solving computational problems. The practical courses are designed to supplement the theoretical training in the year. Along with Computer Technology, the two theoretical and one practical course each in Statistics, Mathematics and Electronics help in building a strong foundation. Career Advancement courses are introduced in both semesters to cover additional areas of Computer Technology.

At the second year of under-graduation, computational problem-solving skills are further strengthened by a course in Data structures. Software engineering concepts that are required for project design are also introduced. Essential concepts of computer networking are also introduced in this year. The practical course included in both semesters complements the theory courses.

At the third year of under-graduation, all the subjects are designed to fulfill core Computer Technology requirements as well as meet the needs of the software industry. Theory courses are adequately supplemented by hands-on practical courses. Skill Enhancement courses enable the students to acquire additional value-added skills.

PROGRAMME LEARNING OUTCOME

NATURE AND EXTENT OF THE PROGRAMME

The undergraduate programs in Computer Technology builds on science-based education at +2 level. The +2 senior secondary school education aims and achieves a sound grounding in understanding the basic scientific temper with introduction to process of computation by introducing some programming languages. This prepares a young mind to launch a rigorous investigation of exciting world of Computer Technology. Framing and implementation of curricula and syllabi is envisaged to provide an understanding of the basic connection between theory and experiment and its importance in understanding the foundation of computing. This is very critical in developing a scientific temperament and to venture a career which a wide spectrum of applications as well as theoretical investigations. The undergraduate curriculum provides students with theoretical foundations and practical experience in both hardware and software aspects of computers. The curriculum in Computer Technology is integrated with courses in the sciences and the humanities to offer an education that is broad, yet of enough depth and relevance to enhance student employment opportunities upon graduation. As a Bachelor's degree program, the curriculum is based on the criterion that graduates are expected to function successfully in a professional employment environment immediately upon graduation.

AIM OF THE PROGRAMME

The program aims to impart fundamental and hands on knowledge of Computers, Science of Computing and modern science technologies to students. It will be useful for careers in research & development corporate sectors and higher studies in M.Sc. Computer Technology. Furthermore, an emphasis on collaborative projects, teamwork, and effective communication skills aims to produce computer science professionals who can thrive in interdisciplinary environments and contribute meaningfully to the evolving field of computing. The program on Computer Technology equips students with comprehensive skills on computer systems, hardware, databases, cloud computing, and networks both at the conceptual and application levels. The knowledge gained under this program will be relevant to pursue higher education and for job opportunities in various organizations.

GRADUATE ATTRIBUTES

The students graduating in Graduate Attributes (GAs) are qualities and skills that students shall acquire while doing their graduation in Muthayammal College of Arts and Science College. Graduate attributes include theoretical and practical knowledge, skills, attitudes, societal concerns and values that are expected to be acquired by a graduate through studies at Muthayammal College of Arts and Science College. The graduate attributes include capabilities that strengthen students' abilities for widening current knowledge base and skills, gaining new knowledge and skills, undertaking future studies, performing well in a chosen career and playing a constructive role as a responsible citizen in the society. Graduate attributes are fostered through meaningful learning experiences made available through the curriculum, the total college experiences and a process of critical and reflective thinking.

GA 1 Analytical Reasoning

GA 2 Critical Thinking

GA 3 Problem Solving Skills

GA 4 Communication Skills

GA 5 Leadership Quality

GA 6 Team work

GA 7 Lifelong Learning

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

PEO1: Graduates will be able to promote learning environment to meet the industry expectation

PEO2: Graduates will be incorporated the critical thinking with Good Communication and Leadership skills to become a self-employed

PEO3: Graduates will be uphold the human values and environmental sustenance for the betterment of the society.

PROGRAMME OUTCOMES (POs)

PO1: Graduates will acquire dynamic skills through proper perception of the course Objectives that leads to scientific and analytical comprehension of theconcepts.

PO2: Graduates will focus on sustainable goals that might bring about spherical Developments

PO3: Graduates will infuse a spirit converging on bricking a teamwork, interpersonal and administrative skills to think criticallyand execute effectively

PO4: Graduates will apply reasoning appropriately to scale the humps in learning and solute them to the core.

PO5: Graduates will engage the skills obtained in independent and collaborative learning as a perennial process.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1: Acquire the required knowledge in the Hardware and Software aspects of Computer Technology field.

PSO2: Understood the development methodologies of Software systems and the ability to analyze, design and develop computer applications for real life problems.

PSO3: Knowledge and skills to collaborate and communicate with peers for performance enhancement in IT field.

PSO4: Ability to understand and adapt with the dynamic technical environment for the growth of IT Industry.

PSO5: Capacity to transfer the skills gained, to provide innovative and novel solutions by maintaining ethical norms for the betterment of society.

REGULATIONS (2024-2025)

1. DURATION OF THE PROGRAME

1.1. Three years (six semesters)

1.2. Each academic year shall be divided into two semesters. The odd semesters shall consist of the period from June to November of each year and the even semesters from December to May of each year.

1.3. There shall be not less than 90 working days for each semester.

2. ELIGIBILITY FOR ADMISSION

2.1. Candidate for admission to the first year of B.Sc. Degree Course in Computer Technology shall be required to have passed the Higher Secondary pass with Mathematics as one of the Subject OR Higher Secondary Pass with Computer Science / Computer Applications / Information Technology / Computer Technology / Business Mathematics/ Statistics as one of the courses and have not studied Mathematics should undergo a bridge course on Mathematics for a minimum duration of 15 days.

3. CREDIT REQUIRMENTS AND ELIGIBILITY FOR AWARD OF DEGREE

3.1. A Candidate shall be eligible for the award of the Degree only if he/she has undergone the prescribed course of study in a College affiliated to the University for aperiod of not less than three academic years and passed the examinations of all the Six Semesters prescribed earning a minimum of 140 credits as per the distributiongiven in Regulation for Part I, II, III, IV & V and also fulfilled such other conditions as have been prescribed thereof.

4. COURSE OF STUDY, CREDITS AND SCHEME OF EXAMINATION

4.1. The Course Components and Credit Distribution shall consist of the following:

(Minimum Number of Credits to be obtained)

Part Wise Distribution	Study Components	Credit Distribution
PART I	Tamil or Other Languages	12
PART II	English	12
PART III	Core, Allied, Elective and Project Courses	91
PART IV	i. Basic Tamil/ Advanced Tamil/ NME	04
	ii. Soft Skill Courses / SBEC	10
	iii. Environmental Studies	02
	iv. Value Education	02
	v. Internship	02
	vi. Foundation Course	02
	vii. Professional Competency Skills	02
PARTV	Extension Activity	01
Total Credits		140

4.2 DETAILS OF COURSE OF STUDY OF PARTS I - V

4.2.1 PART I: Tamil and Other Languages Hindi or French at the option of candidates and according to the syllabus and text-books prescribed from time to time:

4.2.2 PART II: English: According to the syllabus and text-books prescribed from timeto time

4.2.3 PART III: Core, Allied Project and Elective Courses: As prescribed by the concerned Board of Studies

4.2.4 PART IV:

i. Basic Tamil / Advanced Tamil/NME:

a. Students who have not studied Tamil up to XII STD and have taken any Language other than Tamil in Part I shall take Basic Tamil comprising of Two Courses (level will be at 6th Standard).

b. Students who have studied Tamil up to XII STD and have taken any Language other than Tamil in Part – I shall take Advanced Tamil comprising of Two Courses.

c. Students who have studied Tamil up to XII STD and also have taken Tamil in Part – I shall take Non-Major Elective comprising of Two Courses.

i. Soft Skill Courses/SBEC

ii. Environmental Studies

iii. Value Education

iv. Internship

v. Foundation Course

vi. Professional Competency Skills (Online)

4.2.5 PART V: Extension Activity:

Students shall be awarded a maximum of 1 Credit for Compulsory Extension Service. All the Students shall have to enroll for NSS /NCC/ NSO (Sports & Games) Retract / Youth Red Cross or any other Service Organizations in the College and shall have to put in compulsory minimum attendance of 40 hours which shall be duly certified by the Principal of the College before 31st March in a year. If a student lacks40 hours attendance in the first year, he or she shall have to compensate the same during the subsequent years.

Those students who complete minimum attendance of 40 hours in one year will get 'half-a- credit and those who complete the attendance of 80 or more hours in TwoYears will get 'one credit'. Literacy and Population Education and Field Work shall be compulsory components in the above extension service activities.

4.3. Inclusion of the Massive Open Online Courses (MOOCs)available on SWAYAM and NPTEL

4.3.1 Students can choose the MOOC Course Available on SWAYAM and NPTEL under Core, Elective or Soft skill category. He/ she will be awarded degree only after producing valid certificate of the MOOC course for credit Mobility

5. REQUIREMENTS FOR PROCEEDING TO SUBSEQUENT SEMESTER

5.1 Eligibility: Students shall be eligible to go to subsequent semester only if they earn sufficient attendance as prescribed by the Periyar University.

5.2. Attendance: All Students must earn 75% and above of attendance for appearing for the End Semester Examination. (Theory/Practical)

5.3. Condonation of shortage of attendance: If a Student fails to earn the minimum attendance (Percentage stipulated), the Principal shall condone the shortage of attendance up to a maximum limit of 10% (i.e. between 65% and above and less than 75%) after collecting the prescribed fee for Theory/Practical examination separately, towards the condonation of shortage of attendance. Such fees collected and should be remitted to the University.

5.4. Non-eligibility for condonation of shortage of attendance: Students who have secured less than 65% but more than 50% of attendance are NOT ELIGIBLE for condonation of shortage of attendance and such Students will not be permitted to appear for the regular examination, but will be allowed to proceed to the next year/next semester of the program and they may be permitted to take next University examination by paying the prescribed condonation fee

5.5. Detained students for want of attendance: Students who have earned less than 50% of attendance shall not be permitted to proceed to the next semester and tocomplete the Program of study. Such Students shall have to repeat the semester, which they have missed by rejoining after completion of final semester of the course, by paying the fee for the break of study as prescribed by the College from time totime.

5.6. Condonation of shortage of attendance for married women students: In respect of married women students undergoing UG programs, the minimum attendance for condonation (Theory/Practical) shall be relaxed and prescribed as 55% instead of 65% if they conceive during their academic career. Medical certificate fromthe Doctor (D.G.O) from the Government Hospital and the prescribed fee along with attendance details shall be forwarded to the college to consider the condonation of attendance mentioning the category

5.7. Zero Percent (0%) Attendance: The Students, who have earned 0% of attendance, have to repeat the program (by rejoining) without proceeding to succeeding semester and they have to obtain prior permission from the College/University immediately to rejoin the program.

5.8 Transfer of Students and Credits: The strength of the credits system is that it permits inter Institutional transfer of students. By providing mobility, it enables individual students to develop their capabilities fully by permitting them to move from one Institution to another in accordance with their aptitude and abilities by obtaining necessary permission from the university.

5.8.1 Transfer of Students is permitted from one Institution to another Institution forthe same program with same nomenclature.

Provided, there is a vacancy in the respective program of Study in theInstitution where the transfer is requested.

Provided the Student should have passed all the courses in the Institution from where the transfer is requested.

5.8.2 The marks obtained in the courses will be converted and grades will be assigned as per the College norms.

5.8.3 The transfer students are eligible for classification.

5.8.4 The transfer students are not eligible for Ranking, Prizes and Medals.

5.8.5 Students who want to go to foreign Universities up to two semesters or Project Work with the prior approval of the Departmental/College Committee are allowed to get transfer of credits and marks which will be converted in to Grades as per the University norms and are eligible to get CGPA and Classification; they are not eligible for Ranking, Prizes and Medals.

5.9 Students are exempted from attendance requirements for online courses of the College and MOOC's.

6. EXAMINATION AND EVALUATION

6.1. Register for all subjects: Students shall be permitted to proceed from the First Semester up to Final Semester irrespective of their failure in any of the Semester Examination. For this purpose, Students shall register for all the arrear subjects of earlier semesters along with the current (subsequent) Semester Subjects.

6.2. Marks for Internal and End Semester Examinations for PART I, II, III, and IV

Category	Theory	Practical
Internal Assessment	25	**40**
End semester Examination	**75**	**60**

i. Procedure for Awarding Internal Marks

Internal Examination Marks – Theory

Components	Marks
CIA I & II	**15**
Attendance	**5**
Assignment/Quiz	**5**
Total	**25**

6.4 Awarding Marks for Attendance (out of 5)

Percentage of Attendance	Marks
Below 60%	0 marks
60% to 75%	3 marks
75% to 90%	4 marks
Above 90%	5 marks

6.5 Components for Practical CIA.

Components	Marks
CIA -I	15
CIA - II	15
Observation Note	05
Attendance	5
Total	40

6.6 Components for Practical ESE.

Components	Marks
Completion of Experiments	50
Record	05
Viva voce	05
Total	60

6.7 Guidelines for Value Education Yoga and Environmental Studies(Part IV)

6.7.1. The Course Value Education Yoga is to be treated as 100% CIA course which is offered in V Semester for I year UG students.

6.7.2. The Course Environmental Studies is to be treated as 100% CIA course which is offered in IV Semester for I year UG students.

6.7.3 Total Marks for the Course = 100

Components	Marks
Two Tests(2 x30)	60
Field visit and report (10+10)	20
Two assignments (2 x10)	20
Total	100

The passing minimum for this course is 40%

6.7.3 In case, the candidate fails to secure 40% passing minimum,he/she may have to reappear for the same in the subsequent odd/even semesters.

6.8 Internship/ Industrial Training, Mini Project and Major Project Work

Internship/Industrial Training		Mini Project	Major Project Work		
Components	**Marks**	**Marks**	**Components**		Marks
CIA*2			**CIA**		**40**
Work Diary	25	-	a) Attendance	10 Marks	
Report	50	50	**b)** Review / Work Diary*1	30 Marks	
Viva-voce	25	50			
Examination					
Total	**100**	**100**	**ESE*2**		
			a) Final Report 40Marks b)Viva-voce 20Marks		**60**
			Total		
					100

*1. Review is for Individual Project and Work Diary is for Group Projects (Groupconsisting of minimum 3 and maximum 5)

*2 Evaluation of report and conduct of viva voce will be done jointly by Internal and External Examiners

6.9 Guidelines for Professional Competency Skill- Online Mode(Part IV)- Online Exam 3 hours

Components	Marks
100 Objective Type Questions 100*1=100 Marks	**100**

Objective type Questions from Question Bank.

- The passing minimum for this paper is 40%
- In case, the candidate fails to secure 40% passing minimum, he/ she may haveto reappear for the same in the subsequent semesters.

QUESTION PAPER PATTERN FOR CIA I, II AND ESE	
(3 HOURS)	**MAXIMUM:75Marks**
SECTION-A (**Objective Type**) **Answer ALL Questions** ALL Questions Carry EQUAL Marks	(10 x1=10 marks)
SECTION-B (**Either or Type**) **Answer ALL Questions** ALL Questions Carry EQUAL Marks	(5 x 5 = 25 marks)
SECTION-C (**Either or Type**) **Answer ALL Questions** ALL Questions Carry EQUAL Marks	(5 x 8 = 40 marks)
(Syllabus for CIA-I 2.5 Unit ,Syllabus for CIA-II All 5 Unit)	

6.10 PASSING MINIMUM

6.10.1. There shall be no passing minimum for Internal.

6.10.2. For external examination, passing minimum shall be 40% [Forty Percentage] of the maximum marks prescribed for the course for each Course/Practical/Project and Viva-Voce.

6.10.3. In the aggregate [External/Internal] the passing minimum shall be of 40%

6.10.4. He / She shall be declared to have passed the whole examination, if he/she passes in all the Courses and Practical wherever prescribed as per the schemeof the examinations by earning 140 CREDITS in Part I, II, III, IV& V. He/she shall also fulfill the extension activities prescribed earning a minimum of 1 credit to qualify for the Degree.

6.11 SUPPLIMENTARY EXAMINATION:

Supplementary Examinations is conducted for the students who appeared in thefinal semester examinations. Eligible criteria for appearing in the Supplementary Examinations are as follows:

6.11.1. Eligibility: A Student who is having arrear of only one theory course in any of the semester or two theory course in the Final semester of the UG degree programme alone is eligible for Supplementary Examinations.

6.11.2. Non-eligibility for those completed the program: Students who have completed their Program duration but having arrears are not eligible to appear for Supplementary Examinations.

6.12 RETOTALLING, REVALUATION AND PHOTOCOPY OF THE ANSWER SCRIPTS:

6.12.1. Re-totaling: All UG Students who appeared for their Semester Examinationsare eligible for applying for re-totaling of their answer scripts.

6.12.2. Revaluation: All current batch Students who have appeared for their Semester Examinations are eligible for Revaluation of their answer scripts. Passed out candidates are not eligible for Revaluation.

6.12.3. Photo copy of the answer scripts: Students who have applied for revaluation can apply for the Photocopy of answer scripts by paying prescribed fee.

7. CLASSIFICATION OF SUCCESSFUL STUDENTS

RANGE OF MARKS	GRADE POINTS	LETTER GRADE	DESCRIPTION
90-100	9.0-10.0	O	Outstanding
80-89	8.0-8.9	D+	Excellent
75-79	7.5-7.9	D	Distinction
70-74	7.0-7.4	A+	Very Good
60-69	6.0-6.9	A	Good
50-59	5.0-5.9	B	Average
40-49	4.0-4.9	C	Satisfactory
00-39	0.0	U	Re-appear
ABSENT	0.0	AAA	**ABSENT**

7.1 Computation of Grade Point Average (GPA) in a Semester, Cumulative Grade Point Average (CGPA) and Classification

GPA for a Semester: = ∑iCiGi ,∑iCi

That is, GPA is the sum of the multiplication of grade points by the credits of the courses divided by the sum of the credits of the courses in a semester.

CGPA for the entire programme: = ∑n∑iCniGni ,∑n∑iCni That is, CGPA is the sumof the multiplication of grade points by the credits of the entire programme dividedby the sum of the credits of the courses of the entire programme

Where,

Ci= Credits earned for course I in any semester,

Gi=GradePointsobtainedforcourseiinanysemestern=Semesterinwhichsuchcourseswere credited.

7.2 Letter Grade and Classification

CGPA	GRADE	CLASSIFICATION OF FINAL RESULT
9.5-10.0	O+	First Class -Exemplary*
9.0 and above but below9.5	O	
8.5 and above but below 9.0	D++	First Class with Distinction*
8.0 and above but below 8.5	D+	
7.5 and above but below 8.0	D	
7.0 and above but below 7.5	A++	First Class
6.5 and above but below 7.0	A+	
6.0 and above but below 6.5	A	
5.5 and above but below 6.0	B+	Second Class
5.0 and above but below 5.5	B	
4.5 and above but below 5.0	C +	Third Class
4.0 and above but below 4.5	C	
0.0 and above but below 4.0	U	Re-appear

*The students who have passed in the first appearance and within the prescribedsemester of the UG Programme (Major, Allied and Elective courses only) are eligible.

8. RANKING

Students who pass all the examinations prescribed for the Program in the FIRST APPEARANCE ITSELF ALONE are eligible for Ranking I, II and III.

9. MAXIMUM PERIOD FOR COMPLETION OF THE PROGRAM TO QUALIFY FOR A DEGREE

9.1. A Student who for whatever reasons is not able to complete the program within the normal period (N) or the Minimum duration prescribed for the programme, may beallowed two years period beyond the normal period to clear the backlog to be qualified for the degree. (Time Span =N+2years for the completion of programme.)

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B.Sc. COMPUTER TECHNOLOGY Syllabus under CBCS Pattern with effect from 2023-2024 Onwards

Scheme of Examinations from the Academic Year 2024-2025 Onwards

Credit Distribution as per the TANSCHE/UGC Guidelines

S.No	Study Components	Part	Sem I		Sem II		Sem III		Sem IV		Sem V		Sem VI		No. of Paper	Total Credit
			No.of Paper	Credit	No.of Paper	Credit	No.of Paper	Credit	No.of Paper	Credit	No.of Paper	Credit	No.of Paper	Credit		
1	LANGUAGE - I	I	1	3	1	3	1	3	1	3					4	12
2	LANGUAGE - II	II	1	3	1	3	1	3	1	3					4	12
3	DSC THEORY	III	1	5	1	5	1	5	2	7	3	12	2	9	9	41
4	DSC PRACTICAL	III	1	3	1	3	1	2	1	2	2	4	2	6	8	20
5	DSE THEORY	III									2	6	2	6	4	12
6	GEC THEORY	III	1	3	1	3	1	3	1	3					4	12
6	GEC PRACTICAL	III													1	2
7	PROJECT WORK	III											1	4	1	4
8	SKILL ENHANCEMENT COURSES(SEC)	IV	1	2	1	2	1	2							3	6
9	ENTREPRENEURIAL BASED (ANY ONE) - SEC 4	IV													0	0
10	FC THEORY	IV	1	2											1	2
11	SKILL ENHANCEMENT COURSES (NME)	IV	1	2	1	2	1	2	1	2					4	8
12	INTERNSHIP	IV									1	2			1	2
13	PROFESSIONAL COMPETENCT SKILLS	IV											1	2	1	2
14	ABILITY ENHANCEMENT COMPULSORY COURSES (AECC)-EVS	IV							1	2					1	2
15	ABILITY ENHANCEMENT COMPULSORY COURSES (AECC)- VALUE EDUCATION – YOGA	IV									1	2			1	2
16	EXTENSION ACTIVITY	V												1	1	1
	Cumulative Credits		**8**	**23**	**7**	**21**	**7**	**20**	**8**	**22**	**9**	**26**	**8**	**28**	**48**	**140**

Total No. of Subjects	48
Marks	**4700**

PART	No. of Credits
PART – I	12
PART – II	12
PART – III	91
PART – IV	24
PART – V	1
Extra Credit (2+2)	4
Grand Total	**144**

SEM	PART	STUDY COMPONENTS	COURSE CODE	TITLE OF THE COURSE	Hrs./W		CREDIT POINTS	MAX.MARKS		
					Lect.	Lab.		CIA	ESE	TOTAL
SEMESTER – I										
I	I	LANGUAGE - I	23M1UFTA01	TAMIL - I	6	-	3	25	75	100
I	II	LANGUAGE - II	23M1UFEN01	ENGLISH - I	6	-	3	25	75	100
I	III	DSC THEORY - I	24M1UCTC01	PROGRAMMING IN C	5	-	5	25	75	100
I	III	GEC THEORY - I		ALLIED - I	4	-	3	25	75	100
I	III	DSC PRACTICAL - I	24M1UCTP01	PRACTICAL: C PROGRAMMING	-	3	3	40	60	100
I	III	SEC PRACTICAL - I		SEC PRACTICAL - I	-	2	2	40	60	100
I	IV	NMEC - I		NMEC – I	2	-	2	25	75	100
I	IV	FC THEORY - I	24M1UCTFC1	FUNDAMENTALS OF COMPUTERS	2		2	25	75	100
				TOTAL	**25**	**5**	**23**	**230**	**570**	**800**
SEMESTER – II										
II	I	LANGUAGE - I	23M2UFTA02	TAMIL – II	6	-	3	25	75	100
II	II	LANGUAGE - II	23M2UFEN02	ENGLISH – II	6	-	3	25	75	100
II	III	DSC THEORY - II	24M2UCTC02	DATA STRUCTURE AND ALGORITHMS	5	-	5	25	75	100
II	III	DSC PRACTICAL - II	24M2UCTP02	PRACTICAL: DATA STRUCTURE AND ALGORITHMS USING C	-	5	3	40	60	100
II	III	GEC THEORY - II		ALLIED: II	4	-	3	25	75	100
II	IV	SEC PRACTICAL - II		SEC PRACTICAL - II	-	2	2	40	60	100
II	IV	NMEC - II		NMEC – II	2	-	2	25	75	100
				TOTAL	**23**	**7**	**21**	**205**	**495**	**700**

SEM	PART	STUDY COMPONENTS	COURSE CODE	TITLE OF THE COURSE	Hrs./W		CREDIT POINTS	MAX.MARKS		
					Lect.	Lab.		CIA	ESE	TOTAL
SEMESTER – III										
III	I	LANGUAGE - I	23M3UFTA03	TAMIL – III	6	-	3	25	75	100
III	II	LANGUAGE - II	23M3UFEN03	ENGLISH - III	6	-	3	25	75	100
III	III	DSC THEORY - III	24M3UCTC03	OBJECT ORIRENTED PROGRAMMING	5	-	5	25	75	100
III	III	GEC THEORY - III		ALLIED – III	4	-	3	25	75	100
III	III	DSC PRACTICAL - III	24M3UCTP03	PRACTICAL: OBJECT ORIENTED PROGRAMMING	-	5	2	40	60	100
III	IV	SEC PRACTICAL - III		SEC PRACTICAL - III	-	2	2	40	60	100
III	IV	NMEC - III		NMEC – III	2	-	2	25	75	100
				TOTAL	**23**	**7**	**20**	**205**	**495**	**700**
SEMESTER – IV										
IV	I	LANGUAGE - I	23M4UFTA04	TAMIL – IV	6	-	3	25	75	100
IV	II	LANGUAGE - II	23M4UFEN04	ENGLISH - IV	6	-	3	25	75	100
IV	III	DSC THEORY - IV	24M4UCTC04	RELATIONAL DATABASE MANAGEMENT SYSTEM	5	-	4	25	75	100
IV	III	DSC THEORY - V	24M4UCTC05	COMPUTER ORGANIZATION AND ARCHITECTURE	4	-	3	25	75	100
IV	III	DSC PRACTICAL - IV	24M4UCTP04	PRACTICAL : RDBMS	-	3	2	40	60	100
IV	III	GEC THEORY - IV		ALLIED – IV	4	-	3	25	75	100
IV	IV	AECC-ENVIRONMENTALSTUDIES (EVS)*	23M4UEVS01	ENVIRONMENTAL STUDIES (EVS)	-	-	2	100	-	100
IV	IV	NMEC - IV		NMEC – IV	2	-	2	25	75	100
				TOTAL	**27**	**3**	**22**	**290**	**510**	**800**

SEM	PART	STUDY COMPONENTS	COURSE CODE	TITLE OF THE COURSE	Hrs./W		CREDIT POINTS	MAX.MARKS		
					Lect.	Lab.		CIA	ESE	TOTAL
SEMESTER – V										
V	III	DSC THEORY - V	24M5UCTC05	PROGRAMMING IN PYTHON	5	-	4	25	75	100
V	III	DSC THEORY - VI	24M5UCTC06	OPERATING SYSTEMS	4	-	4	25	75	100
V	III	DSC THEORY - VII	24M5UCTC07	MICROPROCESSOR AND EMBEDDED SYSTEMS	5	-	4	25	75	100
V	III	DSE THEORY - I	24M5UCTE__	ELECTIVE – I	4	-	3	25	75	100
V	III	DSE THEORY - II	24M5UCTE__	ELECTIVE – II	4	-	3	25	75	100
V	III	DSC PRACTICAL - V	24M5UCTP05	PRACTICAL: PYTHON PROGRAMMING	-	3	2	40	60	100
V	III	DSC PRACTICAL - VI	24M5UCTP06	PRACTICAL : LINUX	-	3	2	40	60	100
V	IV	AECC-VALUE EDUCATION	23M5UVED01	VALUE EDUCATION	2	-	2	100	-	100
V	IV	INTERNSHIP	24M5UCTIS1	INTERNSHIP	-	-	2	100	-	100
				TOTAL	**24**	**6**	**26**	**405**	**495**	**900**
SEMESTER – VI										
VI	III	DSC THEORY - VIII	24M6UCTC08	DATA COMMUNICATION AND NETWORKS	5	-	5	25	75	100
VI	III	DSC THEORY - IX	24M6UCTC09	ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING	5	-	4	25	75	100
VI	III	DSE THEORY - III	24M6UCTE__	ELECTIVE – III	4	-	3	25	75	100
VI	III	DSE THEORY- IV	24M6UCTE__	ELECTIVE – IV	4	-	3	25	75	100
VI	III	DSC PRACTICAL -VII	24M6UCTP07	PRACTICAL: NETWORKING LAB	-	3	3	40	60	100
VI	III	DSC PRACTICAL -VIII	24M6UCTP08	PRACTICAL: AI AND MACHINE LEARNING LAB	-	**4**	**3**	**40**	**60**	**100**
VI	III	PROJECT WORK	24M6UCTPR1	PROJECT WORK	5	-	4	40	60	100
VI	IV	PROFESSIONAL COMPETENCY SKILLS	24M6UCTOE1	COMPUTER TECHNOLOGY FOR COMPETITIVE EXAMS	-	-	2	100	-	100
VI	V	EXTENSION ACTIVITY	24M6UEXA01	EXTENSION ACTIVITY	-	-	1	-	-	-
				TOTAL	**23**	**7**	**28**	**320**	**480**	**800**
				OVERALL TOTAL	**145**	**35**	**140**	**1655**	**3045**	**4700**
VI		EXTRA CREDIT	24M6UCTEC1	EXTRA CREDIT SWAYAM/MOOC ONLINE	-	-	2	-	-	-
		EXTRA CREDIT	24M6UCTVA1	VALUE ADDED COURSE	-	-	2	-	-	-

HOD MEMBER SECRETARY ACADEMIC COUNCIL PRINCIPAL

B.Sc. Computer Technology Syllabus LOCF – CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
24M1UCTC01	Programming In C	DSC THEORY - I	I	5	5	-	-	5
Objective	Students able to apprehend the basic concepts of C Programming language.							

Unit	Course Content	Knowledge Levels	Session
I	**Fundamentals of C Languages:** History of C, Character Set, Identifiers and Overview of C:- Introduction - character set - C tokens - keyword & identifiers – constants – variables - data types – Declarations of variables ,operators - expressions - Evaluation of expression - Mathematical functions - Formatted input and output	K1	12
II	**Decision Statements:** If, if else, switch, break, continue - the? Operator - The GOTO statement. – Loop Control Statements: Introduction – for, nested for loops – while, do-while statements – Arrays: One-dimensional - Two dimensional - Multidimensional arrays	K2	12
III	**Character string handling**: Declaring and initializing string variables - Reading strings from terminal - Writing strings to screen - String handling functions - User-defined functions: Need for user defined functions – Types of functions - calling a function category of functions - no arguments and no return values - Arguments but no return values - Arguments with return values – Recursion	K3	12
IV	**Structure:** Definition- Structure initialization - Comparison of structure variables - Arrays of structures - Arrays within structures - Structures within structures – unions. Pointers: understanding pointers - accessing the address of a variable - declaring and initializing pointers - accessing a variable through its pointers - pointer expressions - pointers and arrays - pointers and character strings - pointers and functions - pointers and structures	K4	12
V	**File Management in C:** defining and opening a file - closing file - I/O operations on files - error handling during I/O operations - Random access to files - command line arguments. Preprocessors *__Current Trends:__* Development of C*	K5	12
	/*Self Study*/		
Course Outcome	CO1: Describe the primary things of C programming language	K1	
	CO2: Infer and use various constructs of the programming language	K2	
	CO3: Use the concept of string and user-defined function	K3	
	CO4: Distill the process of structure, union and pointers	K4	
	CO5: Defend the concept of files	K5	

Learning Resources	
TextBooks	1."E. Balagurusamy, "Programming in ANSI C", fifth edition, Tata McGraw-Hill
Reference Books	1. V. Rajaraman ,"Computer Programming in C ",Prentice Hall of India Pvt Ltd, 1st Edition,2004 2. Yashwvant Kanetkar ,"Let us C", BPB Publications 13th Edition, 2014
Website Link	1. https://www.geeksforgeeks.org/c-programming-language/ 2. http://onlinecourses.swayam2.ac.in/cec21_cs05/preview
Self-Study Link	1.https://dl.acm.org/doi/10.1145/234286.1057834

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology Syllabus LOCF – CBCS with effect from 2024-2025 Onwards										
Course Code	**Course Title**	**Course Type**		**Sem**	**Hours**	**L**	**T**	**P**	**C**	
24M1UCTC01	**Programming In C**	**DSC THEORY - I**		**I**	**5**	**5**	**-**	**-**	**5**	
CO - PO Mapping										
CO Number	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	S	S	S	S	S	S	S	S	S
CO2	M	S	M	S	M	S	S	M	M	S
CO3	S	S	S	M	M	M	S	S	M	S
CO4	S	S	S	S	M	S	S	S	M	M
CO5	S	M	S	S	S	S	S	S	S	S
Level of Correlation between CO and PO					L-LOW		M- MEDIUM		S-STRONG	
Tutorial Schedule	Conducting Group Discussion, Class test									
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation									
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE									

Designed By	**Verified By**	**Approved By**
Dr.P.Nandhini	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc., Computer Technology Syllabus LOCF-CBCS with effective from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
24M1UCTP01	**Practical: C Programming**	**DSC PRACTICAL - I**	**I**	**5**	**-**	**-**	**5**	**3**

Objective	Students able to build programs using arrays, strings and files.		
S.No.	**List of Experiments / Programs**	**Knowledge Levels**	**Session**
1	Develop a C program to print prime numbers within the range of integers given.	K1	6
2	Develop a C Program to find the sum and average of given N numbers.	K2	6
3	Develop a C Program using all decision making and looping statements	K2	6
4	Develop a C Program to arrange the given numbers in ascending /descending order.	K3	6
5	Develop a C Program to perform matrix multiplication.	K3	6
6	Develop a C Program to manipulate string functions.	K4	6
7	Develop a C Program to find the Fibonacci series for a give number using recursive function.	K4	6
8	Develop a C Program to show Call by Value and Call by Reference.	K4	6
9	Develop a C program to swap two numbers using pointers.	K4	6
10	Develop a C Program to copy the content of one file to another file.	K5	6
Course Outcome	CO1: Explain all the statements in C	K1	
	CO2: Extract the problem and construct the algorithm	K2	
	CO3: Teach the algorithm that are relevant to the casual	K3	
	CO4: Devise the source lines that are match up with the casual	K4	
	CO5: Conclude the flow of execution	K5	

Learning Resources	
Text Books	1."E. Balagurusamy, "Programming in ANSI C", fifth edition, Tata McGraw-Hill.
Reference Books	1. V. Rajaraman ,"Computer Programming in C ",Prentice Hall of India Pvt Ltd, 1st Edition,2004 2. Yashwvant Kanetkar ,"Let us C", BPB Publications 13th Edition, 2014
Website Link	1. https://www.geeksforgeeks.org/c-programming-language/ 2. http://onlinecourses.swayam2.ac.in/cec21_cs05/preview

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology Syllabus LOCF – CBCS with effect from 2024-2025 Onwards									
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**	
24M1UCTP01	**Practical: C Programming**	**DSC PRACTICAL - I**	**I**	**5**	**-**	**-**	**5**	**3**	

CO - PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	S	S	S	S	S	S	S
CO2	S	S	M	S	M	S	S	S	S	S
CO3	S	S	S	S	M	M	S	S	S	S
CO4	S	S	S	S	M	S	S	S	S	S
CO5	S	M	S	S	S	S	S	S	S	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	To give more sample programs to related topic
Teaching and Learning Methods	Handling practical session through projector
Assessment Methods	Attendance, Observation, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Dr.P.Nandhini	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
24M2UCTC02	Data Structure And Algorithms	DSC THEORY - II	II	5	5	-	-	5

Objective	Students can learn the concepts of ADTs and linear data structures-lists, stacks, queues.

Unit	Course Content	Knowledge Levels	Session
I	**Algorithms :** Problem solving – Top-Down and Bottom- up approaches to algorithm design – Use of algorithms in problem solving – Design, Implementation, Verification of algorithm – Efficiency analysis of algorithms: Space, Time complexity, and Frequency count	K1	12
II	**Arrays:** Definition – Terminology - One dimensional array – Multi Dimensional Array. Stacks: Introduction – Definition – Representation of stacks – Operations on stacks – **Applications of stack:** Evaluation of Arithmetic Expression- Implementation of Recursion- Factorial Calculation	K2	12
III	**Queues:** Introduction – Definition – Representation of Queues –**Various Queue Structures:** Circular Queue – De-queue – Priority Queue – **Applications of Queues:** CPU Scheduling. Linked List: Definition -Single Linked List - Double Linked List - Circular Double Linked List – Applications: Sparse Matrix - Polynomial.	K3	12
IV	**Trees:** Terminologies – Definitions &Concepts – Representation of Binary tree – Operations on Binary Tree – Types of Binary Trees: Expression Tree – Binary Search Tree – Heap Tree – Red Black Tree. **Graphs:** Introduction – Graph terminologies – Representation of Graphs – Operations on Graphs – **Applications of Graph:** Shortest path problem - **Minimum Spanning Tree**: Kruskal and Prims Algorithm.	K4	12
V	**Searching:** Terminologies – Linear Search techniques with – Array, Linked List, and Ordered List - Binary search - Non Linear Search- Binary Tree Searching – Binary Search Tree Searching .**Sorting:** Terminologies – Sorting Techniques – Insertion Sort - Selection sort – Bubble sort – Quick sort – Merge sort. **Current Trends:** Fundamental Algoritms	K5	12
Course Outcome	CO1: Explain the concept of memory management, data types.	K1	
	CO2: Interpret the basic data structures.	K2	
	CO3: Change the hash function and concepts of collision and its resolution methods.	K3	
	CO4: Correlate problem involving graphs, trees and heaps.	K4	
	CO5: Plan the algorithm for solving problems like sorting, searching.	K5	

Learning Resources

Text Books	1. Sathish Jain, Shashi Singh, "Data Structure Made Simple", 1st Edition, BPB Publications, New Delhi, 2006. 2. Debasis Samanta, "Classic Data Structures", 2nd Edition, PHI Learning, New Delhi, 2009.
Reference Books	1. Ellis Horowitz, "FUNDAMENTALS OF DATA STRUCTURES", 1st Edition, PHI Learning, New Delhi, 2010.
Website Link	1. www.freetechbooks.com/a-practical-introduction-to-data-structures-and- algorithm-analysis-thirdedition-c-version-t804.html
Self-Study Material	1.https://www.sciencedirect.com/science/article/abs/pii/S092705070580204X

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology Syllabus LOCF – CBCS with effect from 2024-2025 Onwards									
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**	
24M2UCTC02	**Data Structure And Algorithms**	**DSC THEORY - II**	**II**	**5**	**5**	**-**	**-**	**5**	

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	S	S	S	S	S	S	S
CO2	M	M	M	S	M	S	M	M	S	M
CO3	S	S	S	S	M	M	S	S	S	S
CO4	L	S	M	M	S	S	M	S	M	M
CO5	S	M	S	S	S	S	S	M	S	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	To give more sample programs to related topic
Teaching and Learning Methods	Handling practical session through projector
Assessment Methods	Attendance, Observation, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Dr.P.Nandhini	HoD Mr.P.Subramaniam	Member Secretary Dr.S.Shahitha

B.Sc. Computer Technology Syllabus LOCF – CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
24M2UCTP02	Practical: Data Structure Using C	DSC PRACTICAL - II	II	5	-	-	5	3

Objective	Students able to create programs in data structures.		
S. No.	**List of Experiments / Programs**	**Knowledge Levels**	**Sessions**
1	Write a program to implement the List ADT using arrays and linked lists.	K1	6
2	Write a program to implement the following using a singly linked list. i)Stack ADT ii) Queue ADT	K2	6
3	Write a program that reads an infix expression, converts the expression to postfix form and then evaluates the postfix expression (use stack ADT).	K2	6
4	Write a program to implement priority queue ADT.	K3	6
5	Write a program to perform the following operations: i) Insert an element into a binary search tree. ii)Delete an element from a binary search tree. iii)Search for a key element in a binary search tree.	K3	6
6	Write a program to perform the following operations i) Insertion into an AVL-tree ii) Deletion from an AVL-tree	K3	6
7	Write a program for the implementation of BFS and DFS for a given graph.	K4	6
8	Write a program for implementing the following searching methods: i) Linear search ii) Binary search.	K4	6
9	Write a program for implementing the following sorting methods: i) Bubble sort ii) Selection sort iii) Insertion sort iv) Radix sort.	K5	6
Course Outcome	CO1: Define all the data structures	K1	
	CO2: Classify the problem and construct the algorithm	K2	
	CO3: Use the algorithm that are relevant to the casual	K3	
	CO4: Distill the source lines that are match up with the casual	K4	
	CO5: Plan the flow of execution	K5	

Learning Resources	
Text Books	1. Mark Allen Weiss, —Data Structures and Algorithm Analysis in C++‖, PearsonEducation 2014, 4th Edition. 2. Reema Thareja, —Data Structures Using C‖, Oxford Universities Press 2014, 2nd Edition
Reference Books	1. Ellis Horowitz, “Fundamentals Of Data Structures”, 1st Edition, PHI Learning, New Delhi, 2010.
Website Link	1.https://www.programiz.com/dsa 2.https://www.geeksforgeeks.org/learn-data-structures-and-algorithms-dsa-tutorial/

L-Lecture T-Tutorial P-Practical C-Credit

B.Sc. Computer Technology Syllabus LOCF – CBCS with effect from 2024-2025 Onwards										
Course Code	**Course Title**	**Course Type**		**Sem**	**Hours**	**L**	**T**	**P**	**C**	
24M2UCTP02	**Practical: Data Structure Using C**	**DSC PRACTICAL - II**		**II**	**5**	**-**	**-**	**5**	**3**	
CO-PO Mapping										
CO Number	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	S	S	S	S	S	S	S	S	S
CO2	M	S	S	S	M	S	S	S	S	M
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	M	M
CO5	S	S	S	S	S	S	S	S	S	S
Level of Correlation between CO and PO					L-LOW		M- MEDIUM		S-STRONG	
Tutorial Schedule	To give more sample programs to related topic									
Teaching and Learning Methods	Handling practical session through projector									
Assessment Methods	Attendance, Observation, CIA I, CIA II and ESE									

Designed By	**Verified By**	**Approved By**
Dr.P.Nandhini	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc- Computer Technology Syllabus LOCF-CBCS with effect from 2024-2025 onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M3UCTC03	**Object Oriented Programming**	**DSC THEORY-III**	**III**	**5**	**5**	**-**	**-**	**5**
Objective	Student may understand and impart knowledge of object-oriented programming concepts and implement them in C++ and java.							

Unit	Course Content	Knowledge Levels	Session
I	**Object-Oriented Programming:** Principles - Benefits of OOP - Application of OOP - **Tokens, Expression and Control Structures**: Tokens - Keywords - Identifiers and Constants - Data types - Constants - Variables - Operators - Manipulators - Expressions - Control Structure	K1	12
II	**Functions:** Prototyping - Call by Reference - Return by Reference - Inline Functions - Default Arguments - const Arguments - Function Overloading - Friend Functions, **Classes and Objects** - Class - Member Functions- Objects as Function Arguments- Constructors and Destructors	K2	12
III	**Operator Overloading - Inheritance**: Extending Classes - Derived Classes - Single Inheritance - Multilevel Inheritance - Multiple Inheritance - Hierarchical Inheritance - Hybrid Inheritance - Virtual Base Classes - Abstract Classes, Pointers, Virtual Functions - Pure Virtual Functions- **Working with Files:** Classes for File Stream Operations - Opening and Closing a File - Detecting end-of-file - File Pointers and Their Manipulators	K3	12
IV	**Java:** Java features - Java Environment - Creating and Executing a Java program -Java Virtual Machine (JVM) **Class and objects:** Defining a class - Methods - Creating objects - Accessing class members **Interfaces:** Defining interface - Extending interface - Implementing Interface - Accessing interface variables. Packages: Java API Packages - System Packages - Naming Conventions -Creating & Accessing a Package **Exception Handling:** Types of Errors - Basics of Exception Handling - try blocks - throwing an exception - catching an exception - finally statement	K4	12
V	**Multithreading:** Creating Threads - Life of a Thread - Defining & Running Thread - Thread Methods - Thread Priority **Applets:** Introduction - Applet Life cycle - Creating & Executing an Applet -Applet tags in HTML **Graphics Class:** Drawing and filling lines - Rectangles - Polygon - Circles **I/O Streams:** File - Streams - Advantages - The stream classes - Byte streams -Character streams. *** Current trends:** New design patterns in oop *	K5	12
	/*Self Study*/		

Course Outcome		
	CO1: Explain the primary things of C++ programming language	K1
	CO2: Summarize and use various constructs of the programming language such as conditionals, iteration, and recursion	K2
	CO3: Solve the concept of function, classes and objects and inheritance	K3
	CO4: Connect the packages and exception handling methods	K4
	CO5: Plan the I/O Streams and graphics classes.	K5

Learning Resources	
Text Books	1. E. Balagurusamy ,-" Object Oriented Programming with C++ ", TataMc-Graw Hill, 5th Edition 2. E. Balagurusamy, —*Programming with Java*‖, TataMc-Graw Hill, 5th Edition.
Reference Books	1. S.B.Lippman and J.Lajoie , C++ Primer, 3rd Edition, , Pearson Education 2. Herbert Schildt, —*The complete reference Java*‖, TataMc-Graw Hill, 7th Edition
Website Link	1. NPTEL & MOOC courses titled Java 2. https://www.geeksforgeeks.org/

Self-Study Material	1.https://egyankosh.ac.in/bitstream/123456789/78819/1/Unit-8.pdf 2. https://www.unimedia.tech/object-oriented-programming-languages-trends/#:~:text=New%20Design%20Patterns%20in%20OOP,its%20own%20strengths%20and%20applications.

L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
24M3UCTC03	OBJECT ORIRENTED PROGRAMMING	DSC THEORY-III	III	5	5	-	-	5

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	L	S	M	M	M	L
CO2	S	M	M	M	M	S	M	M	M	L
CO3	M	M	M	M	M	M	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	L	M	M	S	S	L	M	M	M	S

Level of Correlation between CO and PO	L-LOW	M-MEDIUM	S-STRONG

Tutorial Schedule	--
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA - I, CIA - II and ESE

Designed By	Verified By	Approved By
Mrs.M.Sudha	HoD Mr.P Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc., Computer Technology Syllabus LOCF-CBCS with effective from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M3UCTP03	Practical: Object Oriented Programming	DSE PRACTICAL-III	III	5	-	-	5	2

Objective	Students may Understand the features of C++ supporting object oriented programming.		
S.No.	**List of Experiments / Programs**	**Knowledge Levels**	**Sessions**
1	Write a C++ program to find the sum of the given variables using function with default arguments	K2	6
2	Write a C++ program to find the Area of Square, Rectangle and Circle using Method Overloading	K2	6
3	Write a program in C++ to prepare a student Record using classes with primitive data members	K2	6
4	Write a C++ program to overload binary "+" operator for Complex Class.	K3	6
5	Write a C++ program which read a file and write contents of a file without white spaces into another file.	K3	6
6	Write a java program that import the user defined package and access the Member variable of classes that contained by Package	K4	6
7	Write a java program to handle the Exception using try and multiple catch blocks	K4	6
8	Write a java program to illustrate the use of multi threads	K4	6
9	Write a Java program compute factorial value using Applet	K4	6
10	Write a program to draw the line, rectangle, oval, text using the graphics method	K5	6
Course Outcome	CO1: Recite all the statements in C++ and java	K1	
	CO2: Relate the problem and construct the algorithm	K2	
	CO3: Teach the algorithm that are relevant to the casual	K3	
	CO4: Distill the source lines that are match up with the casual	K4	
	CO5: Defend the flow of execution	K5	

Learning Resources	
Text Books	1. E. Balagurusamy ,-" Object Oriented Programming with C++ ", TataMc-Graw Hill, 5th Edition 2. E. Balagurusamy, —*Programming with Java*‖, TataMc-Graw Hill, 5th Edition.
Reference Books	1. S.B.Lippman and J.Lajoie , C++ Primer, 3rd Edition, , Pearson Education 2. Herbert Schildt, —*The complete reference Java*‖, TataMc-Graw Hill, 7th Edition
Website Link	1. https://www.geeksforgeeks.org/ 2. https://www.tutorialspoint.com/java/

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc., Computer Technology Syllabus LOCF-CBCS with effective from 2024-2025 Onwards									
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**	
24M3UCTP03	**Practical: Object Oriented Programming**	**DSC PRACTICAL- III**	**III**	**5**	**-**	**-**	**5**	**2**	

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	S	S	S	M	M
CO2	S	M	M	L	M	S	S	M	M	M
CO3	S	M	M	L	M	S	M	M	M	M
CO4	M	M	M	S	S	S	M	M	M	M
CO5	M	M	M	M	M	M	M	l	M	M

Level of Correlation between CO and PO	L-LOW	M-MEDIUM	S-STRONG

Tutorial Schedule	To give more sample programs to related topic.
Teaching and Learning Methods	Handling practical session through projector.
Assessment Methods	Attendance, Observation, CIA-I, CIA-II and ESE

Designed By	Verified By	Approved By
Mrs.M.Sudha	HoD Mr.P Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M4UCTC04	**Relational Database Management System**	**DSC THEORY- IV**	**IV**	**5**	**5**	**-**	**-**	**4**
Objective	Student may understand the basic DBMS models and architecture and learn how to query and normalize the database.							

Unit	Course Content	Knowledge Levels	Session
I	Introduction to Databases: Introduction – Characteristics of the Database Approach – Actors on the Scene – Workers behind the scene – Advantages of using DBMS Approach. Overview of database and Architectures: Data Models, Schemas, and Instances – Three-schema Architecture and Data Independence – Database languages & Interfaces – Database System Environment– Centralized & Client Server Architecture for DBMS - Classification of DBMS.	K1	12
II	Basic Relational Model: Relational Model Concepts – Relational Model Constraints and Relational Database Schemas – Update Operations, Tractions, Dealing with Constraint Violations – Formal Relational Languages: Unary Relational Operations: SELECT and PROJECT – Relational Algebra Operations from Set Theory – Binary Relational Operations: JOIN and DIVISION – Examples of Queries in Relational Algebra.	K2	12
III	Conceptual Data Modeling using the ER Model: Using High-Level Conceptual Data Models for Database Design – An example DB application – Entity Types, Entity Sets, Attributes, and Keys – Relationship Types, Relationship sets, Roles, and Structural Constraints – Weak entity types – Example- Mapping a Conceptual Design into Logical Design: Relational Database Design using ER-Relational Mapping –Mapping EER Model Constructs to Relations	K3	12
IV	Functional Dependencies and Normalization for Relational Database: Functional Dependencies – Definition of Functional Dependency – Normal Forms based on Primary Keys – Normalization of Relations – First Normal Form – Second Normal Form – Third Normal Form – BCNF- Fourth Normal Form- Fifth Normal Form	K4	10
V	SQL: The Relational Database Standard: Data definition, Constraints, and schema changes in SQL – Basic Queries in SQL – More complex SQL Queries – Insert, delete and update statements in SQL – Views in SQL. PL/SQL: Introduction to PL/SQL – More on PL/SQL – Error Handling in PL/SQL – Oracle_s Named Exception Handlers – Stored Procedures and Functions – Execution of Procedures and Functions – Advantages – Procedures Vs. Functions – Syntax for Creating Procedures and Functions – Deleting a Stored Procedure or Function – Oracle Packages – Database Triggers – Types Of Triggers – Deleting a Trigger – Raise-Application Error Procedure. **Current Trends-* A Survey and Comparison of Relational and Non-Relational Database ***	K5	14
	..... Self Study		

Course Outcome	CO1: Explain the fundamental RDBMS concepts and PL/SQL	K1	
	CO2: Classify the database operations, normalization, SQL and PL/SQL	K2	
	CO3: Teach the requirements to implement relational database concepts	K3	
	CO4: Connect the database based on various models and normalization	K4	
	CO5: Reframe and construct normalized tables and manipulate it effectively using SQL and PL/SQL database objects	K5	

Learning Resources

Text Books	1.Ramez Elmasri, Shamkant B. Navathe (2014), —Database Systems‖, Sixth edition, Pearson Education, New Delhi. 2. Ivan Bayross (2003 Reprint), SQL, PL/SQL-The Programming Language of Oracle, Second Revised Edition, BPB Publications, New Delhi.
Reference Books	1.Abraham Silberschatz, Henry F.Korth, S.Sudarshan, Database System Concepts, Tata McGraw Hill Publication, 4th Edition.
Website Link	1.https://ecomputernotes.com/database-system/rdbms 2.https://www.tutorialspoint.com/sql/sql-rdbms-concepts.htm
Self-Study Material	1.https://www.ijstr.org/final-print/june2019/Database-Management-System.pdf

	L-Lecture	**T-Tutorial**	**P-Practical**	**C-Credit**

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
24M4UCTC04	Relational Database Management System	DSC THEORY - IV	IV	5	5	-	-	4

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	S	L	M	S	S	S	L
CO2	S	S	S	S	S	M	S	M	M	M
CO3	M	S	S	M	M	S	S	M	S	M
CO4	M	S	S	S	S	S	S	S	S	M
CO5	L	S	M	S	S	L	M	S	S	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	--
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA - I, CIA - II and ESE

Designed By	Verified By	Approved By
Dr. A. Anushapriya	HoD Mr.P SUBRAMANIAM	Member Secretary Dr.S.Shahitha

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M4UCTP04	**PRACTICAL: RDBMS**	**DSC PRACTICAL - IV**	**IV**	**3**		**-**	**3**	**2**

Objective	Student will learn and implement SQL & PL/SQL concepts.

S.No.	List of Experiments / Programs	Knowledge Levels	Session
1	DDL Commands	K1,K2	5
2	DML Commands	K2	5
3	DCL Commands	K2,K3	5
4	SQL Built-in functions	K3	5
5	Using Sub Queries	K3,K4	5
6	Simple programs using PL/SQL	K3,K4	5
7	Procedures	K4	3
8	User-defined functions	K4,K5	4
9	Exception Handling	K4,K5	4
10	Triggers	K4,K5	4
Course Outcome	CO1: Quote the appropriate SQL queries and PL/SQL blocks for the database.	K1	
	CO2: Compare SQL and PL/SQL blocks for the given problem effectively.	K2	
	CO3: Discover the problem and Exceptions using queries and PL/SQL blocks.	K3	
	CO4: Relate the database for normalization using SQL and PL/SQL blocks.	K4	
	CO5: Reframe Database tables, create Procedures, user-defined functions and Triggers.	K5	

Learning Resources	
Text Books	1. Ramez Elmasri, Shamkant B. Navathe (2014), —Database Systems‖, Sixth edition, Pearson Education, New Delhi. 2. Ivan Bayross (2003 Reprint), SQL, PL/SQL-The Programming Language of Oracle, Second Revised Edition, BPB Publications, New Delhi.
Reference Books	1. Abraham Silberschatz, Henry F.Korth, S.Sudarshan, Database System Concepts, Tata McGraw Hill Publication, 4th Edition.
Website Link	1. https://ecomputernotes.com/database-system/rdbms 2. https://www.tutorialspoint.com/sql/sql-rdbms-concepts.htm

L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2023-2024 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
24M4UCTP04	PRACTICAL: RDBMS	DSC PRACTICAL - IV	IV	3	3	-	3	2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	S	S	S	S	S	S	M
CO2	S	S	S	S	M	S	S	S	S	S
CO3	S	S	S	S	M	S	M	S	S	S
CO4	S	S	M	S	S	S	S	S	S	S
CO5	M	S	S	S	S	M	S	S	M	S

Level of Correlation between CO and PO	L-LOW	M-MEDIUM	S-STRONG

Tutorial Schedule	To give more sample programs to related topic
Teaching and Learning Methods	Handling practical session through projector
Assessment Methods	Attendance, Observation, CIA - I, CIA - II and ESE

Designed By	Verified By	Approved By
Dr. A. Anushapriya	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology Syllabus LOCF-CBCS with effect from 2024-2025 onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M5UCTC05	**Programming In Python**	**DSCTHEORY-V**	**V**	**5**	**4**	**1**	**-**	**4**
Objective	Students to make understand the concepts of Python programming.							

Unit	Course Content	Knowledge Levels	Sessions
I	**Basics of Python Programming:** History of Python-Features of Python-Literal-Constants-Variables - Identifiers-Keywords-Built-in Data Types-Output Statements – Input Statements-Comments – Indentation- Operators-Expressions-Typeconversions.PythonArrays:DefiningandProcessingArrays –Array methods.	K1	12
II	**Control Statements:** Selection/Conditional Branching statements: If , if-else, nested if and if- elif -else statements. Iterative Statements: while loop,forloop,elsesuiteinloopandnestedloops.**JumpStatements:**break, Continue and pass statements**.**	K2	12
III	**Functions:** Function Definition- Function Call-Variable Scope and its Lifetime-Return Statement. **Function Arguments**: Required Arguments, Keyword Arguments, Default Arguments and Variable Length Arguments-Recursion. **Python Strings:** String operations- Immutable Strings - Built-inStringMethodsandFunctions-StringComparison.**Modules**:import Statement - The Python module – dir() function – Modules and Namespace –Defining our own modules.	K3	12
IV	**Lists:** Creating a list -Access values in List-Updating values in Lists- Nested lists-Basic list operations-List Methods. Tuples: Creating, Accessing, Updating and Deleting Elements in a tuple- Nested tuples-Difference between lists and tuples. **Dictionaries:** Creating, Accessing, Updating and Deleting Elements in a Dictionary-Dictionary Functions and Methods - Difference between Lists and Dictionaries.	K4	12
V	**Python File Handling:** Types of files in Python - Opening and Closing files-Reading and Writing files: write() and write lines() methods- append() method-read()and readlines()methods-with keyword-Splitting words-File methods-File Positions-Renaming and deleting files.	K5	12
Course Outcome	CO1: Recite the basics of python	K1	
	CO2: Infer and use various constructs of the programming	K2	
	CO3: Use the concept of string and user-defined function	K3	
	CO4: Devise the process of list and dictionaries.	K4	
	CO5: Reframe the concept of files.	K5	

Learning Resources	
Text Books	1. Reema Thareja,— Python Programming using problem solving approach ‖, First Edition, 2017, Oxford University Press. 2.Dr. R. Nageswara Rao,—Core Python Programming, First Edition, 2017,Dreamtech Publishers.
Reference Books	1.Vamsi Kurama, —Python Programming: A Modern Approach‖, Pearson Education. MarkLutz, ‖Learning Python‖, Orielly.333 2.Adam Stewarts,—Python Programming, Online. 3.FabioNelli,—Python Data Analytics, A Press. 4.Kenneth A.Lambert,—Fundamentals of Python-First Programs,CENGAGE Publication.
Website Link	1. https://www.programiz.com/python-programming 2. https://www.guru99.com/python-tutorials.html

	L-Lecture	**T-Tutorial**	**P-Practical**	**C-Credit**

B.Sc., Computer Technology Syllabus LOCF-CBCS with effective from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
24M5UCTC05	**Programming In Python**	**DSC THEORY-V**	**V**	**5**	**4**	**1**	**-**	**4**

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	L	S	M	M	M	L
CO2	S	M	M	M	M	S	M	M	M	L
CO3	M	M	M	M	M	M	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	L	M	M	S	S	L	M	M	M	S

Level of Correlation between CO and PO	L-LOW	M-MEDIUM	S-STRONG

Tutorial Schedule	-- -
Teaching and Learning Methods	Handling classes through chalk & talk method and presentation
Assessment Methods	Attendance, Assignments, Internal IandII

Designed By	Verified By	Approved By
Dr. A. Anushapriya	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology- Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M5UCTC06	**Operating Systems**	**DSE THEORY-VI**	**V**	**4**	**2**	**2**	**-**	**4**
Objective	Students can get an introduction to the internal operation of modern operating systems.							

Unit	Course Content	Knowledge Levels	Session
I	**Introduction:** Definition of Operating System - OS Structures: OS Services - System Calls - Virtual Machines - Process Management: Process Concept - Process Scheduling - Operation on Processes - Co-operating Processes - Inter-process Communication	K1	10
II	**CPU Scheduling**: Basic Concepts - Scheduling Criteria - Scheduling Algorithms - Process Synchronization: The Critical Section Problem - Semaphores - Classical Problems of Synchronization - Critical Regions	K2	10
III	**Deadlocks:** System Model - Deadlock characterization – Methods for Handling Deadlocks Deadlock Prevention - Deadlock avoidance- Deadlock Detection - Recovery from Deadlock	K3	08
IV	**Storage management**: Memory management - Swapping – Contiguous Memory allocation. Paging – Segmentation – Segmentation with Paging –Virtual memory: Demand paging Page replacement – Thrashing. Mass-Storage Structure: Disk Structure- Disk scheduling.	K4	10
V	**File-System Interface**: File Concept-File Attributes-File Operations – Access Methods: Sequential Access – Direct Access –Directory Structure: Single-Level Directory- Two – Level Directory-Tree-Structured Directories- Introducing Shell Programming – Linux General Purpose Commands-Process Oriented Commands – Communication Oriented Commands. **Current Trends *Cloud Operating Systems***	K5	10
	…… Self Study		
Course Outcome	CO1: Explain the Outline the fundamental concepts of an OS and their respective functionality	K1	
	CO2: Classify the importance of open source operating system commands	K4	
	CO3: Use and stimulate management activities of operating system	K3	
	CO4: Distill the various services provided by the operating system.	K4	
	CO5: Plan Interpret different problems related to Process, Scheduling, Deadlock, memory and Files	K5	

Learning Resources	
Text Books	1.Abraham Silberschatz, Peter Baer Galvin, Greg Gagne (2012), ―Operating System Concepts‖, 9th edition, Wiley Student Edition
Reference Books	1.Milan Milenkovic (2003), ―Operating System Concepts and Design‖, McGraw Hill. 2. Andrew S. Tanenbaum, (2001), ―Modern Operating Systems‖, 2nd Edition, Prentice Hall of India. 3. Deital and Deital (1990), ―Introduction to Operating System‖, Pearson Education. 4. William Stallings (1997), ―Operating Systems‖, Prentice Hall of India.

Website Link	http://www.tutorialspoint.com/operating_system/ http://www.reallylinux.com/docs/files.shtml
Self-Study	http://www.tutorialspoint.com/operating_system/os_linux.htm

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology- Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
24M5UCTC06	Operating Systems	DSE THEORY-VI	V	4	2	2	-	4

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	L	S	M	M	S	S
CO2	S	M	M	M	M	S	S	M	S	S
CO3	M	M	M	M	M	S	S	S	S	S
CO4	M	M	M	M	S	S	S	M	S	S
CO5	L	M	M	S	S	S	S	M	S	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion, Class test
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Mrs.A.M.Nirmala	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology- Syllabus LOCF – CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M5UCTC07	**Microprocessor and Embedded System**	**DSE THEORY- VII**	**V**	**5**	**5**	**-**	**-**	**4**
Objective	Students can obtain a strong foundation about the principles.							

Unit	Course Content	Knowledge Levels	Session
I	**Introduction to Microprocessor:** Internal architecture of 8085 microprocessor –Instruction set - Addressing modes – Classification of instructions. Assembly language programming –standard programs in assembly language – code conversion, sorting – binary and BCD arithmetic.	K1	9
II	**Stack and Subroutines** – CALL and RETURN instructions – Delay subroutines. Timing and control – Machine cycles, instruction cycle and T states – fetch and execute cycles – Timing diagram for instructions.	K2	9
III	**IO and memory interfacing** – Address decoding– interrupt structure of 8085. I/O ports- Programmable peripheral interface PPI 8255 - Modes of operation. Interfacing of LEDs, ADC and DAC with 8085	K3	10
IV	**8051- Microcontrollers Hardware**: Microcontroller Architecture: IO Port structure, Register organization, general purpose RAM, Bit Addressable RAM, Special Function Registers (SFRs). Instruction Set, addressing modes Instruction Types.	K4	10
V	**Introduction to Embedded Systems**-Application domain of embedded systems, features and characteristics, System model, Microprocessor Vs Microcontroller, current trends and challenges, hard and soft real time systems, Embedded product development, Life Cycle Management (water fall model), Tool Chain System, Assemblers, Compilers, linkers, Loaders, Debuggers Profilers & Test Coverage Tools. *** Current Trends: Multicore controller ***	K5	10
	…… Self Study		
Course Outcome	CO1: Explain the fundamentals of assembly level programming of 8085 microprocessor and 8051 microcontroller.	K1	
	CO2: Extract with standard microprocessor real time interfaces.	K2	
	CO3: Teach skill for writing C programs for 8051 microcontroller.	K3	
	CO4: Devise microprocessors/microcontrollers-based systems.	K4	
	CO5: Value the embedded system.	K5	

Learning Resources	
Text Books	1. Ramesh Gaonkar, Microprocessor, Architecture, Programming and Applications, Penram International Publishing; Sixth edition, 2014. 2. Mohamed Ali Mazidi, Janice Gillispie Mazidi," The 8051 microcontroller and embedded systems using Assembly and C",second edition, Pearson education /Prentice hall of India. 3. Scott MacKenzie, Raphael C W Phan, " The 8051 Microcontroller", Fourth Edition, Pearson education.

Reference Books	1. Mathur A., Introduction to Microprocessors, Tata McGraw Hill, New Delhi, 1992. 2. Douglas V. Hall, Microprocessors and Interfacing, Tata McGraw Hill, Education, New Delhi, Third Edition. 3. Rafiquzzaman, Microprocessor Theory and Application, PHI Learning, First Edition. 7. Ray Ajoy and Burchandi, Advanced Microprocessor & Peripherals, Tata McGraw Hill, Education, New Delhi, Second Edition.
Website Link	1. https://kanchiuniv.ac.in/coursematerials/VIJAYARAGHAVAN_mp%20_mc%20notes.pdf
Self-Study Material	https://www.techtarget.com/searchdatacenter/definition/multi-core-processor

L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
24M5UCTC07	Microprocessor and Embedded System	DSE THEORY- VII	V	5	5	-	-	4

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	L	S	S	M	S	S
CO2	S	M	M	M	M	M	S	M	S	M
CO3	M	M	M	M	M	S	S	S	S	S
CO4	M	M	M	M	S	S	M	M	S	M
CO5	L	M	M	S	S	S	S	M	S	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	----
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Dr.P.Nandhini	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc., Computer Technology Syllabus LOCF-CBCS with effective from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
24M5UCTP05	**Practical: Python Programming**	**DSC PRACTICAL -V**	**V**	**3**	**-**	**-**	**3**	**2**
Objective	Student to Familiarize the different control and decision-making statements,							

S.No.	List of Experiments/Programs	Knowledge Levels	Session
1	Program using variables, constants, I/O statements in Python.	K1	2
2	Program using Operators in Python.	K2	2
3	Program using Conditional Statements.	K2	2
4	Program using Loops.	K3	2
5	Program using Jump Statements.	K3	2
6	Program using Functions.	K3	2
7	Program using Recursion.	K4	3
8	Program using Arrays.	K4	3
9	Program using Strings.	K4	3
10	Program using Modules.	K4	3
11	Program using Lists.	K4	3
12	Program using Tuples.	K4	3
13	Program using Dictionaries.	K5	3
14	Program for File Handling.	K5	3
Course Outcome	**CO1: Explain** all the statements in python.	K1	
	CO2: Relate the problem and construct the algorithm.	K2	
	CO3: Sketch the algorithm that are relevant to the casual.	K3	
	CO4: Categorize the source lines that are match up with the casual.	K4	
	CO5: Defend the flow of execution.	K5	

Learning Resources	
Text Books	1. ReemaThareja,—PythonProgrammingusingproblemsolvingapproach‖,FirstEdition,2017,Oxford UniversityPress. 2.Dr. R. Nageswara Rao, —Core Python Programming‖, First Edition, 2017, Dream tech Publishers.
Reference Books	1.VamsiKurama,—PythonProgramming:AModernApproach‖,PearsonEducation. MarkLutz, ‖LearningPython‖,Orielly. 2. Kenneth A.Lambert,—Fundamentals of Python-First Program,CENGAGE Publication.
Website Link	1. https://www.programiz.com/python-programming 2. https://www.guru99.com/python-tutorials.html

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology- Syllabus LOCF – CBCS with effect from 2024-2025 Onwards										
Course Code	**Course Title**	**Course Type**		**Sem**	**Hours**	**L**	**T**	**P**	**C**	
24M5UCTP05	Practical: Python Programming	DSC PRACTICAL - V		V	3	-	-	3	2	
CO-PO Mapping										
CO Number	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	L	M	M	S	S	S	S	S	M	M
CO2	S	M	M	L	M	S	S	M	M	M
CO3	S	M	M	L	M	S	M	M	M	M
CO4	M	M	M	S	S	S	M	M	M	M
CO5	M	M	M	M	M	M	M	L	M	M
Level of Correlation between CO and PO					L-LOW		M- MEDIUM		S-STRONG	
Tutorial Schedule	To give more sample program store lated topic									
Teaching and Learning Methods	Handling practical session through projector									
Assessment Methods	Attendance, Observation, Model practical's									

Designed By	**Verified By**	**Approved By**
Mrs.A.M.Nirmala	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc., Computer TechnologySyllabusLOCF-CBCSwitheffectivefrom2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
24M5UCTP06	Practical: Linux	DSC PRACTICAL -VI	V	3	-	-		2
Objective	Student to demonstrate the basic knowledge of Linux commands and file handling utilities by using Linux shell environment.							

S.No.	**List of Experiments/Programs**	**Knowledge Levels**	**Sessions**
1	Write a shell script that accept a file name starting and ending line numbers as arguments and display all the lines between given line no:	K1	2
2	Write a shell script that delete all lines containing a specified word	K2	2
3	Write a shell script that displays a list of all the files in the current directory	K2	2
4	write a shell script to find the factorial of given integer	K3	2
5	Write a awk script to find the number of characters, words and lines in a file ? linked list respectively.	K3	2
6	Write a C Program that makes a copy of a file using standard I/O and system calls?	K3	2
7	Implement in C the following Unix commands using system calls A) cat B)mv	K4	3
8	Write a C program to emulate the Unix ls-l command?	K4	3
9	Write a C program to list for every file in a directory, its inode number and file name.?	K4	3
10	Write a C Program that demonstrates redirection of standard output to a file .EX:ls>f1.?	K4	3
11	Write a C program to create a child process and allow the parent to display “parent” and the child to display “child” on the screen	K4	3
12	Write a C program to create a child process and allow the parent to display “parent” and the child to display “child” on the screen.?	K4	3
13	write a program to implement the shared memory	K5	3
14	write a shell script to find the factorial of given integer	K4	3
Course Outcome	CO!: Explain the basic knowledge of Linux commands and file handling utilities by linex shell environment	K1	
	CO2: Contrast the directory.	K2	
	CO3: Change and remove the directory.	K3	
	CO4: Devise the process of how the parent and child relationships	K4	
	CO5: Reframe the concept of shell scripting programs by using an AWK and SED commands.	K5	

Text Books	1. UNIX and Linux System Administration Handbook 5th Edition by Evi Nemeth (Author), Garth Snyder (Author), Trent Hein (Author), Ben Whaley (Author), Dan Mackin (Author)
Reference Books	1.Linux: The Complete Reference Osborne/McGraw-Hill, 2001 2. The Complete Reference, Sixth Edition (English, Paperback, Petersen Richard). by Richard Petersen | 1 July 2017 | 6th Edition,
Website Link	https://superuser.com/questions/986527/how-to-create-a-hyperlink-file

L-Lecture T-Tutorial P-Practical C-Credit

B.Sc. Computer Technology- Syllabus LOCF – CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
24M5UCTP06	Practical: Linux	DSC PRACTICAL -VI	V	3	-	-	3	2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	S	S	S	M	M
CO2	S	M	M	L	M	S	S	M	M	M
CO3	S	M	M	L	M	S	M	M	M	M
CO4	M	M	M	S	S	S	M	M	M	M
CO5	M	M	M	M	M	M	M	L	M	M

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	To give more sample programs to related topic
Teaching and Learning Methods	Handling practical session through projector
Assessment Methods	Attendance, Observation, Model practical's

Designed By	Verified By	Approved By
Mrs.A.M.Nirmala	HoD Mr.P.Subramaniam	MEMBER SECRETARY Dr.S.Shahitha

B.Sc - Computer Technology Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M6CTC08	**Data Communication And Networks**	**DSC THEORY-VIII**	**VI**	**5**	**5**	**-**	**-**	**5**
Objective	Students can learn about communications and networks, protocols, and transmission methods.							

Unit	Course Content	Knowledge Level	Session
I	**Introduction to communications and Networking :** Introduction - Fundamental concepts - Data communications - Protocols- standards - Standards organizations - Signal propagations- Analog and Digital signals- Bandwidth of a signal and a medium - Fourier analysis and the concept of bandwidth of a signal - The data transmission rate and the bandwidth. Information encoding: Introduction - Representing different symbols Minimizing errors- Multimedia - Multimedia and Data compression.	K1	12
II	**Analog and digital transmission methods:** Introduction - Analog signal, Analog transmission - Digital signal, Digital transmission - Digital signal, Analog transmission - Baud rate and bits per second - Analog signal, Digital (Storage and) transmission - Nyquist Theorem. Modes of data transmission and Multiplexing: Introduction - Parallel and Serial communication - Asynchronous, Synchronous and Isochronous communication - Simplex, Half-duplex and Full-duplex communication - Multiplexing - Types of Multiplexing - FDM versus TDM. Transmission Errors: Detection and correction: Introduction - Error classification - Types of Errors - Error detection.	K2	12
III	**Transmission media:** Introduction - Guided media - Un Guided media - Shannon capacity. Network topologies, switching and routing algorithms: Introduction - Mesh topology - Star topology - Tree topology - Ring topology - Bus topology - Hybrid topology - Switching basics- Circuit switching - Packet switching - Message switching - Router and Routing - Factors affecting routing algorithms - Routing algorithm -Approaches to routing.	K3	12
IV	**Networking protocols and OSI model:** Introduction - Protocols in computer communications - The OSI model - OSI layer functions.	K4	12
V	**Integrated services digital networking (ISDN):** Introduction - Background of ISDN - ISDN architecture - ISDN interfaces - Functional grouping - Reference points - ISDN protocol architecture - Broadband ISDN (B-ISDN) of ATM - Packet size - Virtual circuits in ATM - ATM cells - Switching - ATM layers - Miscellaneous Topics. **Current Trends*Elastic optical network (EON)***	K5	12
	…… Self Study.		
Course Outcome	**CO1:** Explain the basics of communications and networking	K1	
	CO2: Compare the analog and digital transmission methods, mode of transmissions, parallel and serial communications, etc.	K2	
	CO3: Sketch the transmission media, network topology and switching techniques.	K3	
	CO4: Distill the network protocols and the functions of OSI model	K4	
	CO5: Reframe the ISDN architecture, interfaces, protocols, ATM cells.	K4	
Learning Resources			

Text Books	1. Data Communications and Networks, Achyut. S. Godbole, Tata McGraw-Hill Publishing Company, 2007.
Reference Books	1. Introduction to Data communications and Networking. W.Tomasi. Pearson education. 2. Computer Networks, L.L. Peterson and B.S.Davie;4th Edition, HEVIBK
Website Link	1. https://www.geeksforgeeks.org/data-communication-tutorial/ 2. https://www.tutorialspoint.com/data_communication_computer_network/index.htm
Self-Study Material	1. https://www.sciencedirect.com/science/article/abs/pii/S1573427718301383 2. https://wiki.pathfinderdigital.com/wiki/elastic-optical-networks-eons/

L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc - Computer Technology Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
24M6CTC08	Data Communication And Networks	DSC THEORY-VIII	VI	5	5	-	-	5

CO-PO Mapping

CO Number	P01	P02	P03	P04	P05	PSO1	PSO2	PSO3	PSO4	PSO 5
CO1	S	M	M	M	M	S	M	M	M	M
CO2	S	S	M	M	M	S	S	M	M	S
CO3	M	M	M	S	S	S	S	M	S	S
CO4	M	M	S	S	S	S	M	S	M	M
CO5	M	M	S	M	S	S	M	M	M	M

Level of Correlation between CO and PO	L-LOW	M-MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion, Class test
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Mr. S.MANOKARTHICK	HoD Mr.P SUBRAMANIAM	MEMBER - SECRETARY DR.S.SHAHITHA

B.Sc - Computer Technology Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M6CTC09	**Artificial Intelligence And Machine Learning**	**DSC THEORY-IX**	**VI**	**5**	**5**	**-**	**-**	**4**

Objective	Student to enable the students to learn uninformed and heuristic search techniques, techniques for reasoning under uncertainty introduce machine learning and supervised learning algorithms, assembling and unsupervised learning algorithms, and learn the basics of deep learning using neural networks.

Unit	**Course Content**	**Knowledge Levels**	**Sessions**
I	Introduction to AI - AI Applications - Problem solving agents – search algorithms – uninformed search strategies – Heuristic search strategies – Local search and optimization problems – adversarial search – constraint satisfaction problems (CSP)	K1	12
II	Acting under uncertainty – Bayesian inference – naïve bayes models. Probabilistic reasoning – Bayesian networks – exact inference in BN – approximate inference in BN – causal networks.	K2	12
III	Introduction to machine learning – Linear Regression Models: Least squares, single & multiple variables, Bayesian linear regression, gradient descent, Linear Classification Models: Discriminant function – Probabilistic discriminative model - Logistic regression, Probabilistic generative model – Naive Bayes, Maximum margin classifier – Support vector machine, Decision Tree, Random forests	K3	12
IV	Combining multiple learners: Model combination schemes, Voting, Ensemble Learning - bagging, boosting, stacking, Unsupervised learning: K-means, Instance Based Learning: KNN, Gaussian mixture models and Expectation maximization	K4	12
V	Perceptron - Multilayer perceptron, activation functions, network training – gradient descent optimization – stochastic gradient descent, error back propagation, from shallow networks to deep networks –Unit saturation (aka the vanishing gradient problem) – Re LU, hyper parameter tuning, batch normalization, regularization, dropout. **Current Trends- *Multimodal AI***	K5	12
	…… Self Study.		
Course Outcome	CO1: Describe appropriate search algorithms for problem solving	K1	
	CO2: Interpret the reasoning under uncertainty	K2	
	CO3: Use the supervised learning models	K3	
	CO4: Correlate ensemble and unsupervised models	K4	
	CO5: Plan the deep learning neural network models	K5	

Learning Resources	
Text Books	1. Stuart Russell and Peter Norvig, "Artificial Intelligence – A Modern Approach", Fourth Edition, Pearson Education, 2021. 2. Ethem Alpaydin, "Introduction to Machine Learning", MIT Press, Fourth Edition, 2020.

Reference Books	1. Dan W. Patterson, "Introduction to Artificial Intelligence and Expert Systems", Pearson Education,2007 2. Kevin Night, Elaine Rich, and Nair B., "Artificial Intelligence", McGraw Hill, 2008 3. Patrick H. Winston, "Artificial Intelligence", Third Edition, Pearson Education, 2006 4. Tom Mitchell, "Machine Learning", McGraw Hill, 3rd Edition,1997. 5. Charu C. Aggarwal, "Data Classification Algorithms and Applications", CRC Press, 2014 6. Mehryar Mohri, Afshin Rostamizadeh, Ameet Talwalkar, "Foundations of Machine Learning", MIT Press, 2012.
Website Link	1. https://www.tutorialspoint.com/artificial_intelligence/index.htm 2. https://www.geeksforgeeks.org/machine-learning/ 3. https://en.wikipedia.org/wiki/Neural_network_(machine_learning)
Self-Study Material	3. https://www.techtarget.com/searchenterpriseai/definition/multimodal-AI 4. https://cloud.google.com/use-cases/multimodal-ai

L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc - Computer Technology Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
24M6CTC09	Artificial Intelligence And Machine Learning	DSC THEORY-IX	VI	5	5	-	-	4

CO-PO Mapping

CO Number	P01	P02	P03	P04	P05	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	S	M	S	S	M	M	M	S
CO2	S	S	M	M	M	S	S	M	M	S
CO3	M	M	S	M	S	S	S	M	S	S
CO4	M	M	S	S	S	S	M	S	M	M
CO5	M	M	S	M	S	S	S	M	M	M

Level of Correlation between CO and PO	L-LOW	M-MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion, Class test
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Mr. S.MANOKARTHICK	HoD Mr. P SUBRAMANIAM	MEMBER - SECRETARY DR.S.SHAHITHA

B.Sc - Computer Technology Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M6CTP07	**PRACTICAL: NETWORKING LAB**	**DSC PRACTICAL -VII**	**VI**	**3**	**-**	**-**	**3**	**3**
Objective	Students get the exposure communication and networking.							

Unit	Course Content	Knowledge Levels	Session
1	Write a program to Detect Errors using Vertical Redundancy Check (VRC).	K1	3
2	Write a program to Detect Errors using Longitudinal Redundancy Check (LRC).	K2	3
3	Write a program to Detect Errors using Cyclic Redundancy Check (CRC).	K2	3
4	Write a Socket program to implement Asynchronous Communication.	K2	3
5	Write a Socket program to implement Isochronous Communication.	K3	4
6	Write a program to implement Stop & Wait Protocol.	K3	4
7	Write a program to implement Sliding Window Protocol.	K3	4
8	Write a program to implement the Shortest Path Routing using Dijkstra algorithm.	K4	4
9	Write a Socket Program to Perform file transfer from Server to the Client.	K5	4
10	Write a Program to implement Remote Procedure call under Client / Server Environment	K5	4
Course Outcome	CO1: Explain the concept of error detections in LRC and CRC techniques and develop programs.	K1	
	CO2: Compare types of communications using sockets	K2	
	CO3: Complete the concept the communication protocols and create application to illustrate the concepts.	K3	
	CO4: Correlate the routing protocol, apply the concept and develop applications.	K4	
	CO5: Reframe the concept of Remote procedures using client server applications.	K4	

Learning Resources	
Text Books	1. Introduction to Data communications and Networking. W.Tomasi. Pearson education.
Reference Books	1. Computer Networks, L.L. Peterson and B.S.Davie;4th Edition, HEVIBK
Website Link	1. https://www.geeksforgeeks.org/computer-network-tutorials/

L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc - Computer Technology Syllabus LOCF - CBCS with effect from 2024-2025 Onwards									
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**	
24M6CTP07	**PRACTICAL: NETWORKING LAB**	**DSC PRACTICAL -VII**	**VI**	**3**	**-**	**-**	**3**	**3**	

CO-PO Mapping

CO Number	P01	P02	P03	P04	P05	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	M	S	M	S	S	S
CO2	S	S	M	M	M	S	S	M	M	M
CO3	M	M	S	S	S	M	M	S	S	S
CO4	M	M	S	S	S	M	M	S	S	S
CO5	M	M	S	S	M	M	S	S	S	S
Level of Correlation between CO and PO			L-LOW		M-MEDIUM			S-STRONG		

Tutorial Schedule	Give more sample programs to related topic
Teaching and Learning Methods	Handling Practical Session through projector
Assessment Methods	Attendance, Observation, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Mr.R. Mohanraj	HoD Mr. P SUBRAMANIAM	MEMBER - SECRETARY DR.S.SHAHITHA

B.Sc - Computer Technology Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M6UCTP08	**PRACTICAL: AI AND MACHINE LEARNING LAB**	**DSC PRACTICAL -VIII**	**VI**	**4**	**-**	**-**	**4**	**3**
Objective	Students Identify innovative research directions in Artificial Intelligence, Machine Learning and Big Data analytics. Providing quality education and practical skills to the students							

Unit	Course Content	Knowledge Levels	Session
1	Implementation of Uninformed search algorithms (BFS, DFS)	K1	3
2	Implementation of Informed search algorithms (A*, memory-bounded A*)	K2	3
3	Implement naïve Bayes models	K2	3
4	Implement Bayesian Networks	K2	3
5	Build Regression models	K3	4
6	Build decision trees and random forests	K3	4
7	Build SVM models	K3	4
8	Implement ensembling techniques	K4	4
9	Implement clustering algorithms	K5	5
10	Implement EM for Bayesian network	K5	5
11	Build simple NN models	K5	5
12	Build deep learning NN models	K5	5
Course Outcome	**CO1:** Explain the concept of error detections in LRC and CRC techniques and develop programs.	K1	
	CO2: Contrast the types of communications using sockets	K2	
	CO3: Sketch the concept of communication protocols and create application to illustrate the concepts.	K3	
	CO4: Relate the routing protocol, apply the concept and develop applications.	K4	
	CO5: Conclude the concept of Remote procedures using client server applications.	K5	

Learning Resources	
Text Books	1. Introduction to Data communications and Networking. W.Tomasi. Pearson education.

Reference Books	1. Computer Networks, L.L.Peterson and B.S.Davie;4th Edition, HEVIBK
Website Link	2. https://www.geeksforgeeks.org/computer-network-tutorials/

L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc - Computer Technology Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
24M6UCTP08	PRACTICAL: AI AND MACHINE LEARNING LAB	DSC PRACTICAL -VIII	VI	3	-	-	3	3

CO-PO Mapping

CO Number	P01	P02	P03	P04	P05	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	M	S	M	S	S	S
CO2	S	S	M	M	M	S	S	M	M	M
CO3	M	M	S	S	S	M	M	S	S	S
CO4	M	M	S	S	S	M	M	S	S	S
CO5	M	M	S	S	M	M	S	S	S	S

Level of Correlation between CO and PO	L-LOW	M-MEDIUM	S-STRONG

Tutorial Schedule	Give more sample programs to related topic
Teaching and Learning Methods	Handling Practical Session through projector
Assessment Methods	Attendance, Observation, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Mr.R. Mohanraj	HoD Mr. P SUBRAMANIAM	MEMBER - SECRETARY DR.S.SHAHITHA

Foundation Course offered by the B.Sc., COMPUTER TECHNOLOGY

SYLLABUS - LOCF-CBCS Pattern

EFFECTIVE FROM THE ACADEMIC YEAR 2024-2025 Onwards

S.No.	SEM	COURSE_CODE	TITLE OF THE COURSE
1	I	24M1UCTFC1	FUNDATAMENTALS OF COMPUTERS

B.Sc. Computer Technology Syllabus LOCF-CBCS with effective from 2024-2025 onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
24M1UCTFC1	FUNDAMENTALS OF COMPUTERS	FC THEORY-I	I	2	2	-	-	2

Objective	Familiarize with writing of algorithms, fundamentals of C and philosophy of problem solving and Implement different programming constructs and decomposition of problems into functions.

Unit	Course Content	Knowledge Levels	Sessions
I	**Block diagram of Computer, Evolution, Generations, Classification** and **its Application**- Concept of Bit and Byte; Computer Memory: Primary and Secondary; Input/ Output Devices. Computer Software: Types of Software - System Architecture Computer Languages: Machine Language - Assembly Language - High Level Language - Object Oriented Languages	K1	4
II	**Definition and functions of an Operating System:** Types of OS (Single User, Multi user, Single tasking, Multitasking, Real time, Network OS, Distributed OS)- concept of Booting, Files and Directory Structure, Concept of Paths, Internal and External commands, Batch File. Introduction to Windows, Components of Windows, Customizing the Desktop, Files and Folders	K2	5
III	**Starting Word, different Bars, Document View, Text area, Exiting Word;** Creating new document, Editing text, Saving a Document, Closing a Document, Opening an Existing Document. Working with paragraph, copy and paste and cut and paste methods, spell check, find and replace. Bullets and Numbering, Undo and Redo, Header & Footer, Page-Setup. Creating Table, Modifying a Table, Merging of Cells, Split Cells.	K3	5
IV	**Starting MS-Excel, different Bars. Row, Column and Cell. Exiting MS-Excel** Creating a New Workbook, Working with Cells. Working with Fonts. Merging of Cells. Inserting a Row and Column, Deleting a Row and Column. Saving a Workbook, Closing a Workbook. Different Operators used in Excel, Working with Calculation and Functions. Working with Chart.	K4	5
V	**Starting MS-PowerPoint, different Bars, Different Types of Views and Exiting** MS-PowerPoint -Creating a New Presentation, Working with Slides, Applying Design Templates, Applying Custom Animations, Applying Slide Transitions. Saving a Presentation, Running a Presentation, Closing a Presentation and Opening an Existing Presentation. Current Trends: Word Processing Software	K5	5
Course Outcome	CO1: Explain the Fundamentals of computer / Parts of computers.	K1	
	CO2: Sketch functions of operating systems	K2	
	CO3: Relate the MS-Word operations	K3	
	CO4: Take apart the MS-Excel operations	K4	
	CO5: Plan the MS-PowerPoint operations	K5	

Learning Resources

Text Books	1. Alexis Leon, Mathews Leon, “introduction to computers”, Fourth Edition, 2010,Dream Tech Publishers.
Reference Books	1. RAJARAM V, COMPUTER PROGRAMMING IN C, MIT Press

WebsiteLink	1. https://www.codesansar.com/computer-basics/problem-solving-using-computer.htm 2. http://www.nptel.iitm.ac.in/video.php?subjectId=106102067
Self-Study	https://link.springer.com/chapter/10.1007/978-3-031-36033-6_2

L-Lecture T- Tutorial P-Practical C-Credit

B.Sc. Computer Technology Syllabus LOCF-CBCS with effective from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
24M1UCTFC1	FUNDAMENTALS OF COMPUTERS	FC THEORY-I	I	2	2	-	-	2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	M	S	M	M	M	L
CO2	M	M	M	M	M	S	M	M	M	M
CO3	S	M	M	M	L	S	S	M	M	M
CO4	M	M	M	M	L	S	S	M	M	M
CO5	M	M	M	M	M	S	S	S	M	M

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion, Quiz
Teaching and Learning Methods	Handling classes through chalk and talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Mrs.D.Vasanthi	HoD Mr.P.Subramaniam	Member Secretary Dr.S.Shahitha

List of Elective Course (DSE) Details for B.Sc., COMPUTER TECHONOLOGY
SYLLABUS - LOCF-CBCS Pattern
EFFECTIVE FROM THE ACADEMIC YEAR 2024-2025 Onwards

S.NO.	SEM	COURSE_CODE	TITLE OF THE COURSE
1	V	24M5UCTE01	DATA MINING AND WAREHOUSING
2	V	24M5UCTE02	ROBOTICS AND ITS APPLICATIONS
3	V	24M5UCTE03	DIGITAL IMAGE PROCESSING
4	V	24M5UCTE04	COMPUTER ARCHITECTURE AND PARALLEL PROCESSING
5	V	24M5UCTE05	NEURAL NETWORKS AND DEEP LEARNING
6	V	24M5UCTE06	MODELING AND SIMULATION
7	VI	24M6UCTE07	SOFTWARE TESTING AND AUTOMATION
8	VI	24M6UCTE08	WIRELESS SENSOR NETWORKS
9	VI	24M6UCTE09	CYBER SECURITY
10	VI	24M6UCTE10	COMPILER DESIGN
11	VI	24M6UCTE11	CLOUD COMPUTING
12	VI	24M6UCTE12	CRYPTOGRAPHY AND BLOCK CHAIN TECHNOLOGY

B.Sc. Computer Technology- Syllabus LOCF – CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M5UCTE01	**Data Mining and Warehousing**	**DSE THEORY- I**	**V**	**4**	**2**	**2**	**-**	**3**
Objective	Students know the introduction of the basic concepts and techniques of Data Mining and to study the basic concepts of cluster analysis.							

Unit	Course Content	Knowledge Levels	Sessions
I	**Introduction:** Data mining application – data mining techniques - Association rules mining: basics- a naive algorithm- Apriori algorithm – improve the efficient of the Apriori algorithm – mining frequent pattern without candidate generation (FP-growth).	K1	9
II	**Classification** : Introduction – decision tree – over fitting and pruning – DT rules- Naïve bayes method- estimation predictive accuracy of classification methods – other evaluation criteria for classification methods.	K2	9
III	**Cluster analysis:** cluster analysis – types of data – computing distances- partitioned methods – hierarchical methods – density based methods – dealing with large databases.	K3	10
IV	**Web data mining**: Introduction- web terminology and characteristics- locality and hierarchy in the web- web content mining-web usage mining- web structure mining – **Search engines**: Search engines functionality- search engines architecture – ranking of web pages.	K4	10
V	**Data warehousing**: Introduction- Data warehousing design – Guidelines for data warehousing implementation - Data warehousing metadata - Online analytical processing (OLAP): Introduction – OLAP characteristics of OLAP system – Multidimensional view and data cube - Data cube operations. **Current Trends:** Real-Time Data Streaming.	K5	10
	…… Self Study		
Course Outcome	**CO1:** Identify the basic concepts of data mining and data preprocessing.	K1	
	CO2: Compare the data mining primitives	K2	
	CO3: Use the mining association rule. .	K3	
	CO4: Distill the classification and Prediction.	K4	
	CO5: Reframe the cluster analysis.	K5	

Learning Resources	
Text Books	1.G.K.Gupta,Introduction to data mining with case studies,2nd Edition,PHI Private limited,New Delhi,2011. 2.Jain Pei and Jiawei Han and Micheline Kamber,Data Mining:Concepts and Techniques 3rd Edition By,Elsevier Science,2011
Reference Books	1.Arun k Pujari-Data Mining Techniques,10th impression,University Press,2008.
Website Link	1.https://www.javatpoint.com/data-mining-cluster-vs-data-warehousing 2.https://www.tutorialspoint.com/Data-Warehousing-and-Data-Mining
Self-Study Material	1.https://www.xenonstack.com/insights/real-time-data-streaming

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards										
Course Code	**Course Title**			**Course Type**		**Sem**	**Hours**	**L**	**T**	**P**	**C**
24M5UCTE01	**Data Mining and Warehousing**			**DSE THEORY- I**		**V**	**4**	**2**	**2**	**-**	**3**
CO-PO Mapping										
CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO 3	PSO4	PSO5
CO1	S	M	M	M	L	S	S	M	S	S
CO2	S	M	M	M	M	M	S	M	S	M
CO3	M	M	M	M	M	S	S	S	S	S
CO4	M	M	M	M	S	S	M	M	S	M
CO5	L	M	M	S	S	S	S	M	S	S
Level of Correlation between CO and PO					L-LOW		M- MEDIUM		S-STRONG	
Tutorial Schedule	Conducting Group Discussion, Class test and Quiz.									
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation									
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE									
Designed By	Verified By					Approved By				
Ms.D.Vasanthi	HoD Mr.P.Subramaniam					Member - Secretary Dr.S.Shahitha				

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M5UCTE02	**Robotics and Its Applications**	**DSE THEORY- II**	**V**	**4**	**2**	**2**	**-**	**3**
Objective	Student to understand the robotics fundamentals and study about the concept of Path Planning, Vision system.							

Unit	Course Content	Knowledge Levels	Sessions
I	**Introduction:** Introduction- brief history- components of robotics-classification- workspace- work-envelop- motion of robotic arm-end-effectors and its types- service robot and its application-Artificial Intelligence in Robotics.	K1	12
II	**Actuators and sensors** :Types of actuators- stepper-DC- servo-and brushless motors- model of a DC servo motor-types of transmissions-purpose of sensor-internal and external sensor-common sensors-encoders tachometers-strain gauge based force torque sensor-proximity and distance measuring sensors Kinematics of robots: Representation of joints and frames, frames transformation, homogeneous matrix, D-H matrix- Forward and inverse kinematics: two link planar (RR) and spherical robot (RRP).	K2	12
III	Localization: Self-localizations and mapping - Challenges in localizations – IR based localizations – vision based localizations – Ultrasonic based localizations - GPS localization systems.	K3	12
IV	Path Planning: Introduction- path planning-overview- road map path planning-cell decomposition path planning potential field path planning-obstacle avoidance-case studies Vision system: Robotic vision systems-image representation-object recognition-and categorization- depth measurement- image data compression-visual inspection-software considerations	K4	12
V	Application: Ariel robots-collision avoidance robots for agriculture-mining-exploration-underwater-civilian- and military applications-nuclear applications-space Applications-Industrial robots-artificial intelligence in robots-application of robots in material handling-continuous arc welding-spot welding-spray painting- assembly operation-cleaning.***Current trends Advanced Applications of Industrial Robotics: New Trends and Possibilities*.**	K5	12
	..... Self Study		
Course Outcome	CO1: Explain the different physical forms of robot architectures.	K1	
	CO2: Infer the Kinematically model simple manipulator and mobile robots.	K2	
	CO3: Solve the mathematically describe a kinematic robot system	K3	
	CO4: Relate the manipulation and navigation problems using knowledge of coordinate frames, kinematics, optimization, control, and uncertainty.	K4	
	CO5: Appraise the Program robotics algorithms related to kinematics, control, optimization, and uncertainty.	K5	

Learning Resources	
Text Books	1. Richared D.Klafter. Thomas Achmielewski and MickaelNegin, Robotic Engineering and Integrated Approach, Prentice Hall India-Newdelhi-2001. 2. SaeedB.Nikku, Introduction to robotics, analysis, control and applications, Wiley- India, 2 nd edition 2011.
Reference Books	1. Industrial robotic technology-programming and application by M.P.Groover et.al, McGrawhill2008 2. Robotics technology and flexible automation by S.R.Deb, THH-2009.
Website Link	1.https://www.mdpi.com/2076-3417/12/1/135 2.https://www.tutorialspoint.com/artificial_intelligence/artificial_intelligence_robotics.htm 3.https://www.geeksforgeeks.org/robotics-introduction/

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology- Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
24M5UCTE02	Robotics and Its Applications	DSE THEORY- II	V	4	2	2	-	3

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	L	S	M	M	S	S
CO2	S	M	M	M	M	S	S	M	S	S
CO3	M	M	M	M	M	S	S	S	S	S
CO4	M	M	M	M	S	S	S	M	S	S
CO5	L	M	M	S	S	S	S	M	S	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion, Class test and Quiz.
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Ms.D.Vasanthi	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology- Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M5UCTE03	**Digital Image Processing**	**DSE THEORY- III**	**V**	**4**	**2**	**2**	**-**	**3**
Objective	Understand the concept of Digital image process and Segmentation.							

Unit	Course Content	Knowledge Levels	Sessions
I	**DIGITAL IMAGE FUNDAMENTALS:** Digital Image Representation – Fundamental steps in Image Processing)– Elements of Visual Perception – Image Sensing and Acquisition – Image Sampling and Quantization –Relationships between pixels - colour models.	K1	12
II	**IMAGE ENHANCEMENT:** Spatial Domain: Gray level transformations – Histogram processing – Basics of Spatial Filtering–Smoothing and Sharpening Spatial Filtering – Frequency Domain: 2D Fourier Transform – Smoothing and Sharpening frequency domain filters.	K2	12
III	**IMAGE RESTORATION AND SEGMENTATION:** Noise models – Mean Filters – Order Statistics – Adaptive filters – Band reject Filters – Band pass Filters – Notch Filters – Optimum Notch Filtering – Inverse Filtering – Wiener filtering. Segmentation: Edge detection Edge Linking and Boundary detection – Region based segmentation- Morphological processing- erosion and dilation.	K3	12
IV	**IMAGE COMPRESSION AND REPRESENTATION:** Compression: Fundamentals – Image Compression models – Error Free Compression – Lossy compression– Imag Compression standards	K4	12
V	**IMAGE REPRESENTATION AND RECOGNITION:** Boundary representation – Chain Code – Polygonal approximation, signature, boundary segments – Boundary description – Shape number – Fourier Descriptor, moments- Regional Descriptors –Topological feature, Texture - Patterns and Pattern classes - Recognition based on matching. ***Currents Trends: Traffic Sensing Technologies***	K5	12
	…… Self Study		
Course Outcome	**CO1:** Explain the Digital image Processing	K1	
	CO2: Extract the Image processing	K2	
	CO3: Illustrate the 2D Transformer	K3	
	CO4: Correlate the image compression	K4	
	CO5: Criticize the Sensor and Recognition.	K5	

Learning Resources	
Text Books	1.Rafael C. Gonzales, Richard E. Woods, “Digital Image Processing”, Third Edition, Pearson Education, 2010. 2. Anil Jain K. “Fundamentals of Digital Image Processing”, PHI Learning Pvt. Ltd., 2011.1.
Reference Books	1.Rafael C. Gonzalez, Richard E. Woods, Steven L. Eddins, “Digital Image Processing Using MATLAB”, Third Edition Tata Mc Graw Hill Pvt. Ltd., 2011. 2. Willliam K Pratt, “Digital Image Processing”, John Willey, 2002.
Website Link	1. https://www.javatpoint.com/digital-image-processing-tutorial
Self-Study Material	https://spie.org/samples/SL58.pdf

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards									
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**	
21M5UCTE03	**Digital Image Processing**	**DSE THEORY- III**	**V**	**4**	**2**	**2**	**-**	**3**	

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	L	S	S	M	S	S
CO2	S	M	M	M	M	M	S	M	S	M
CO3	M	M	M	M	M	S	S	S	S	S
CO4	M	M	M	M	S	S	M	M	S	M
CO5	L	M	M	S	S	S	S	M	S	S

Level of Correlation between CO and PO	L - LOW	M- MEDIUM	S - STRONG

Tutorial Schedule	Conducting Group Discussion, Class test and Quiz.
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Ms.D.Vasanthi	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
24M5UCTE04	**Computer Architecture And Parallel Processing**	**DSE THEORY - IV**	**V**	**4**	**2**	**2**	**-**	**3**
Objective	Students can understand the concept of Architecture, Parallel Processing							

Unit	Course Content	Knowledge Levels	Sessions
I	**Computer Design And Performance Measures:** Fundamentals of Computer Design – Parallel and Scalable Architectures – Multiprocessors – Multi vector and SIMD architectures – Multithreaded architectures – Data-flow architectures – Performance Measures.	K1	9
II	**Parallel Processing, Pipelining And ILP:** Instruction level Parallelism and Its Exploitation - Concepts and Challenges overcoming Data Hazards with Dynamic Scheduling – Dynamic Branch Prediction - Speculation - Multiple Issue Processors - Performance and Efficiency in Advanced Multiple Issue Processors.	K2	9
III	**Memory Hierarchy Design**: Memory Hierarchy - Memory Technology and Optimizations – Cache memory – Optimizations of Cache Performance – Memory Protection and virtual Memory - Design of Memory Hierarchies	K3	10
IV	**Multi Processors**: Symmetric and distributed shared memory architectures – Cache coherence issues -Performance Issues – Synchronization issues – Models of Memory Consistency - Interconnection networks – Buses, crossbar and multi-stage switches.	K4	10
V	**Multi-Core Architectures:** Software and hardware multithreading – SMT and CMP architectures – Design issues – Case studies – Intel Multi-core architecture – SUN CMP architecture – IBM cell architecture – hp architecture. ***Case Study: Hybrid Memory Cube*.**	K5	10
	…… Self Study		
Course Outcome	CO1: Explain the Microprocessor and Parallel Processing	K1	
	CO2: Compare the Memory Management and Hierarchy	K2	
	CO3: Sketch the various bus and memory system, Models of Pipelining and Superscalar Techniques	K4	
	CO4: Devise the Parallel and Scalable architectures.	K4	
	CO5: Judgethe parallel programming concepts.	K5	

Learning Resources	
Text Books	1. Kai Hwang, "Advanced Computer Architecture", McGraw Hill International, 2001.
Reference Books	1. John P, Hayes, "Computer Architecture and Organization", McGraw Hill 2. David E, Culler, Jaswinder Pal Singh, "Parallel Computing Architecture: A hardware/software approach", Morgan kaufmann /Elsevier, 1997.
Website Link	1. https://research.ijcaonline.org/volume59/number2/pxc3883923.pdf
Self-Study Material	1.https://en.wikipedia.org/wiki/Hybrid_Memory_Cube

	L-Lecture	T-Tutorial	P-Practical	**C-Credit**

B.Sc. Computer Technology – Syllabus LOCF – CBCS with effect from 2024-2025 Onwards									
Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C	
24M5UCTE04	**Computer Architecture And Parallel Processing**	**DSE THEORY-IV**	**V**	**4**	**2**	**2**	**-**	**3**	

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	L	S	M	M	M	L
CO2	S	M	M	M	M	S	M	M	S	L
CO3	M	M	M	M	M	M	S	S	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	L	M	M	S	S	L	M	M	M	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion, Class test and Quiz.
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation.
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE.

Designed By	**Verified By**	**Approved By**
Mrs.N.Ramya	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
21M5UCTE05	**Neural Networks And Deep Learning**	**DSE THEORY - V**	**V**	**4**	**2**	**2**	**-**	**3**
Objective	Students able to understand the concept of theoretical foundations, algorithms and methodologies of Neural Network.							

Unit	Course Content	Knowledge Levels	Sessions
I	**Basics of artificial neural networks (ANN):** Artificial neurons- Computational models of neurons- Structure of neural networks- Functional units of ANN for pattern recognition tasks Feedforward neural networks: Pattern classification using perceptron- Multilayer feedforward neural networks (MLFFNNs)- Back propagation learning- Empirical risk minimization- Regularization- Auto encoders.	K1	9
II	Unit II: **Deep neural networks (DNNs):** Difficulty of training DNNs- Greedy layer wise training- Optimization for training DNNs- Newer optimization methods for neural networks (AdaGrad, RMSProp, Adam)- Second order methods for training- Regularization methods (dropout, drop connect, batch normalization).	K2	9
III	**Convolution neural networks (CNNs):** Introduction to CNNs – convolution, pooling, Deep CNNs, Different deep CNN architectures – LeNet, Alex Net- VGG- Places Net- training a CNNs: weights initialization- batch normalization- hyper parameter optimization- Understanding and visualizing CNNs.	K3	10
IV	**Recurrent neural networks (RNNs):** Sequence modeling using RNNs- Back propagation through time- Long Short Term Memory (LSTM)- Bidirectional LSTMs- Bidirectional RNNs- Gated RNN Architecture - Generative models: Restricted Boltzmann Machines (RBMs)-Stacking RBMs- Belief nets.	K4	10
V	Learning sigmoid belief nets- Deep belief nets Under complete - Auto encoder- Regularized Auto encoder- stochastic Encoders and Decoders- Contractive Encoders. **Applications:** Applications in vision- speech and natural language processing. ***Case study: Vision Transmission*.**	K5	10
	…… Self Study		
Course Outcome	CO1: Quote the Modeling & Simulation, Input Data Analysis and Modeling.	K1	
	CO2: Infer the Random Variate and Number Generation. Analysis of Simulations and methods.	K2	
	CO3: Complete Systems via Simulation	K3	
	CO4: Correlate Entity Body Modeling, Visualization, Animation.	K4	
	CO5: Defend the Algorithms and Sensor Modeling.	K5	

Learning Resources	
Text Books	1. S. Haykin, Neural Networks and Learning Machines , Prentice Hall of India, 2016 2. Lan Goodfellow, Yoshua Bengio and Aaron Courville, " Deep Learning", MIT Press, 2017

Reference Books	1. Satish Kumar, Neural Networks - A ClassRoom 2. B. Yegnanarayana, Artificial Neural Networks, Prentice- Hall of India, 1999 3. Giancarlo Zaccone, Md. RezaulKarim, Ahmed Menshawy "Deep Learning with TensorFlow: Explore neural networks with Python", Packt Publisher, 2017. 4. Antonio Gulli, Sujit Pal "Deep Learning with Keras", Packt Publishers, 2017.
Website Link	https://www.youtube.com/watch?v=aPfkYu_qiF4&list=PLEAYkSg4uSQ1r2XrJ_GBzzS6I-f8yfRU
Self-Study Material	https://www.plego.com/5-deep-learning-recent-trends/

	L-Lecture	T-Tutorial	P-Practical	**C-Credit**

B.Sc. Computer Technology – Syllabus LOCF – CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCTE05	**Neural Networks And Deep Learning**	**DSE THEORY - V**	**V**	**4**	**2**	**2**	**-**	**3**

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	L	S	M	M	M	L
CO2	S	M	M	M	M	S	M	M	S	L
CO3	M	M	M	M	M	M	S	S	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	L	M	M	S	S	L	M	M	M	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion, Class test and Quiz.
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE

Designed By	**Verified By**	**Approved By**
Mrs.N.Ramya	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
21M5UCTE06	**Modeling and Simulation**	**DSE THEORY - VI**	**V**	**4**	**2**	**2**	**-**	**3**
Objective	Students can understand the concept of Entity modeling, Path planning. Algorithms and Modeling.							

Unit	Course Content	Knowledge Levels	Sessions
I	**Introduction To Modeling & Simulation:** What is Modeling and Simulation – Complexity Types – Model Types – Simulation Types – M&S Terms and Definitions Input Data Analysis – Simulation Input Modeling – Input Data Collection - Data Collection Problems - – Input Modeling Strategy - Histograms –Probability Distributions - Selecting a Probability Distribution.	K1	10
II	**Random Variate Generation :** Random Numbers – Random Number Generators – General principles – Inverse Transform Method – Acceptance Rejection Method –Composition Method –Relocate and Rescale Method - Specific distributions-Output Data Analysis – Introduction -Types of Simulation With Respect to Output Analysis - Stochastic Process and Sample Path - Sampling and Systematic Errors - Mean, Standard Deviation and Confidence Interval - Analysis of Finite- Horizon Simulations - Single Run - Independent Replications - Sequential Estimation – Analysis of Steady-State Simulations - Removal of Initialization Bias (Warm-up Interval) - Replication-Deletion Approach - Batch-Means Method .	K2	10
III	**Comparing Systems via Simulation**: Introduction – Comparison Problems - Comparing Two Systems - Screening Problems - Selecting the Best - Comparison with a Standard - Comparison with a Fixed Performance Discrete Event Simulations – Introduction - Next-Event Time Advance - Arithmetic and Logical Relationships - Discrete-Event Modeling Approaches – Event- Scheduling Approach – Process Interaction Approach.	K3	10
IV	**Entity Modeling** :Entity Body Modeling – Entity Body Visualization – Entity Body Animation – Entity Interaction Modeling – Building Modeling Distributed Simulation – High Level Architecture (HLA) – Federation Development and Execution Process (FEDEP) – SISO RPR FOM Behavior Modeling – General AI Algorithms - Decision Trees Neural Networks - Finite State Machines - Logic Programming - Production Systems – Path Planning - Off-Line Path Planning - Incremental Path Planning - Real-Time Path Planning – Script Programming -Script Parsing – Script Execution.	K4	10
V	**Optimization Algorithms:** Genetic Algorithms – Simulated Annealing Examples: Sensor Systems Modeling – Human Eye Modeling – Optical Sensor Modeling – Radar Modeling. **Current Trends-** Elevating metaverse virtual reality experiences through network-integrated neuro-fuzzy emotion recognition and adaptive content generation algorithms	K5	8

	…… Self Study		
Course Outcome	**CO1:** Describe the Modeling & Simulation, Input Data Analysis and Modeling.	K1	
	CO2: Compare the Random Variate and Number.	K2	
	CO3: Use the Systems via Simulation	K3	
	CO4: Categorize the Entity Body Modeling, Visualization, Animation.	K4	
	CO5: Reframe the Algorithms and Sensor Modeling.	K5	
Learning Resources			
Text Books	1. Jerry Banks, ―Handbook of Simulation: Principles, Methodology Advances, Applications, and Practice‖, John Wiley & Sons, Inc., 1998. 2. George S. Fishman, ―Discrete-Event Simulation: Modeling, Programming and Analysis‖, Springer-Verlag New York, Inc., 2001.		
Reference Books	1. Andrew F. Seila, Vlatko Ceric, PanduTadikamalla, ―Applied Simulation Modeling‖, Thomson Learning Inc., 2003.		
Website Link	1. https://www.tutorialspoint.com/modelling_and_simulation/index.htm 2. https://www.javatpoint.com/verilog-simulation-basics		
Self-Study Material	https://onlinelibrary.wiley.com/doi/full/10.1002/eng2.12894		

	L-Lecture	**T-Tutorial**	**P-Practical**	**C-Credit**

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards										
Course Code	**Course Title**			**Course Type**		**Sem**	**Hours**	**L**	**T**	**P**	**C**
21M5UCTE06	**Modeling and Simulation**			**DSE THEORY - VI**		**V**	**4**	**2**	**2**	**-**	**3**
CO-PO Mapping										
CO Number	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	M	M	M	L	S	M	M	M	L
CO2	S	M	M	M	M	S	M	M	S	L
CO3	M	M	M	M	M	M	S	S	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	L	M	M	S	S	L	M	M	M	S
Level of Correlation between CO and PO					L-LOW		M- MEDIUM		S-STRONG	
Tutorial Schedule	Conducting Group Discussion, Class test and Quiz.									
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation									
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE									

Designed By	Verified By	Approved By
Mrs.N.Ramya	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology- Syllabus LOCF – CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M6UCTE07	**Software Testing and Automation**	**DSE THEORY - VII**	**VI**	**4**	**2**	**2**	**-**	**3**
Objective	Students can understand the basics of software testing and learn how to do the testing and planning effectively.							

Unit	Course Content	Knowledge Levels	Sessions
I	**Foundations of Software Testing**: Why do we test Software?, Black-Box Testing and White-Box Testing, Software Testing Life Cycle, V-model of Software Testing, Program Correctness and Verification, Reliability versus Safety, Failures, Errors and Faults (Defects), Software Testing Principles, Program Inspections, Stages of Testing: Unit Testing, Integration Testing, System Testing	K1	9
II	**Test Planning:** The Goal of Test Planning, High Level Expectations, Intergroup Responsibilities, Test Phases, Test Strategy, Resource Requirements, Tester Assignments, Test Schedule, Test Cases, Bug Reporting, Metrics and Statistics.	K2	9
III	**Test Design and Execution:** Test Objective Identification, Test Design Factors, Requirement identification, Testable Requirements, Modeling a Test Design Process, Modeling Test Results, Boundary Value Testing, Equivalence Class Testing, Path Testing, Data Flow Testing, Test Design Preparedness Metrics, Test Case Design Effectiveness, Model-Driven Test Design, Test Procedures, Test Case Organization and Tracking, Bug Reporting, Bug Life Cycle.	K3	10
IV	**Advanced Testing Concepts:** Performance Testing: Load Testing, Stress Testing, Volume Testing, Fail-Over Testing, Recovery Testing, Configuration Testing, Compatibility Testing, Usability Testing, Testing the Documentation, Security testing, Testing in the Agile Environment, Testing Web and Mobile Applications.	K4	10
V	**Test Automation and Tools** :Automated Software Testing, Automate Testing of Web Applications Selenium: Introducing Web Driver and Web Elements, Locating Web Elements, Actions on Web Elements, Different Web Drivers, Understanding Web Driver Events, Testing: Understanding Testing.xml, Adding Classes, Packages, Methods to Test, Test Reports. **Current Trends:** End-to-end API Testing Automation.	K5	10
	…… Self Study		
Course Outcome	CO1: Explain the basic concepts of software testing and the need for software testing	K1	
	CO2: Relate Test planning and different activities involved in test planning.	K2	
	CO3: Use effective test cases that can uncover critical defects in the application	K3	
	CO4: Devise the advanced types of testing	K4	

	CO5: Value the software testing using Selenium and Testing	K5	

Learning Resources	
Text Books	1.Yogesh Singh, "Software Testing", Cambridge University Press, 2012 2.Unmesh Gundecha, Satya Avasarala, "Selenium WebDriver 3 Practical Guide" - Second Edition 2018
Reference Books	1.Glenford J. Myers, Corey Sandler, Tom Badgett, The Art of Software Testing, 3rd Edition, 2012, John Wiley & Sons, Inc 2.Ron Patton, Software testing, 2nd Edition, 2006, Sams Publishing
Website Link	1.https://www.geeksforgeeks.org/automation-testing-software-testing/ 2.https://www.javatpoint.com/automation-testing
Self-Study Material	https://testguild.com/automation-testing-trends/

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Science - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
24M6UCTE07	Software Testing and Automation	DSE THEORY - VII	VI	4	2	2	-	3

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	S	M	S	M	M	S	M
CO2	S	S	S	S	M	S	M	S	M	M
CO3	S	S	S	S	M	M	S	M	M	M
CO4	S	S	S	S	S	M	M	M	S	M
CO5	S	S	M	L	S	L	M	M	M	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion, Class test and Quiz.
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Mr.V.Arbutharaj	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology- Syllabus LOCF – CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M6UCTE08	**Wireless Sensor Networks**	**DSE THEORY - VIII**	**VI**	**4**	**2**	**2**	**-**	**3**
Objective	Students understand the basics of Wireless sensor Networks and study the design consideration of topology control and solution to the various problems.							

Unit	Course Content	Knowledge Levels	Sessions
I	**Overview of Wireless Sensor Network**: Single-Node Architecture - Hardware Components- Network Characteristics- unique constraints and challenges, Enabling Technologies for Wireless Sensor Networks- Types of wireless sensor networks.	K1	8
II	**Architectures**: Network Architecture- Sensor Networks Scenarios- Design Principle, Physical Layer and Transceiver Design Considerations, Optimization Goals and Figures of Merit, Gateway Concepts, Operating Systems and Execution Environments- Introduction to TinyOS and nesC- Internet to WSN Communication.	K2	10
III	**Networking Sensors**: MAC Protocols for Wireless Sensor Networks, Low Duty Cycle Protocols And Wakeup Concepts - SMAC, - B-MAC Protocol, IEEE 802.15.4 standard and ZigBee, the Mediation Device Protocol, Wakeup Radio Concepts, Address and Name Management, Assignment of MAC Addresses, Routing Protocols Energy Efficient Routing, Geographic Routing.	K3	10
IV	**Infrastructure Establishment:** Topology Control, Clustering, Time Synchronization, Localization and Positioning, Sensor Tasking and Control.	K4	10
V	**Sensor Network Platforms and Tools**: Sensor Node Hardware – Berkeley Motes, Programming Challenges, Node-level software platforms, Node level Simulators, State-centric programming. **Current Trends:** Massive MIMO Antennas.	K5	10
	…… Self Study		
Course Outcome	CO1: Describe the challenges and technologies for wireless networks	K1	
	CO2: Relate the architecture and sensors	K2	
	CO3: Use the communication, energy efficiency, computing, storage and transmission	K3	
	CO4: Take apart of infrastructure and simulations	K4	
	CO5: Value the concept of programming the in WSN environment	K5	

Learning Resources	
Text Books	1.Feng Zhao & Leonidas J.Guibas, "Wireless Sensor Networks-An Information Processing Approach", Elsevier, 2007 2. Waltenegus Dargie , Christian Poellabauer, "Fundamentals Of Wireless Sensor Networks - Theory And Practice", John Wiley & Sons Publications, 2011
Reference Books	1.KazemSohraby, Daniel Minoli, & TaiebZnati, "Wireless Sensor Networks-Technology, Protocols, and Applications", John Wiley, 2007.
Website Link	https://books.google.co.in/books?id=BkaQkhkWGfoC&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false
Self-Study Material	https://my.avnet.com/abacus/solutions/markets/communications/5g-solutions/understanding-massive-mimo-technology/

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards										
Course Code	**Course Title**		**Course Type**		**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M6UCTE08	**Wireless Sensor Networks**		**DSE THEPRY - VIII**		**VI**	**4**	**2**	**2**	**-**	**3**
CO-PO Mapping										
CO Number	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	S	S	S	M	S	M	M	S	M
CO2	S	S	S	S	M	S	M	S	M	M
CO3	S	S	S	S	M	M	S	M	M	M
CO4	S	S	S	S	S	M	M	M	S	M
CO5	S	S	M	L	S	L	M	M	M	S
Level of Correlation between CO and PO					L-LOW		M- MEDIUM		S-STRONG	
Tutorial Schedule	Conducting Group Discussion, Class test and Quiz.									
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation									
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE									

Designed By	**Verified By**	**Approved By**
Mr.V.Arbutharaj	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology- Syllabus LOCF – CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M6UCTE09	**Cyber Security**	**DSE THEORY - IX**	**VI**	**4**	**2**	**2**	**-**	**3**
Objective	Students should be able to understand The transformation between threat, risk, attack and vulnerability.							

Unit	Course Content	Knowledge Levels	Sessions
I	**Introduction**: Computer Security - Threats -Harm - Vulnerabilities - Controls - Authenticate Access Control and Cryptography - Web—User Side - Browser Attacks - Web At Targeting Users - Obtaining User or Website Data - Email Attacks.	K1	8
II	**Security in Operating Systems** :Security in the Design of Operating Systems - Rootkit - Network security attack- Threats to Network Communications - Wireless Network Security - Denial of Service - Distributed Denial-of-Service.	K2	8
III	**Security :**Cryptography in Network Security - Firewalls - Intrusion Detection and Prevention Systems - Network Management - Databases - Security Requirements of Databases - Reliability and Integrity - Database Disclosure - Data Mining and Big Data.	K3	10
IV	**Privacy Concepts:** Privacy Principles and Policies -Authentication and Privacy - Data Mining -Privacy on the Web - Email Security - Privacy Impacts of Emerging Technologies- Where the Field Is Headed.	K4	11
V	**Security Planning** : Business Continuity Planning - Handling Incidents - Risk Analysis - Dealing with Disaster - Emerging Technologies - The Internet of Things - Economics - Electronic Voting - Cyber Warfare- Cyberspace and the Law - International Laws - Cyber crime - Cyber Warfare and Home Land Security. **Current Trends**: Supply Chain Attacks.	K5	11
	…… Self Study		
Course Outcome	CO1: Define the definition of computer forensics fundamentals.	K1	
	CO2: Classify the different types of computer forensics technology.	K2	
	CO3: Solve the various computer forensics systems.	K3	
	CO4: Categorize the methods for data recovery, evidence collection and data seizure.	K4	
	CO5: Judge the gained knowledge of duplication and preservation of digital evidence.	K5	

Learning Resources	
Text Books	1.William Stallings; "Cryptography and Network Security: Principles and Practices", Fifth Edition, Prentice Hall Publication Inc., 2007 2.Nina Godbole and Sunit Belapore; "Cyber Security: Understanding Cyber Crimes, computer Forensics and Legal Perspectives", Wiley Publications, 2011.
Reference Books	1. Charles P. Pfleeger Shari Lawrence Pfleeger Jonathan Margulies, Security in Computing, 5th Edition , Pearson Education , 2015. 2. George K.Kostopoulous, Cyber Space and Cyber Security, CRC Press, 2013.
Website Link	https://www.coursera.org/learn/forensic-science
Self-Study Material	https://www.simplilearn.com/top-cybersecurity-trends-article#:~:text=1.,data%2C%20or%20disrup%20critical%20services.

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
24M6UCTE09	Cyber Security	DSE THEORY - IX	VI	4	2	-	3	

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	S	M	S	M	M	S	M
CO2	S	S	S	S	M	S	M	S	M	M
CO3	S	S	S	S	M	M	S	M	M	M
CO4	S	S	S	S	S	M	M	M	S	M
CO5	S	S	M	L	S	L	M	M	M	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion, Class test
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Mr.V.Arbutharaj	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology- Syllabus LOCF – CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
23M6UCTE10	**Compiler Design**	**DSE THEORY- X**	**VI**	**4**	**2**	**2**	**-**	**3**
Objective	Students can understand the use of translators and compiler and enable students to learn the phases of a compiler.							

Unit	Course Content	Knowledge Levels	Sessions
I	**Introduction to Compliers:** Compliers and Translator – Need of Translator – The structure of a Complier – Lexical analysis – Syntax analysis – Intermediate code generation – optimization – code generation – Complier – writing tools. **Finite automata and lexical Analysis:** The role of the lexical analysis – A simple approach to the design of lexical analyzers- Regular expressions to finite automata – Minimizing the number of states of a DFA.	K1	8
II	**The Syntactic specification of programming languages:** context free grammars – derivations and parse trees – capabilities of context free grammars. **Basic parsing techniques:** Parsers – shift – reduce parsing – operator – precedence parsing – top down parsing – predictive parsers.	K2	10
III	**Syntax directed translation:** syntax – directed translation schemes – implementation of syntax – directed translators – intermediate code – postfix notation – parse trees and **syntax** trees – 3 address code – quadruples and triples – translation of assignment statements – Boolean expressions – statements that alter the flow of control. **Symbol tables:** the contents of a symbol table – data structures for symbol table – representing scope information.	K3	10
IV	**Run time storage administration:** Implementation of a simple stack allocation scheme – implementation of block-structured languages – storage allocation in block structured languages. **Error deduction and recovery:** errors – lexical phase errors – syntactic phase errors – semantic errors	K4	10
V	**Introduction of code optimization:** The principle sources of optimization – loop optimization – the DAG representation of basic blocks – value numbers and algebraic laws – Global data flow analysis. **Code generation:** Object programs – problems in code generation – a machine model – a simple code generator – register allocation and assignment – code generation from DAGs – peepholes optimization. Current Trends: Cloud-based smart devices.	K5	10
	…… Self Study		
Course Outcome	CO1: Explain the use of translators and complier, structure of a compiler.	K1	
	CO2: Infer the context free grammars and parsing techniques.	K1	
	CO3: Use and remember the syntax directed translations, intermediate codes.	K2	
	CO4: Distill the run time storage schemes, error detection and recovery.	K3	

	CO5: Defend and apply knowledge on code optimization and code generator.	K4	

Learning Resources	
Text Books	Principles of Complier Design, Alfred V.Aho, Jeffrey D.Ullman, Narosa Publishing House.
Reference Books	Steven S. Muchnick, "Advanced Compiler Design and Implementation", Morgan Kaufmann Publishers an imprint of Elsevier 2014.
Website Link	1.https://en.wikipedia.org/wiki/Cloud_computing 2.https://link.springer.com/chapter/10.1007/978-3-030-34957-8_7 3.https://webobjects.cdw.com/webobjects/media/pdf/solutions/cloud-computing/121838-CDW-Cloud-Computing-Reference-Guide.pdf
Self-Study Material	https://medium.com/@samruddha.kumbhar18/future-of-cloud-based-smart-devices-e9e1dd5fb320

L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
23M6UCTE10	Compiler Design	DSE THEORY - X	VI	5	3	2	-	3

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	S	L	S	M	M	S	S
CO2	M	M	S	M	M	S	S	M	M	S
CO3	S	S	M	M	M	S	M	S	S	S
CO4	M	M	S	M	S	S	S	M	M	M
CO5	S	M	M	S	S	S	S	M	M	M

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion, Class test
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Mrs.M.Kalaiselvi	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology- Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
23M6UCTE11	**Cloud Computing**	**DSE THEORY- XI**	**VI**	**4**	**2**	**2**	**-**	**3**
Objective	Student learn the fundamental concepts and Technologies of Cloud Computing and Cloud Architecture and Application design.							

Unit	Course Content	Knowledge Levels	Sessions
I	**Introduction to Cloud Computing:** Definition of Cloud Computing - Characteristics of Cloud Computing - Cloud Models - Cloud Service Examples - Cloud-based Services and Applications. **loud Concepts and Technologies:** Virtualization - Load balancing - Scalability and Elasticity - Deployment - Replication - Monitoring - Software Defined Networking - Network Function Virtualization - Map Reduce - Identity and Access Management - Service Level Agreements - Billing.	K1	8
II	**Cloud Services Compute Services:** Amazon Elastic Computer Cloud - Google Compute Engine - Windows Azure Virtual Machines **Storage Services:** Amazon Simple Storage Service - Google Cloud Storage - Windows Azure. **Storage Database Services:** Amazon Relational Data Store - Amazon Dynamo DB - Google Cloud SQL Google Cloud Data Store - Windows Azure SQL Database - Windows Azure Table Service **Application Services:** Application Runtimes and Frameworks - Queuing Services - Email Services - Notification Services - Media Services. Content Delivery Services: Amazon Cloud Front - Windows Azure Content Delivery Network. **Analytics Services:** Amazon Elastic Map Reduce - Google Map Reduce Service - Google Big Query - Windows Azure HDInsight **Deployment and Management Services:** Amazon Elastic Beanstack - Amazon Cloud Formation **Identity and Access Management Services:** Amazon Identity and Access Management - Windows Azure Active Directory Open Source Private Cloud Software: Cloud Stack - Eucalyptus -Open Stack	K2	10
III	**Cloud Application Design:** Introduction-Design Consideration for Cloud Applications - Scalability - Reliability and Availability - Security - Maintenance and Upgradation - Performance - Reference Architectures for Cloud Applications. **Cloud Application Design Methodologies:** Service Oriented Architecture (SOA), Cloud Component Model, IaaS, PaaS and SaaS Services for Cloud Applications, Model View Controller (MVC),REST full WebServices. **Data Storage Approaches:** Relational Approach(SQL), Non-Relational Approach (NoSQL).	K3	10
IV	**Cloud Application Benchmarking and Tuning:** Introduction to Benchmarking - Steps in Benchmarking - Workload Characteristics - Application Performance Metrics - Design Consideration for Benchmarking Methodology - Benchmarking Tools and Types of Tests- Deployment Prototyping. **Cloud Security:** Introduction - CSA Cloud Security Architecture - Authentication (SSO) - Authorization - Identity and Access Management - Data Security: Securing data atrest, securing data in motion - Key Management - Auditing.	K4	10
V	**Case Studies**: Cloud Computing for Healthcare - Cloud Computing for Energy Systems - Cloud Computing for Transportation Systems - Cloud Computing for Manufacturing Industry-Cloud Computing for Education. **Current Trends: Cloud-based smart devices.**	K5	10

	…… Self Study		
Course Outcome	CO1: Describe the fundamental concepts and Technologies in Cloud Computing.	K1	
	CO2: Relate the various cloud service types and uses and pitfalls.	K2	
	CO3: Use the Cloud Architecture and Application design.	K3	
	CO4: Take a part of the various aspects of application design, benchmarking and security in the Cloud.	K4	
	CO5: Value of the various Case Studies in Cloud Computing.	K4	

Learning Resources	
Text Books	1.ArshdeepBahga, Vijay Madisetti, Cloud Computing – A Hands On Approach, Universities Press (India) Pvt. Ltd., 2018.
Reference Books	1.Anthony T Velte, Toby J Velte, Robert Elsenpeter, Cloud Computing: A Practical Approach, Tata McGraw-Hill, 2013. 2. Barrie Sosinsky, Cloud Computing Bible, Wiley India Pvt. Ltd., 2013.
Website Link	1.https://webobjects.cdw.com/webobjects/media/pdf/solutions/cloud-computing/121838-CDW-Cloud-Computing-Reference-Guide.pdf
Self-Study Material	https://medium.com/@samruddha.kumbhar18/future-of-cloud-based-smart-devices-e9e1dd5fb320

L-Lecture	**T-Tutorial**	**P-Practical**	**C-Credit**

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2023-2024 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
23M6UCTE11	Cloud Computing	DSE THEORY- XI	VI	4	2	2	-	3

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	S	L	S	M	M	S	S
CO2	M	M	S	M	M	S	S	M	M	S
CO3	S	S	M	M	M	S	M	S	S	S
CO4	M	M	S	M	S	S	S	M	M	M
CO5	S	M	M	S	S	S	S	M	M	M

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion, Class test
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Mrs.M.Kalaiselvi	HoD Mr.P.Subramaniam	Member Secretary Dr.S.Shahitha

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M6UCTE12	**Cryptography and Block Chain Technology**	**DSE THEORY - XII**	**VI**	**4**	**2**	**2**	**-**	**3**
Objective	Students can acquire knowledge on cyber threats and attacks.							

Unit	Course Content	Knowledge Levels	Sessions
I	**Introduction to information security:** Components of Information System - Software Development Life Cycle –Security Software Development Life Cycle - Security Professionals and the Organization - Communicates Of Interest. **Need for security:** Introduction - Business Need First - Threats - Attacks - Secure Software Development.	K1	6
II	**Security Technologies:** Introduction - Access Control – Firewall - Protecting Remote Connections - Intrusion Detection and Prevention System – Honeypots, Honeynets and Padded Cell - System Scanning and Analysis Tools - Biometric Access Control**. Cryptography:** Foundation of Cryptology - Cipher Methods – Cryptographic Algorithms – Cryptographic Tools –Protocols for Communication - Attacks on cryptosystems.	K2	6
III	**Introduction Risk Management :** – An over view of Risk Management – Risk Identification – Risk Assessment – Risk Control Strategies. **Introduction of cryptography and blockchain:** Blockchain 101, Introduces the basic concepts of distributed computing on which blockchain technology is based. It also covers history, definitions, features, types, and benefits of blockchains along with consensus mechanisms that are at the core of blockchain technology.	K3	6
IV	**Blockchain:** Structure of a Block - Block Header - Block Identifiers: Block Header Hash and Block Height - The Genesis Block - Linking Blocks in the Blockchain - Merkle Trees - Merkle Trees and Simplified Payment Verification (SPV) - Bitcoin's Test Blockchains - Testnet—Bitcoin's Testing Playground - Segnet—The Segregated Witness Testnet - Regtest—The Local Blockchain - Using Test Blockchains for Development.	K4	6
V	**Blockchain Applications:** Introduction - Building Blocks (Primitives) - Applications from Building Blocks - Colored Coins - Using Colored Coins - Issuing Colored Coins - Colored Coins Transactions - Counterparty - Payment Channels and State Channels - State Channels—Basic Concepts and Terminology - Simple Payment Channel Example - Making Trustless Channels - Asymmetric Revocable Commitments - Hash Time Lock Contracts (HTLC) - Routed Payment Channels (Lightning Network) - Basic Lightning Network Example - Lightning Network Transport and Routing - Lightning Network Benefits.**Current Trends-*crypto curency ***	K5	6
	…… Self Study		
Course Outcome	CO1: Explain the basic concepts, need, approaches, principles and components of security, cyber threats and attacks.	K1	
	CO2: compare the various Security Technologies and Tools and basic principles of cryptography and algorithms.	K2	
	CO3: Use the various protocols for secure communication significant aspects of cyber security and explore the working of Block chain technology.	K3	
	CO4: Correlate Apply the learning of solidity and de-centralized apps on Blockchain.	K1	
	CO5: Plan the real world application of Blockchain technology.	K3	
Learning Resources			

Text Books	1. Michael E. Whitman, Herbert J. Mattord," Principles of Information Security", CENGAGE Learning, 4th Edition. (I,II,III UNIT) 2. Bashir, I. (2017). Mastering blockchain. Packt Publishing Ltd.(Unit III). 3. Antonopoulos, A. M. (2017). Mastering Bitcoin: Programming the open blockchain. "O' Reilly Media, Inc.". (Unit IV,V)
Reference Books	1. William Stallings," Cryptography and Network Security – Principles and Practice", Pearson Education, 7th Edition. 2. Atul Kahate," Cryptography and Network Security", McGraw Hill, 4th EditionS.S. Khanka, Organizational Behavior, S. Chand & Co, New Delhi. 3. Elementary Information Security By Richard E. Smith. 4. Fundamentals of Information Systems Security By David Kim and Michael G. Solomon. 5. D. Drescher, Blockchain Basics. Apress, 2017.
Self Study Material	NPTEL online course : https://nptel.ac.in/courses/106/104/106104220/# Udemy: https://www.udemy.com/course/build-your-blockchain-az/EDUXLABS Online training https://eduxlabs.com/courses/blockchaintechnologytraining/?tab=tab-curriculum

L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
24M6UCTE12	Cryptography and Block Chain Technology	DSE THEORY - XII	VI	4	4	-	-	3

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	S	L	S	M	M	M	S
CO2	S	M	S	M	M	S	M	M	M	S
CO3	M	S	M	M	M	M	M	M	M	M
CO4	M	M	M	M	S	M	S	S	M	M
CO5	S	M	M	S	S	L	M	M	M	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion, Class test
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Mr.M.Kalaielvi AP / CS	HOD – CS Mr.P.Subramaniam	Member Secretary Dr.S.Shahitha

List of Skill Enhancement Course (SEC) offered by the B.Sc., COMPUTER TECHONOLOGY

SYLLABUS - LOCF-CBCS Pattern

EFFECTIVE FROM THE ACADEMIC YEAR 2024-2025 Onwards

S.No.	COURSE_CODE	TITLE OF THE COURSE
1	24M2UCTSP1	Office Automation
2	24M3UCTSP2	Web Designing
3	24M4UCTSP3	Multimedia Lab
4	24M_UCTS01	Advanced EXCEL
5	24M_UCTS02	Software Testing
6	24M_UCTS03	Biometrics
7	24M_UCTS04	Cyber Forensics
8	24M_UCTS05	Simulation and Modeling

B.Sc. Computer technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M1UCTSP1	Practical : Office Automation	SEC PRACTICAL - I	I	2	-	-	2	2

Objective	Students can acquire knowledge on editor, spread sheet and slide preparation and improve creative thinking in presentation software.

S.No.	List of Experiments / Programs	Knowledge Levels	Sessions
1.	**MS-WORD** Text Manipulation: Write a paragraph about your institution and Change the font size and type, Spell check, Aligning and justification of Text.	K1	1
2.	Bio data: Prepare a Bio-data.	K2	2
3.	Find and Replace: Write a paragraph about yourself and do the following. Find and Replace - Use Numbering & Bullets, Footer and Headers.	K3	2
4.	Tables and manipulation: Creation, Insertion, Deletion (Columns and Rows). Create a mark sheet.	K4	2
5.	Mail Merge: Prepare an invitation to invite your friends to your birthday party. Prepare at least five letters.	K5	2
6.	**MS - EXCEL** Data sorting-Ascending and Descending (both numbers and alphabets).	K1	1
7.	Invoice Report preparation	K2	2
8.	Mark list preparation for a student.	K3	2
9.	Individual Pay Bill preparation	K4	2
10.	Drawing Graphs. Take your own table.	K5	2
11.	**MS - POWERPOINT** 1. Create a slide show presentation for a seminar. 2. Preparation of Organization Charts.	K1	2
12.	Preparation of Organization Charts.	K2	2
13.	Create a slide show presentation to display percentage of marks in each semester for all students : A. Use bar chart (X-axis: Semester, Y-axis: % marks). B. Use different presentation template different transition effect for each slide.	K3	2
Course Outcome	CO1: Explain the concept of word processing.	K1	
	CO2: Compare the tools in Micro soft word.	K2	
	CO3: Teach and Apply Excel Features.	K3	
	CO4: Categorize the EXCEL functions.	K4	
	CO5 : Grade the different designs of MS Presentations.	K5	

Learning Resources	
Text Books	1.Joyce Cox and Team, "Step by Step 2007 Microsoft Office System", PHI Learning Private limited, New Delhi, 2009.
Reference Books	Sanjay Saxena, "Ms Office 2000 For Every One", 2000.
Website Link	1.https://www.javatpoint.com/ms-word-tutorial

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
24M1UCTSP1	PRACTICAL : OFFICE AUTOMATION	SEC PRACTICAL - I	I	2	-	-	2	2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	S	S	S	M	M
CO2	S	M	M	L	M	S	S	M	M	M
CO3	S	M	M	L	M	S	M	M	M	M
CO4	M	M	M	S	S	S	M	M	M	M
CO5	M	M	M	M	M	M	M	L	M	M

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	---
Teaching and Learning Methods	Handling practical session through projector.
Assessment Methods	Attendance, Observation, CIA-I, CIA-II and ESE

Designed By	Verified By	Approved By
Ms.P.MuthamilSelvi	HoD Mr.P.SUBRAMANIAM	Member - SECRETARY Dr.S.Shahitha

B.Sc. Computer technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M2UCTSP2	Practical : Web Designing	SEC PRACTICAL - II	**II**	**2**	**-**	**-**	**2**	**2**

Objective	Students can understand the concept so html and design webpage.

S. No.	List of Experiments / Programs	Knowledge Levels	Sessions
1.	**HTML:** Create a webpage showing an ordered list of name of your five friends and unordered list of any five your hobbies.	K1	3
2.	Create a webpage document containing a nested list showing the content page of any book.	K2	3
3.	Create a student mark list using Tables.	K3	3
4.	Design a web site using a frameset and open different pages in the frames. Make use of an external/linked style sheet.	K4	3
5.	**JAVA SCRIPT** Write JavaScript to demonstrate the use of different dialogue boxes. For example: write messages good morning, good bye etc, take value from alert, confirmation for any operation.	K3	3
6.	Write a JavaScript to find sum of N numbers entered by user.	K4	3
7.	Create JavaScript program which have list of color buttons, if user moves the mouse over to any color button that color will set to the background of document.	K4	3
8.	Write a JavaScript program to validate a form which consist of name, Age, address, hobby (checkbox), gender (radio button), e-mail.	K4	3
Course Outcome	**CO1: Explain** all the basic html tags	K1	
	CO2: Relate the problem and construct the code	K2	
	CO3: Sketch the procedure that are relevant to the casual	K3	
	CO4: Devise the source lines that are match up with the casual	K4	
	CO5: Plan the flow of execution	K5	

Learning Resources	
Text Books	HOLZSCHLAG MOLLY E," WEB DESIGN USING HTML 4 TataMcGrawHillEducation,2000.
Reference Books	RajKamal,"Internetand WebTechnologies", 7thReprint,TataMcGrawHillEducation,2007.
Website Link	https://www.w3schools.com/html/html_examples.asp

	L-Lecture	**T-Tutorial**	**P-Practical**	**C-Credit**

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards									
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**	
24M2UCTSP2	Practical : Web Designing	SEC PRACTICAL - II	II	2	-	-	2	2	

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	S	S	S	M	M
CO2	M	S	M	S	M	S	S	M	M	M
CO3	S	M	M	M	M	S	M	M	S	M
CO4	M	M	M	S	S	S	S	M	S	M
CO5	M	S	M	M	S	M	S	M	M	M

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	To give more sample programs to related topic.
Teaching and Learning Methods	Handling practical session through projector.
Assessment Methods	Attendance, Observation, CIA-I, CIA-II and ESE

Designed By	Verified By	Approved By
Ms.P.MuthamilSelvi	HoD Mr.P.SUBRAMANIAM	Member - SECRETARY Dr.S.Shahitha

B.Sc. Computer technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M3UCTSP3	Practical : Multimedia	SEC PRACTICAL - III	**III**	**2**	**-**	**-**	**2**	**2**

Objective	Students can understand the concept so html and design webpage.

S.No.	List of Experiments / Programs	Knowledge Levels	Sessions
1.	Enlarge a Logo using path.	K1	2
2.	Create an ink drawing using path.	K1	2
3.	Replace Background of image using Channels.	K1	2
4.	Design Front Cover for a Book.	K2	2
5.	Create a Customized logo.	K2	2
6.	Remove Red eye using Filter.	K3	2
7.	Create a pattern use clone tool to remove text from an image.	K3	2
8.	Create smooth transitions from one image to Another.	K3	2
9.	Creating Frame-by-frame Animation.	K4	2
10.	Create a Motion guide Layer.	K4	2
11.	Create a Shape Tween for Graphic Object.	K5	2
12	Adding buttons with Action Script.	K5	2
Course Outcome	**CO1: Explain** and use of multimedia fundamentals	K1	
	CO2: Classify the appropriate techniques required for editing images and designing animated system	K2	
	CO3: Solve various design and implementation issues materialize on the development of multimedia systems	K3	
	CO4: Categorize the different Photo Editing, Video Editing and animation tools and select the appropriate tool based on the requirements	K4	
	CO5: Plan and develop Multimedia Projects	K5	

Learning Resources	
Text Books	1. Jason Van Gumster& Robert Shimonski (2010), —GIMP Bible‖, Wiley, 2nd edition. 2. Chris Gover, 2010, —Flash CS5: The missing Manual‖, 1st Edition, O" Reilly India.
Reference Books	1. Juan Manuel Ferreyra (2011), —GIMP 2.6 Cookbook‖, PACK publishing Ltd. 2. Robert Reinhard (2003), —Macromedia Flash MX Bible‖, Wiley Dreamtech India Pvt Ltd.

Website Link	1. https://www.youtube.com/watch?v=T8NIK3Rdolc (Unit IV: Gimp Video Editing) https://www.youtube.com/watch?v=Jz9WrbELGYA			
	L-Lecture	**T-Tutorial**	**P-Practical**	**C-Credit**

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
24M3UCTSP3	Practical : Multimedia	SEC PRACTICAL - III	III	2	-	-	2	2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	S	S	S	M	M
CO2	S	M	M	L	M	S	S	M	M	M
CO3	S	M	M	L	M	S	M	M	M	M
CO4	M	M	M	S	S	S	M	M	M	M
CO5	M	M	M	M	M	M	M	L	M	M

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	To give more sample programs to related topic.
Teaching and Learning Methods	Handling practical session through projector.
Assessment Methods	Attendance, Observation, CIA-I, CIA-II and ESE

Designed By	Verified By	Approved By
Ms.P.MuthamilSelvi	HoD Mr.P.SUBRAMANIAM	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M_UCTS01	**Advanced Excel**	**SEC THEORY - I**		**2**	**2**	**-**	**-**	**2**
Objectives	The student should be able to understand the basics and advanced tools, formula in Excel and get knowledge about data validation and macros.							

Unit	Course Content	Knowledge Levels	Sessions
I	**UNIT I - Basics of Excel** Data Formatting in Excel like colors, fonts, bullets etc. - Basic Sorting and Filtering - Basic Formulae like SUM, AVERAGE, COUNT, MAX, MIN, etc. - Spreadsheet Basics - Creating, Editing, Saving and Printing spreadsheets.	K1	4
II	**UNIT II - Getting Advance in Excel** Sorting Data by values, colors, etc. - Filtering by numbers, text, values, logical functions, colors. - Using Filters to Sort Data - Using Auto filter - Creating a custom AutoFilter - Advance Filtering Options. Custom and Conditional Formats: Creating a custom format - Create a custom number format - Conditional Formatting - Creating Conditional Formatting - Editing Conditional Formatting - Adding Conditional Formatting - Deleting conditional Formatting from the selected range.	K2	5
III	**UNIT III - Data Validation** Specifying a valid range of value of a cell - Specifying a valid value for a cell - Specifying custom validation based on formula for a cell. Working with Range Names: Using Range names - Creating range names - Using range names in formulas - Creating range names from heading - Deleting range names.	K3	5
IV	**UNIT IV - Using Formulas and functions** Text, Logical, Date and time, Information Database, Math and Trigonometry, Statistical and Lookup and reference functions. - Absolute and Relative Cell reference - Excel Auditing Tool: Trace procedures - Remove arrows.	K4	5
V	**UNIT V - Explore more in Excel** Freeze of windows: Splitting of windows - Paste Special - Spark lines - Remove duplicates - Go to function tab - Data Reconciliation. Managing Tables: Creating tables - Naming the tables - Changing the table style - Creating a total row - Creating a calculated column - Using filtering in table**. Current Trends: Automating tasks with macros.**	K5	5
	…… Self Study		
Course Outcome	CO1 : Recite with spreadsheet formatting and filter concepts.	K1	
	CO2 : Contrast the idea of data validation.	K2	
	CO3 : Sketch the formula and mathematical functions.	K3	
	CO4 : Relate the data in table.	K4	
	CO5 : Defend the well-formed spreadsheets.	K5	

Learning Resources	
Text Books	1. Ritu Arora – 'Mastering Avanced Excel –with Chat GPT Integration', pbp publications,
Reference Books	1. Swarup Das – "Advanced Excel with vba macros" Blue Rose Publishers, Oct-2020
Website Link	https://sunsreynat.wordpress.com/wp-content/uploads/2014/06/excel-2010-advanced.pdf
Self-Study Link	https://ptgmedia.pearsoncmg.com/images/0789729415/samplechapter/CH13_0789729415.pdf

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
24M_UCTS01	Advanced Excel	SBE - THEORY - I		2	2	-	-	2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	S	M	M	M	M	S	S	S
CO2	M	M	S	M	S	S	S	M	S	S
CO3	M	M	M	M	M	M	M	M	S	S
CO4	M	M	S	M	L	S	S	S	S	S
CO5	M	M	M	L	M	M	S	M	S	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	--
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation,
Assessment Methods	Seminar on web sites, Attendance, Assignment, CIA - I, CIA - II and ESE

Designed By	Verified By	Approved By
Dr.P.Nandhini	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
23M_UCTS02	**Software Testing**	**SBE - THEORY - II**		**2**	**2**	**-**	**-**	**2**
Objectives	The student should be able to understand software testing basics and get idea from different aspects of testing techniques and understand the testing process management and Know the testing tools and test automation.							

Unit	Course Content	Knowledge Levels	Sessions
I	**UNIT I - INTRODUCTION** Introduction to software testing – Evolution of Software Testing – Goals of Software Testing - Software Testing Definitions - Model for Software Testing - Software Testing as a Process - software testing terminology and methodology – Software Testing Terminology – STLC – Software Testing Methodology – Verification and Validation.	K1	4
II	**UNIT II - TESTING TECHNIQUES** Black-Box Testing Techniques – Equivalence Class Testing - State Table-Based Testing - Decision Table-Based Testing – Cause-Effect Graphing Based Testing – Error Guessing – White Box Testing Techniques - Need – Basis Path Testing – Graph Matrices – Loop Testing – Data Flow Testing – Mutation Testing – Static Testing – Progressive vs. Regressive Testing – Regression Testing Techniques.	K2	5
III	**UNIT III - MANAGING THE TESTING PROCESS** Test Management – Software Metrics – Testing Metrics for Monitoring and Controlling the Testing Process – Efficient Test Suit Management. BUILDING AGILITY & TOOL SUPPORT: Building Agility into the Testing Process- Using Agile Methods to Improve Software Testing -- Tool Support for Testing.	K3	5
IV	**UNIT IV - SELENIUM TOOL** Introduction to Automation - Planning before Automation - Introduction to Selenium - Installing Selenium Components. Using Selenium IDE - Managing User Interface Controls - Creating First Selenium Web Driver Script.	K4	5
V	**UNIT V - SELENIUM METHODS** Selenium Methods - Common Selenium Web Driver Methods - Verification Point in Selenium - Exploring the Features of Web Driver. Handling Pop-up Dialogs and Multiple Windows - Working with Dynamic UI Objects- Data driven testing using TestNG. **Current trends : Low Code No Code Automation**	K5	5
	…… Self Study		
Course Outcome	CO1 : Explain a range of testing techniques.	K1	
	CO2 : Extract an appropriate testing strategy.	K2	
	CO3 : Complete the testing process.	K3	
	CO4 : Categorize the different tools for testing.	K4	
	CO5 : Prioritize the automation testing and test various applications.	K5	

Learning Resources				
Text Books	1. William Perry, "Effective Methods for Software Testing", John Wiley,2009 2. AdithyaGarg, Ashish Mishra, "A Practitioner's Guide to Test Automation Using Selenium", Page 26 of 98 M.C.A 2023-24 onwards - University Department - Annexure No.68A SCAA DATED: 18.05.2023M.C.A 2023-24 onwards - University Department - Annexure No.68A SCAA DATED: 18.05.2023 Tata McGraw Hill Education, 2015.			
Reference Books	1. Julian Harty, —A Practical Guide to Testing Mobile Smartphone Applications, Vol. 6 of Synthesis Lectures on Mobile and Pervasive Computing Series‖, Morgan & Claypool Publishers, 2009. 2 NavneeshGarg, "Test Automation Using Selenium WebDriver with Java", AdactIn Group Pvt Ltd. 2014. 3 SatyaAvasarala, "Selenium Web Driver Practical Guide", Packt Publishing, 2014.			
Website Link	ttps://www.tutorialspoint.com/software_testing/index.htm ttps://greenstechnologys.com/Selenium%20Full%20Material%20Updated%20Greens.pdf			
Self-study Link	https://digitalpoint.tech/admin/uploads/4346d933bcfa1d59b368d121f6747980.pdf			
	L-Lecture	**T-Tutorial**	**P-Practical**	**C-Credit**

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
23M_UCTS02	**Software Testing**	**SBE - THEORY - II**		**2**	**2**	**-**	**-**	**2**

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	S	M	M	M	M	S	S	S
CO2	M	M	S	M	S	S	S	M	S	S
CO3	M	M	M	M	M	M	M	M	S	S
CO4	M	M	S	M	L	S	S	S	S	S
CO5	M	M	M	L	M	M	S	M	S	S
Level of Correlation between CO and PO					L-LOW		M- MEDIUM		S-STRONG	

Tutorial Schedule	--
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation,
Assessment Methods	Seminar on web sites, Attendance, Assignment, CIA - I, CIA - II and ESE

Designed By	Verified By	Approved By
Dr.P.Nandhini	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M_UCTS03	**Biometrics**	**SEC THEORY - III**		**2**	**2**	**-**	**-**	**2**
Objective	Students can Identify the various biometric technologies and Design of biometric recognition and develop simple applications for privacy.							

Unit	Course Content	Knowledge Levels	Sessions
I	**Introduction:** What is Biometrics, History, Types of biometric Traits, General architecture of biometric systems, Basic working of biometric matching, Biometric system error and performance measures, Design of biometric system, Applications of biometrics, Biometrics versus traditional authentication methods. Face Biometrics: Introduction, Background of Face Recognition, Design of Face Recognition System, Neural Network for Face Recognition, Face Detection in Video Sequences, Challenges in Face Biometrics, .7 Face Recognition Methods, Advantages and Disadvantages.	K1	5
II	**Retina and Iris Biometrics**: Introduction, Performance of Biometrics, Design of Retina Biometrics, Design of Iris Recognition System, Iris Segmentation Method , Determination of Iris Region, Determination of Iris Region, Applications of Iris Biometrics, Advantages and Disadvantages Vein and Fingerprint Biometrics: Introduction, Biometrics Using Vein Pattern of Palm, Fingerprint Biometrics, Fingerprint Recognition System, Minutiae Extraction, Fingerprint Indexing, Experimental Results, Advantages and Disadvantages.	K2	5
III	**Privacy Enhancement Using Biometrics:** Introduction, Privacy Concerns Associated with Biometric Deployments, Identity and Privacy, Privacy Concerns, Biometrics with Privacy Enhancement, Comparison of Various Biometrics in Terms of Privacy, Soft Biometrics. Multimodal Biometrics: Introduction to Multimodal Biometrics , Basic Architecture of Multimodal Biometrics, Multimodal Biometrics Using Face and Ear, Characteristics and Advantages of Multimodal Biometrics, Characteristics and Advantages of Multimodal Biometrics.	K3	5
IV	**Watermarking Techniques:** Introduction, Data Hiding Methods, Basic Framework of Watermarking, Classification of Watermarking, Applications of Watermarking, Attacks on Watermarks, Performance Evaluation, Characteristics of Watermarks, General Watermarking Process, Image Watermarking 6 CO4 Techniques, Watermarking Algorithm, Experimental Results, Effect of Attacks on Watermarking Techniques, Attacks on Spatial Domain Watermarking.	K4	4
V	**Scope and Future:** Scope and Future Market of Biometrics, Biometric Technologies, Applications of Biometrics, Biometrics and Information Technology Infrastructure, Role of Biometrics in Enterprise Security, Role of Biometrics in Border Security, Smart Card Technology and Biometrics, Radio Frequency Identification (RFID) Biometrics, DNA Biometrics, Comparative Study of Various Biometric Techniques. Biometric Standards: Introduction, Standard Development Organizations, Application Programming Interface (API), Information Security and Biometric Standards, Biometric Template Interoperability. **Current Trends:** Face recognition	K5	5

	..... Self Study		
Course Outcome	CO1: Explain the basic concepts and the functionality of the Biometrics, Face Biometrics, Types, Architecture and Applications.	K1	
	CO2: Compare the concepts Retina and Iris Biometrics and Vein and Fingerprint Biometrics.	K2	
	CO3: Use the Privacy Enhancement and Multimodal Biometrics.	K3	
	CO4: Distill the analytical idea on Watermarking Techniques	K4	
	CO5: Plan the knowledge on Future scope of Biometrics, and Study of various Biometric Techniques.	K5	

Learning Resources	
Text Books	Biometrics: Concepts and Applications by G.R Sinha and SandeepB.Patil , Wiley, 2013
Reference Books	1.Guide to Biometrics by Ruud M. Bolle , SharathPankanti, Nalinik.Ratha, Andrew W.Senior, Jonathan H. Connell , Springer 2009 2.Introduction to Biometrics by Anil k. Jain, Arun A. Ross, KarthikNandakumar 3.Hand book of Biometrics by Anil K. Jain, Patrick Flynn, ArunA.Ross.
Website Link	1. https://www.tutorialspoint.com/biometrics/index.html 2.. https://www.javatpoint.com/biometrics-tutorial 3.. https://www.thalesgroup.com/en/markets/dig
Self-Study Material	https://www.thalesgroup.com/en/markets/digital-identity-and-security/government/biometrics/facial-recognition

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology- Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
24M_UCTS03	Biometrics	SEC THEORY - III		2	2	-	-	2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	L	S	M	M	M	L
CO2	S	M	L	M	M	S	M	M	M	L
CO3	M	M	S	M	M	M	M	M	M	M
CO4	S	M	M	M	S	M	M	M	M	M
CO5	L	M	M	S	S	L	M	M	M	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	---
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Mrs.E.Jamuna	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology – Syllabus LOCF – CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M_UCTS04	Cyber Forensics	SEC THEORY - IV		2	2	-	-	2
Objective	Students can analyze the concepts of Cyber forensics in various crimes and understand the main amendment of cyber forensics.							

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction: Computer Forensics Fundamentals – Types of Computer Forensics Technology – Types of Computer Forensics Systems –Vendor and Computer Forensics Services.	K1	4
II	Computer Forensics evidence and capture: Data Recovery – Evidence collection and data size – Duplication and preservation of digital evidence – Computer image verification and authentication.	K2	5
III	Computer forensic analysis: Discover of Electronic Evidence-Identification of Data – Reconstructing Past Events – Fighting against Macro Threats – Information Warfare Arsenal – Tactics of the Military – Tactics of Terrorist and Rogues–Tactics of Private Companies.	K3	5
IV	Information warfare: Arsenal – Surveillance Tools – Hackers and Theft of components – Contemporary computer crime & terrorism – Avenues prosecution and government efforts – applying the first amendment to computer related crime – The fourth amendment and other legal issues.	K4	5
V	Computer forensic cases: Developing Forensic Capabilities –Searching and Seizing Computer Related Evidence –Processing Evidence and Report Preparation–Future Issues. **Current Trends-*Digital Forensics, Network Forensics***	K5	5
	…… Self Study		
Course Outcome	CO1: Illustrate the fundamental concept of Cyber forensics	K1	
	CO2: Summarize the forensic evidence	K2	
	CO3: Teach the types of crimes in cyber forensics	K3	
	CO4: Correlate the most appropriate amendment to computer crime	K4	
	CO5: Plan the various computer forensics cases	K5	

Learning Resources	
Text Books	1. John R. Vacca, "Computer Forensics : computer Crime Scene Investigation", Cengage Learning, 2nd Edition, 2005. 2. Marjie T. Britz, " Computer Forensics and Cyber Crime : An Introductio", Pearson Education, 2nd edition, 2008.
Reference Books	1. Marie – Helen Maras, "Computer Forensics: Cyer Criminals, Laws, and Evidence", Jones & Batlett Learning: 2nd Edition, 2014. 2. ChadSteel, " Windows Forensics", wily, First Edition, 2006. 3. MajidYar, "cyber Crime and society", SAGE Publications Ltd., Hardcovr, 2nd Edition, 2013. 4. 4. Robert M Slade, " software forensics: Collecting Evidence from the scene of Digital Crime", Tata McGraw Hill, Paperback, First Edition, 2004.
Website Link	https://annamalaiuniversity.ac.in/studport/download/engg/it/resources/Cyber%20Forensics.Pdf
Self-Study Material	https://www.enisa.europa.eu/topics/training-and-exercises/trainings-for-cybersecurity-specialists/online-training-material/documents/introduction-to-network-forensics-handbook.pdf

L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology- Syllabus LOCF - CBCS with effect from 2024-2025 Onwards										
Course Code	**Course Title**	**Course Type**			**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M_UCTS04	**Cyber Forensics**	**SEC THEORY - IV**				**2**	**2**	**-**	**-**	**2**

CO-PO Mapping										
CO Number	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	M	M	M	S	S	M	M	M	S
CO2	S	M	M	M	M	S	M	M	M	M
CO3	S	S	S	S	M	S	S	S	S	M
CO4	S	M	M	M	S	S	M	M	M	S
CO5	S	S	M	M	M	S	S	M	M	M
Level of Correlation between CO and PO					L-LOW		M- MEDIUM		S-STRONG	

Tutorial Schedule	---
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE

Designed By	**Verified By**	**Approved By**
Mr.S.Niresh	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology- Syllabus LOCF – CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M_UCTS05	Simulation and Modelling	**SEC THEORY – V**		**2**	**2**	**-**	**-**	**2**
Objective	Students can understand the concept of Simulation and modeling.							

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction To Modeling & Simulation – What is 6 Modeling and Simulation – Complexity Types – Model Types – Simulation Types – M&S Terms and Definitions Input Data Analysis – Simulation Input Modeling – Input Data Collection - Data Collection Problems - – Input Modeling Strategy - Histograms -Probability Distributions - Selecting a Probability Distribution.	K1	4
II	Random Variate Generation – Random Numbers – Random Number Generators – General principles – Inverse Transform Method – Acceptance Rejection Method –Composition Method –Relocate and Rescale Method - Specific distributions-Output Data Analysis – Introduction -Types of Simulation With Respect to Output Analysis - Stochastic Process and Sample Path - Sampling and Systematic Errors - Mean, Standard Deviation and Confidence Interval - Analysis of Finite Horizon Simulations - Single Run - Independent Replications - Sequential Estimation – Analysis of Steady-State Simulations - Removal of Initialization Bias (Warm-up Interval) - Replication-Deletion Approach - Batch-Means Method .	K2	5
III	Comparing Systems via Simulation – Introduction – Comparison Problems - Comparing Two Systems - Screening Problems - Selecting the Best - Comparison with a Standard - Comparison with a Fixed Performance Discrete Event Simulations – Introduction - Next-Event Time Advance - Arithmetic and Logical Relationships - Discrete-Event Modeling Approaches – Event Scheduling Approach – Process Interaction Approach.	K3	5
IV	Entity Modeling – Entity Body Modeling – Entity Body Visualization – Entity Body Animation – Entity Interaction Modeling – Building Modeling Distributed Simulation – High Level Architecture (HLA) – Federation Development and Execution Process (FEDEP) – SISO RPR FOM Behavior Modeling – General AI Algorithms - Decision Trees.	K4	5
V	Optimization Algorithms – Genetic Algorithms – Simulated Annealing Examples: Sensor Systems Modeling – Human Eye Modeling – Optical Sensor Modeling – Radar Modeling. *** Current Trends : Cost control modeling and simulation.***	K5	5
	…… Self Study		
Course Outcome	CO1: Explain the concepts, simulation types, data analysis, modeling strategies.	K1	
	CO2: Summarize the basic knowledge and understanding about random numbers related concepts.	K2	
	CO3: Sketch the Comparison problems and Event simulations.	K3	
	CO4: Correlate about the entity modeling.	K4	
	CO5: Plan the concept of Optimization Algorithms.	K5	

Learning Resources	
Text Books	1. Jerry Banks, —Handbook of Simulation: Principles, Methodology, Advances, Applications, and Practice‖, John Wiley & Sons, Inc., 1998. 2. George S. Fishman, —Discrete-Event Simulation: Modeling, Programming and Analysis‖, Springer-Verlag New York, Inc., 2001.
Reference Books	1. Andrew F. Seila, Vlatko Ceric, PanduTadikamalla, —Applied Simulation Modeling‖, Thomson Learning Inc., 2003.
Website Link	1. https://www.tutorialspoint.com/modelling_and_simulation/index.htm 2. https://www.javatpoint.com/verilog-simulation-basics
Self-Study Material	https://en.wikipedia.org/wiki/Modeling_and_simulation

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
24M_UCTS05	Simulation and Modelling	SEC THEORY - V		2	2	-	-	2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	L	S	M	M	M	L
CO2	S	M	M	M	M	S	M	M	M	L
CO3	M	M	M	M	M	M	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	L	M	M	S	S	L	M	M	M	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	--
Teaching and Learning Methods	Handling classes through chalk & talk method, PPT presentation
Assessment Methods	Attendance, Assignment, CIA I, CIA II and ESE

Designed By	Verified By	Approved By
Mrs.A.Geetha	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

List of Skill Based Elective Course (SEC) and

Non Major Elective Course (NMEC)

Offered by the for B.Sc., COMPUTER TECHNOLOGY

SYLLABUS - LOCF-CBCS Pattern

EFFECTIVE FROM THE ACADEMIC YEAR 2023-2024 Onwards

S. NO.	COURSE_CODE	TITLE OF THE COURSE
1	23M_UCTN01	FUNDAMENTALS OF INFORMATION TECHNOLOGY
2	23M_UCTN02	ADVANCED EXCEL
3	23M_UCTN03	OFFICE AUTOMATION
4	23M_UCTN04	UNDERSTANDING INTERNET
5	23M_UITN05	PHP PROGRAMMING
6	23M_UITN06	WEB DESIGNING
7	23M_UITN07	MULTIMEDIA SYSTEMS

B.Sc. Computer Technology Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
24M_UCTN01	**Fundamentals of Information Technology**	**NMEC**		**2**	**2**	**-**	**-**	**2**

Objective	Students can able to learn the Understand basic concepts and terminology of information technology.		
Unit	**Course Content**	**Knowledge Levels**	**Sessions**
I	**Introduction to Computers:** Introduction- Definition- .Characteristics of computer- Evolution of Computer- Block Diagram Of a computer- Generations of Computer- Classification Of Computers- Applications of Computer- Capabilities and limitations of computer.	K1	6
II	**Basic Computer Organization:** Role of I/O devices in a computer system. Input Units: Keyboard- Terminals and its types. Pointing Devices- Scanners and its types- Voice Recognition Systems- Vision Input System- Touch Screen- Output Units: Monitors and its types. Printers: Impact Printers and its types. Non-Impact Printers and its types- Plotters- types of plotters- Sound cards- Speakers.	K2	6
III	**Storage Fundamentals:** Primary Vs Secondary Storage- Data storage & retrieval methods. Primary Storage: RAM ROM- PROM- EPROM- EEPROM. Secondary Storage: Magnetic Tapes- Magnetic Disks. Cartridge tape- hard disks- Floppy disks Optical Disks- Compact Disks- Zip Drive- Flash Drives.	K3	4
IV	**Software:** Software and its needs- Types of S/W. **System Software:** Operating System- Utility Programs Programming Language: Machine Language- Assembly Language- High Level Language their advantages & disadvantages. Application S/W and its types: Word Processing- Spreadsheet Presentation- Graphics- DBMS.	K4	4
V	**Operating System:** Functions- Measuring System Performance- Assemblers- Compilers and Interpreters. Batch Processing- Multiprogramming- Multi Tasking- Multiprocessing- Time Sharing- DOS- Windows- Unix/Linux. **Current Trends-*Internet of Thing (IoT) review of review: Bibliometric overview since its foundation***	K5	4
	…… Self Study.		
Course Outcome	**CO1:** Learn the basics of computer- Construct the structure of the required things in computer- learn how to use it.	K1	
	CO2: Develop organizational structure using for the devices present currently under input or output unit	K2	
	CO3: Concept of storing data in a computer.	K3	
	CO4: Work with different software- Write program in the software and applications of software.	K4	
	CO5: Apply the Operating system in information technology.	K5	
Learning Resources			

Text Books	1. Anoop Mathew- S. KavithaMurugeshan (2009)- ―Fundamental of Information Technology‖- Majestic Books. 2. Alexis Leon- Mathews Leon-‖ Fundamental of Information Technology‖- 2nd Edition
Reference Books	1. Bhardwaj SushilPuneet Kumar- ―Fundamental of Information Technology 2. GG WILKINSON- ―Fundamentals of Information Technology- Wiley-Blackwell 3. A Ravichandran - ―Fundamentals of Information Technology‖- Khanna Book Publishing
Website Link	1. https://testbook.com/computer-awareness/computer-fundamentals 2. https://www.tutorialsmate.com/2020/04/computer-fundamentals-tutorial.html 3. https://www.tutorialspoint.com/computer_fundamentals/index.htm
Self-Study Material	1. https://www.sciencedirect.com/science/article/abs/pii/S0167739X23000237 2. https://publications.jrc.ec.europa.eu/repository/handle/JRC126051

	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
23M_UCTN01	Fundamentals of Information Technology	NMEC		2	2	-	-	2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	S	S	S	S	S	S	S
CO2	S	S	S	M	S	S	M	S	S	M
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	M	S	S	S	M	S
CO5	S	S	M	S	S	S	S	M	S	S
Level of Correlation between CO and PO					L-LOW		M-MEDIUM		S-STRONG	

Tutorial Schedule	Group Discussion- Quiz program- Model preparation.
Teaching and Learning Methods	Audio Video lecture- Chalk and Board class- Assignment- PPT Presentation and Video presentation
Assessment Methods	Assignment- CIA-I, CIA-II and ESE

Designed By	Verified By	Approved By
Mrs.P.Muthamilselvi	HOD Mr.P Subramaniam	Member Secretary Dr.S.Shahitha

B.Sc. Computer Technology – Syllabus LOCF – CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
23M_UCTN02	**Advanced Excel**	**NMEC**	**-**	**2**	**2**	**-**	**-**	**2**
Objective	Student should handle large amounts of data then aggregate numeric data and summarize into categories and subcategories.							

Unit	Course Content	Knowledge Levels	Sessions
I	**Basics of Excel:**- Customizing common options- Absolute and relative cells- Protecting and un-protecting worksheets and cells- Working with Functions - Writing conditional expressions - logical functions - lookup and reference functions- VlookUP with Exact Match- Approximate Match- Nested VlookUP with Exact Match- VlookUP with Tables- Dynamic Ranges- Nested VlookUP with Exact Match- Using VLookUP to consolidate Data from Multiple Sheets	K1	6
II	**Data Validations:** - Specifying a valid range of values - Specifying a list of valid values- Specifying custom validations based on formula - Working with Templates Designing the structure of a template- templates for standardization of worksheets - Sorting and Filtering Data - Sorting tables- multiple-level sorting- custom sorting Filtering data for selected view - advanced filter options Working with Reports Creating subtotals- Multiple-level subtotal	K2	6
III	**Creating Pivot tables:** Formatting and customizing Pivot tables- advanced options of Pivot tables- Pivot charts Consolidating data from multiple sheets and files using Pivot tables- external data sources- data consolidation feature to consolidate data- Show Value As % of Row- % of Column- Running Total- Compare with Specific Field Viewing Subtotal under Pivot- Creating Slicers.	K3	4
IV	**More Functions Date and time functions:**- Text functions Database functions- Power Functions - Formatting Using auto formatting option for worksheets- Using conditional formatting option for rows- columns and cells- What If Analysis - Goal Seek- Data Tables- Scenario Manager	K3	**4**
V	**Charts:** - Formatting Charts- 3D Graphs- Bar and Line Chart together- Secondary Axis in Graphs- Sharing Charts with PowerPoint / MS Word- Dynamically- New Features Of Excel Sparklines- Inline Charts- data Charts- Overview of all the new features. ***CURRENT TENDS -** Data-Locality Aware Job Scheduling IoT tasks in fog-cloud computing environments*	K4	**4**
	…… Self Study		
Course Outcome	CO1: Explain the Work with big data tools and its analysis techniques.	K1	
	CO2: Compare data by utilizing clustering and classification algorithms.	K2	
	CO3: Teach the different mining algorithms and recommendation systems for large volumes of data.	K3	
	CO4: Take a part of Perform analytics on data streams	K3	
	CO5: Defend the learn No-SQL databases and management.	K3	

Learning Resources	
Text Books	1. Excel 2019 All Microsoft Excel 2019 Pivot Table Data Crunching
Reference Books	1. Excel 2019 All-in-One for Dummies- Greg Harvey- 1st edition
Website Link	1.https://www.w3schools.com/html/default.asp 2.https://www.teachucomp.com/samples/html/5/manuals/Mastering-HTML5-CSS3.pdf
Self-Study Material	1. https://www.sciencedirect.com/science/article/pii/S2590123024000331

L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
23M_UCTN02	Advanced Excel	NMEC		2	2	-	-	2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	M	S	S	M	S	S
CO2	S	S	M	M	M	S	M	M	S	S
CO3	M	M	M	S	S	S	S	M	S	S
CO4	M	M	S	S	S	S	M	M	S	S
CO5	M	S	S	M	S	S	S	M	S	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion- Class test
Teaching and Learning Methods	Handling classes through chalk & talk method- PPT presentation
Assessment Methods	Attendance- Assignment- CIA – I, CIA- II and ESE

Designed By	Verified By	Approved By
Mrs.M.Kalaiselvi	HoD Mr.P Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology – Syllabus LOCF – CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
23M_UCTN03	**Office Automation**	**NMEC**		**2**	**2**	**-**	**-**	**2**
Objective	Student should understand the basics of computer systems and its components then apply the basic concepts of a word- spread sheet package- PowerPoint tool.							

Unit	Course Content	Knowledge Levels	Session
I	**Introduction concepts:** Memory unit–CPU. **Input Devices:** Key board- Mouse and Scanner. **Output devices:** Monitor- Printer. **Introduction to Operating systems & its features:** DOS– UNIX–Windows. Introduction to Programming Languages.	K1	6
II	**Word Processing:** Open- Save and close word document; Editing text – tools- formatting- bullets- Spell Checker - Document formatting – Paragraph alignment- indentation- headers and footers- Numbering- printing–Preview- options-merge.	K2	6
III	**Spreadsheets :** Excel–opening- entering text and data-formatting- navigating- Formulas–entering- handling and copying- Charts– creating- formatting and printing-analysis tables- preparation of Financial statements- introduction to data analytics.	K3	4
IV	**Database Concepts:** The concept of data base management system- Data field- records- and files- Sorting and indexing data-Searching Records. Designing queries- and reports- Linking of data files- Understanding Programming environment in DBMS-Developing Menu drive applications in query language (MS-Access).	K4	4
V	**Power point :** Introduction to Power point - Features – Understanding slide typecasting & viewing slides – creating slide Shows. Applying special object – including objects & pictures – Slide Transition–Animation effects- audio inclusion-timers.***current trends "Macros"***	K5	4
	…… Self Study		
Course Outcome	CO1: Describe the basics of computers and its components.	K1	
	CO2: Extract to create the documents- spreadsheet and presentation.	K2	
	CO3: Teach the concepts of Database and implement the Query in Database.	K3	
	CO4: Demonstrates the different automation tools.	K4	
	CO5: Defend the automation tools for office packages.	K5	

Learning Resources	
Text Books	1. Peter Norton-—Introduction to Computers‖–Tata Mc Graw-Hill.
Reference Book	1.Jennifer Ackerman Kettel- Guy Hat-Davis- Curt Simmons- —Microsoft 2003‖- Tata McGrawHill.

Self-Study Material	1. https://www.javatpoint.com/automation-tools 2. https://www.udemy.com/course/office-automation-certificate-course/			
	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem.	Hours	L	T	P	C
23M_UCTN03	Office Automation	NMEC		2	2	-	-	2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	S	M	L	L	L	M	M	M
CO2	S	M	S	M	L	L	M	M	M	S
CO3	S	S	S	M	L	M	M	M	M	L
CO4	S	M	M	M	M	S	M	M	S	M
CO5	S	S	L	M	M	S	S	S	M	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion- Class test
Teaching and Learning Methods	Handling classes through chalk & talk method- PPT presentation
Assessment Methods	Attendance- Assignment- CIA I- CIA II and ESE

Designed By	Verified By	Approved By
Mrs.M.Kalaiselvi	HoD Mr.P Subramaniam	Member Secretary Dr.S.Shahitha

B.Sc. Coputer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
23_MUCTN04	**UNDERSTANDING INTERNET**	**NMEC**		**2**	**2**	**-**	**-**	**2**

Objective	Student can able to Knowledge of Internet medium Internet as a mass medium Features of Internet Technology internet as source of infotainment

Unit	Course Content	Knowledge Levels	Sessions
I	The Emergence Of Internet as a mass medium –the world of world wide web.	K1	6
II	Features Of Internet Technology.	K2	6
III	Internet as a source of infotainment – classification based on content and style.	K3	4
IV	Demographic and psychographic descriptions of internet audiences – effect of internet on the values and life-styles.	K4	4
V	Present issues such as cybercrime and future possibilities ***Current Trends: Cloud Computing** *	k5	4
	…… Self Study		
Course Outcome	CO1: Explain the basic concept in internet Concept of mass medium and world wide web	K1	
	CO2: Infer the concept of internet as a technology.	K2	
	CO3: Solve the concept of infotainment and classification based on content and style	K3	
	CO4: Relate the Can be able to know about Demographic and psychographic description of internet	K4	
	CO5: Defend the concept of cybercrime and future possibilities	K5	

Learning Resources	
Text Books	1. Barnouw- E and Krishnaswamy S [1990] Indian Film. New York- OUP.
Reference Books	1. Acharya- R N [1987] Television in India. Manas Publications- New Delhi. 2. Barnouw- E [1974] Documentary – A History of Nonfiction. Oxford- OUP 3. Luthra- H R [1986] Indian Broadcasting. Ministry of I& B- New Delhi. 4. Vasudev- Aruna [1986] The New Indian Cinema. Macmillan India- New Delhi.
Website Link	1. https://www.teachucomp.com/samples/html/5/manuals/Mastering-HTML5-CSS3.pdf 2. https://www.w3schools.com/html/default.asp
Self-Study Material	https://www.w3schools.in/cloud-computing

	L-Lecture	**T-Tutorial**	**P-Practical**	**C-Credit**

B.Sc.- Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards										
Course Code	**Course Title**		**Course Type**		**Sem.**	**Hours**	**L**	**T**	**P**	**C**
23_MUCTN04	**UNDERSTANDING INTERNET**		**NMEC**			**2**	**2**	**-**	**-**	**2**

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	L	S	M	M	M	L
CO2	S	M	L	M	M	S	M	M	M	L
CO3	M	M	S	M	M	M	M	M	M	M
CO4	S	M	M	M	S	M	M	M	M	M
CO5	L	M	M	S	S	L	M	M	M	S
Level of Correlation between CO and PO					L-LOW		M-MEDIUM		S-STRONG	

Tutorial Schedule	Conducting Group Discussion- Class test
Teaching and Learning Methods	Handling classes through chalk & talk method- PPT presentation
Assessment Methods	Attendance- Assignment- CIA I- CIA II and ESE

Designed By	**Verified By**	**Approved By**
Mrs.E.Jamuna	HoD Mr.P Subramaniam	Member Secretary Dr.S.Shahitha

B.Sc. Computer Technology – Syllabus LOCF – CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
23M_UCTN05	**PHP Programming**	**NMEC**		**2**	**2**	**-**	**-**	**2**
Objective	Students should learn the necessary concepts for working with the files using PHP.							

Unit	Course Content	Knowledge Levels	Session
I	Introduction to PHP -Basic Knowledge of websites - Introduction of Dynamic Website -Introduction to PHP -Scope of PHP -XAMPP and WAMP Installation.	K1	6
II	PHP Programming Basics -Syntax of PHP -Embedding PHP in HTML - Embedding HTML in PHP. Introduction to PHP Variable -Understanding Data Types -Using Operators - Using Conditional Statements -If()- else if() and else if condition Statement.	K2	6
III	Switch() Statements -Using the while() Loop -Using the for() Loop PHP Functions. PHP Functions -Creating an Array - Modifying Array Elements –Processing Arrays with Loops - Grouping Form Selections with Arrays -Using Array Functions.	K3	4
IV	PHP Advanced Concepts -Reading and Writing Files -Reading Data from a File.	K3	4
V	Managing Sessions and Using Session Variables -Destroying a Session -Storing Data in Cookies -Setting Cookies. **Current Trends *Zend Framework***	K3	**4**
	…… Self Study		
Course Outcome	CO1: Remember PHP scripts to handle HTML forms	K1	
	CO2: Understand regular expressions including modifiers- operators- and metacharacters.	K2	
	CO3: Apply PHP Program using the concept of array.	K3	
	CO4: Analysis PHP programs that use various PHP library functions	K3	
	CO5:Evaluate and Manipulate files and directories.	K5	

Learning Resources	
Text Books	1. Head First PHP & MySQL: A Brain-Friendly Guide- 2009-Lynn mighley and Michael Morrison. 2. The Joy of PHP: A Beginner's Guide to Programming Interactive Web Applications with PHP and MySQL- Alan Forbes.
Website Link	1. PHP: The Complete Reference-Steven Holzner. 2. DT Editorial Services (Author)- ―HTML 5 Black Book (Covers CSS3- JavaScript- XML- XHTML- AJAX- PHP- jQuery)‖- Paperback 2016- 2ndEdition.
Self-Study Material	1. https://www.simplilearn.com/learn-php-basics-free-course-

L-Lecture	**T-Tutorial**	**P-Practical**	**C-Credit**

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
23M_UITN05	PHP Programming	NMEC		2	2	-	-	2

CO-PO Mapping

CO Number	PO 1	PO 2	PO 3	PO4	PO 5	PSO 1	PSO 2	PSO 3	PSO4	PSO5
CO1	M	S	M	S	S	S	M	L	M	L
CO2	S	M	S	M	M	S	S	M	M	S
CO3	M	M	S	S	S	S	S	M	S	S
CO4	M	S	S	M	S	S	M	S	M	M
CO5	S	M	M	S	S	S	M	M	M	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion- Class test
Teaching and Learning Methods	Handling classes through chalk & talk method- PPT presentation
Assessment Methods	Attendance- Assignment- CIA I- CIA II and ESE

Designed By	Verified By	Approved By
Mr.S.Niresh	HoD P Subramaniam	Member Secretary Dr.S.Shahitha

B.Sc. Computer Technology – Syllabus LOCF – CBCS with effect from 2023-2024 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
23M_UCTN06	**WEB DESIGNING**	**NMEC**		**2**	**2**	**-**	**-**	**2**
Objective	Student should know the concept of JavaScript and identify and understand the goals and objectives of the Ajax							

Unit	Course Content	Knowledge Levels	Sessions
I	**HTML:** HTML-Introduction-tag basics- page structure-adding comments working with texts- paragraphs and line break. Emphasizing test- heading and horizontal rules-list-font size- face and color alignment links-tables-frames.	K1	6
II	**Forms & Images Using Html: Graphics:** Introduction-How to work efficiently with images in web pages- image maps-GIF animation- adding multimedia- data collection with html forms textbox- password- list box- combo box- text area- tools for building web page front page.	K2	6
III	**XML & DHTML**: Cascading style sheet (CSS)-what is CSS-Why we use CSS-adding CSS to your web pages-Grouping styles-extensible markup language (XML).	K2	4
IV	**MDynamic HTML:** Document object model (DCOM)-Accessing HTML & CSS through DCOM Dynamic content styles & positioning-Event bubbling-data binding. **JavaScript:** Client-side scripting- What is JavaScript- How to develop JavaScript- simple JavaScript- variables- functions-conditions- loops and repetition.	K3	4
V	Advance script- JavaScript and objects- JavaScript own objects- the DOM and web browser environments- forms and validations. ***CURRENT TRENDS - AngularJS***	K3	4
	…… Self Study		
Course Outcome	CO1: Remember the knowledge of HTML	K1	
	CO2: Apply the develop and publish Web pages using Hypertext Markup Language (HTML).	K3	
	CO3: understand to optimize page styles and layout with Cascading Style Sheets (CSS).	K2	
	CO4: Analysis to develop a java script	K4	
	CO5: Evaluate to develop web application using Ajax.	K5	

Learning Resources	
Text Books	1. Pankaj Sharma —Web Technology- SkKataria& Sons Bangalore 2011. 2. Mike Mcgrath —Java Script- Dream Tech Press 2006- 1st Edition. 3. Achyut S Godbole&AtulKahate- —Web Technologies- 2002- 2nd Edition.
Reference Books	1. Laura Lemay- RafeColburn - Jennifer Kyrnin- —Mastering HTML- CSS & Javascript Web Publishing‖- 2016. 2. DT Editorial Services (Author)- —HTML 5 Black Book (Covers CSS3- JavaScript-XML- XHTML- AJAX- PHP- jQuery)- Paperback 2016- 2nd Edition.

Website Link	1. NPTEL & MOOC courses titled Web Design and Development. 2. https://www.geeksforgeeks.org/			
Self-Study Material	1. https://en.wikipedia.org/wiki/Natural_language_processing 2. https://www.sciencedirect.com/science/article/abs/pii/S0899707124000949			
	L-Lecture	**T-Tutorial**	**P-Practical**	**C-Credit**

B.Sc.Coputer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
23M_UCTN06	WEB DESIGNING	SEC		2	2	-	-	2

CO-PO Mapping

CO Number	PO1	PO2	PO 3	PO 4	PO 5	PSO1	PSO2	PSO 3	PSO 4	PSO5
CO1	S	M	L	M	M	S	S	M	S	S
CO2	S	S	M	M	S	S	M	M	S	S
CO3	S	S	M	S	S	S	S	M	S	S
CO4	S	M	S	M	S	S	M	M	S	S
CO5	S	M	M	M	S	S	S	M	S	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion- Class test
Teaching and Learning Methods	Handling classes through chalk & talk method- PPT presentation
Assessment Methods	Attendance- Assignment- CIA I- CIA II and ESE

Designed By	Verified By	Approved By
Mrs.N.Ramya	HOD P Subramaniam	Member Secretary Dr.S.Shahitha

B.Sc. Computer Technology – Syllabus LOCF – CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem.**	**Hours**	**L**	**T**	**P**	**C**
23_MUCTN07	**MULTIMEDIA SYSTEMS**	**NMEC**		**2**	**2**	**-**	**-**	**2**
Objective	To study about the Image File Formats- Sounds Audio File Formats.							

Unit	Course Content	Knowledge Levels	Sessions
I	**Introduction:** Multimedia Definition-Use Of Multimedia Delivering Multimedia- Text: About Fonts and Faces - Using Text in Multimedia -Computers and Text Font Editing and Design Tools Hypermedia and Hypertext.	K1	6
II	**Images:** Plan Approach - Organize Tools - Configure Computer Workspace -Making Still Images - Color - Image File Formats. Sound: The Power of Sound -Digital Audio- Midi Audio Midi vs. .Digital Audio-Multimedia System Sounds Audio File Formats -Vaughan's Law of Multimedia Minimums - Adding Sound to Multimedia Project	K2	6
III	**Animation:** The Power of Motion-Principles of Animation - Animation by Computer - Making Animations that Work. Video: Using Video - Working with Video and Displays Digital Video Containers-Obtaining Video Clips Shooting and Editing Video.	K3	4
IV	**Making Multimedia:** The Stage of Multimedia Project - The Intangible Needs -The Hardware Needs - The Software Needs - An Authoring Systems Needs Multimedia Production Team.	K4	4
V	**Planning and Costing:** The Process Making Multimedia-Scheduling-Estimating - RFPs and Bid Proposals. Designing and Producing - Content and Talent: Acquiring Content Ownership of Content Created for Project Acquiring Talent. **Current Trends: Immersive experiences with AR and VR**	k5	4
	…… Self Study		
Course Outcome	CO1:Remember the concepts- importance- application and the process of developing multimedia	K1	
	CO2: Understand have basic knowledge and understanding about image related processings	K2	
	CO3:To Apply the framework of frames and bit images to animations	K3	
	CO4: Analyse about the multimedia projects and stages of requirement in phases of project.	K4	
	CO5:Evaluate the concept of cost involved in multimedia planning- designing- and producing	K5	

Learning Resources	
Text Books	1. TayVaughan-"Multimedia:MakingItWork"-8thEdition-Osborne/McGrawHill-2001.

Reference Books	1.RalfSteinmetz&KlaraNahrstedt"MultimediaComputing-Communication& Applications"-PearsonEducation-2012
Website Link	1. https://www.geeksforgeeks.org/multimedia-systems-with-features-or-characteristics/
Self-Study Material	https://www.thinkwithgoogle.com/intl/en-emea/future-of marketing/emergingtechnology/vr-ar-mr-and-what-does-immersion-actually-mean/

	L-Lecture	**T-Tutorial**	**P-Practical**	**C-Credit**

B .Sc. Computer Technology - Syllabus LOCF - CBCS with effect from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
23_MUCTN07	Multimedia Systems	NMEC		2	2	-	-	2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	L	S	M	M	M	L
CO2	S	M	L	M	M	S	M	M	M	L
CO3	M	M	S	M	M	M	M	M	M	M
CO4	S	M	M	M	S	M	M	M	M	M
CO5	L	M	M	S	S	L	M	M	M	S

Level of Correlation between CO and PO	L-LOW	M- MEDIUM	S-STRONG

Tutorial Schedule	Conducting Group Discussion- Class test
Teaching and Learning Methods	Handling classes through chalk & talk method- PPT presentation
Assessment Methods	Attendance- Assignment- CIA I- CIA II and ESE

Designed By	Verified By	Approved By
Mrs.E.Jamuna	HOD P Subramaniam	Member Secretary Dr.S.Shahitha

B.Sc.-Computer Technology Syllabus LOCF-CBCS with effect from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
24M5UCTIS1	INTERNSHIP	INTERNSHIP	V	-	-	-	-	2
Objective	Students can get exposure on the practical aspects of Computer Science in Industries							

Guidelines for Internship Programme	**Knowledge Levels**	**Session**
1. Duration of the internship training is 15 days during the Vacation which falls at the end of the 5th Semester. 2. The departments concerned will prepare on exhaustive panel of Institutions, Industries and practitioners. 3. The individual student has to identify the institution / industry / practitioners of their choice and inform the same to the HOD / Staff-in-Charge. 4. The students hereafter will be called Trainees should maintain a work diary in which the daily work done should be entered and the same should be Attested by the Section in-charge. 5. The departments should prepare an outline of the job to be done, Sections in which they have to be attached both in the office as well as in the field. 6. The trainees should strictly adhere to the rules and regulations and office Timings of the institutions to which they are attached. 7. The trainees have to obtain a certificate on successful completion of the Internship from the Chief Executive of the organization. 8. A Staff member of a Department (Guide) will be monitoring the Performance of the Candidate. 9. Schedule of visit to be made by the staff is to be prepared by the HOD / Staff-in-charge. 10. Report writing manual and format should be prepared by the respective Departments. 11. All model forms are to be attached wherever it is necessary. 12. Report evaluation: External Viva-Voce examination will be conducted and the maximum mark is 100. 13. Report should be properly submitted after the completion of internship Training.	K4,K5	
Course Outcome **CO1: Explain** to test the theoretical learning in practical situations by accomplishing the tasks assigned during the internship period.	K5	

Learning Resources				
Website Link	https://www.tutorialspoint.com/r/index.htm https://www.javatpoint.com/net-framework			
	L-Lecture	T-Tutorial	P-Practical	C-Credit

B.Sc.-Computer Technology Syllabus LOCF-CBCS with effect from 2024-2025 Onwards										
Course Code	**Course Title**	**Course Type**			**Sem**	**Hours**	**L**	**T**	**P**	**C**
24M5UCTIS1	INTERNSHIP	INTERNSHIP			V	-	-	-	-	2

CO Number	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	S	S	S	S	S	S	S	S	S

Level of correlation between CO and PO	L-LOW	M-MEDIUM	S-STRONG

Tutorial Schedule	-
Teaching and Learning Methods	Working with programming languages such as C++, Python and Java
Assessment Methods	CIA -100 %
	Work Diary – 25% and Training Report and Viva-voce – 75%

Designed By	**Verified By**	**Approved By**
Mrs.E.Jamuna	HoD Mr.P.Subramaniam	Member - Secretary Dr.S.Shahitha

B.Sc. Computer Technology Syllabus LOCF-CBCS with effective from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
24M6UCTPR1	PROJECT WORK	PROJECT	VI	5	-	-	5	4
Objective	Student can gain a thorough knowledge in the problem and language / software which he/she has selected for their project work.							

Unit	Course Content	Knowledge Levels	Session

Project Planning:
B.Sc. (Computer Science)/ Project is an involved exercise, which has to be plannedwell in advance. The topic should be chosen in the beginning of final year itself. Relatedreading training and discussions of project should be completed in the first term of finalyear.

I Selection of Team
To meet the stated objectives, it is imperative that mini project is done through a teameffort. Though it would be ideal to select the team members at random and this should be strongly recommended, due to practical consideration students may also be given the choice of forming themselves into teams with Two members. A team leader shall beselected. Team shall maintain the minutes of meeting of the team members and ensurethat tasks have been assigned to every team member in writing. Team meeting minutes shall form a part of the project report. Even if students are doing project as groups, each one must independently take different modules of the work and must submit the report.

II Selection of Tools
No restrictions shall be placed on the students in the choice of platform/tools/languages to be utilized for their project work, though open source is strongly recommended, wherever possible. No value shall be placed on the use of toolsin the evaluation of the project.

III REGULATIONS OF PROJECT WORK
Three copies of the project report must be submitted by each student..

- The final outer dimensions of the project report shall be 21cm X 30 cm.Only hard binding should be done. The text of the report should be set in 12 pt, Times New Roman, 1.5 spaced. Headings should be set as follows: CHAPTERHEADINGS 16 pt, Arial, Bold, All caps, Centered Section Headings 14 pt Bookman old style, Bold, Left adjusted. Section Sub-heading 12pt, Bookman old style.
- Title of figures tables etc are done in 12 point, Times New Roman, Italics,
- centered. Only 1.5 space need be left above a section or subsection heading and no
- space may be left after them. References shall be IEEE format (see any IEEE magazinefor detail) While
- doing the project keep note of all books you refer, in the correct format and includethem in alphabetical order in your reference list. The Candidate should submit the filled in format as given in Annexure-I to the
- department for approval during the First Week of December. Periodically the projectshould be reviewed
- .▫ A Sample format is enclosed in Annexure-II.
- Format of the Title page and Certificate are enclosed in Annexure III.

1. The students may use power point presentation during their viva voce examination.

Course Outcome	Understand of research idea	K1
	Analyze of problem solving skills	K2
	Analyze sources for conduct of Research	K3
	Evaluate the research report	K4
	Create the research report	K4

Learning Resources

Text Books	1.Bert Bates, Karthy Sierra , Eric Freeman, Elisabeth Robson, "Head First Design Patterns", O'REILLY Media Publishers. 2. Mathew Mac Donald, "ASP.NET Complete Reference", TMH 2005.
Reference Books	1. Jan Graba, "An Introduction to Network Programming with Java- Java 7 Compatible", 3rd Edition,Springer. 2. Crouch Matt J, "ASP.NET and VB.NET Web Programming", Addison Wesley
Website Link	https://www.tutorialspoint.com/r/index.htm https://www.javatpoint.com/net-framework https://www.w3schools.com/java/java_intro.asphttps://www.w3schools.com/r/

L-Lecture	T- Tutorial	P-Practical	C-Credit

B.Sc. Computer Technology Syllabus LOCF-CBCS with effective from 2024-2025 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
24M6UCTPR1	PROJECT WORK	PROJECT	VI	5	5			4

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	M	S	M	M	S	S	S
CO2	S	S	S	S	S	M	S	S	S	S
CO3	S	S	S	S	S	S	S	S	M	M
CO4	S	S	S	M	S	S	S	S	M	M
CO5	M	M	M	S	S	M	M	S	S	S

Level of Correlation between CO and PO	L-LOW	M-MEDIUM	S-STRONG
Tutorial Schedule	-		
Teaching and Learning Methods	Working with programming languages such as R, Python, Java and .Net.		
Assessment Methods	Attendance, Review / Work Diary, Final Report andViva Voce		

Designed By	Verified By	Approved By
Mr.R. Mohanraj	HoD Mr. P SUBRAMANIAM	MEMBER - SECRETARY DR.S.SHAHITHA

B.Sc. Computer Technology Syllabus LOCF-CBCS with effective from 2024-2025 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
24M6UCTOE1	**Computer Technology For Competitive Exams**	**Professional Competency Skills**	**6**			**2**		**2**
Objective	Creating the awareness on competitive examination among students. Imparting knowledge about the appearing for Competitive Examination and it impacts and developing an attitude of appearing for such exams.							

Unit	Course Content	Knowledge Levels	Sessions
	This course deals with the question related to Software Engineering, Internet of Things, Operating System, Computer Architecture, Database Management System, Computer Networks, Programming Languages, Java, Algorithms, Artificial Intelligence, and Mobile Computing. Major emphasis has been put forth to include recent developments in the subjects. This course aims to give a holistic view of all the topics which comprised of some factual text points, multiple choice questions (MCQ), it is extremely suitable for students pursuing their higher degree in University/institute for their entrance exams, students preparing for various national and state level competitive entrance exams such as TANCET, IBPS, SSC for creating MCQ pattern.		
	1. Objective type online examination will be conducted at the end of 4th semester. 2. Questions must be taken from all previous question papers of TANCET, IBPS And SSC. 3. Test critical thinking. Multiple choice questions to test the superficial knowledge. Learners to interpret facts, evaluate situations, explain cause and effect, make inferences, and predict results. 4. Emphasize Higher-Level Thinking. Use memory-plus application oriented questions. These questions require students to recall principles, rules or facts in a real life context.		
	Eg.1 One Tera byte (1 TB) is equal to? (a)1028 gb (b)1012 gb (c)1000 gb (d)1024 gb Eg.2 URL stands for: (a)Uniform Resource Locator (b)Uniform Resource Library (c)United Resource Locators (d)None of these 5. HOD's instruct to the faculty to prepare minimum 500 questions booklet (cumulatively for each programed) with solutions and circulate among the students.		
Course Outcome	**CO1: Explain** the basic language implementation techniques	K1	
	CO2: Summarize the problem and develop problem solving skills in competitive exams	K2	
	CO3: Sketch the computational problems	K3	

	CO4: Take a part of computer science theory and software development fundamentals to produce computing- based solutions	K4	
	CO5: Defend complex computing problem and to apply principles of computing	K5	

Learning Resources	
Reference Books	**1. Objective Computer Science and Information Technology by Jushta Jaiswal, Jushta Jaiswal publications.**
Website Link	1.https://nptel.ac.in/courses/106106092 2.https://www.digimat.in/nptel/courses/video/106101061/L01.html 3.https://www.digimat.in/nptel/courses/video/106104122/L01.html

L-Lecture	T- Tutorial	P-Practical	C-Credit

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	M	S	M	M	S	S	S
CO2	S	S	S	S	S	M	S	S	S	S
CO3	S	S	S	S	S	S	S	S	M	M
CO4	S	S	S	M	S	S	S	S	M	M
CO5	M	M	M	S	S	M	M	S	S	S

Level of Correlation between CO and PO	L-LOW	M-MEDIUM	S-STRONG
Tutorial Schedule	-		
Teaching and Learning Methods	Working with programming languages such as R, Python, Java and .Net.		
Assessment Methods	Attendance, Review / Work Diary, Final Report andViva Voce		

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Mr.R. Mohanraj	HoD Mr. P SUBRAMANIAM	MEMBER - SECRETARY DR.S.SHAHITHA