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)
A UNIT OF VANETRA GROUP
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DEGREE OF BACHELOR OF SCIENCE

Learning Outcomes - Based Curriculum Framework
- Choice Based Credit System

Syllabus for B.Sc., Computer Science

(Semester Pattern)

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

Muthayammal College of Arts and Science

Rasipuram-637 408

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 spirit 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 o the quality of education.

Department of UG Computer Science

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 instil the sprite of entrepreneurship and enterprise
- To create a resource pool of socially responsible world citizens

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.

GRADUATE ATTRIBUTES

The Graduate Attributes of **B.Sc. COMPUTER SCIENCE** are:

GA 1 Self Directed Learning
GA 2 Multicultural Competitive Skills
GA 3 Critical Thinking
GA 4 Problem Solving
GA 5 Disciplinary Knowledge
GA 6 Moral and Ethical Awareness

PROGRAMME OUTCOMES (POs)

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

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

PO3: Graduates will infuse a spirit converging on bricking a team work, interpersonal and administrative skills to think critically and 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)

PSO 1: Acquire the required knowledge in the Hardware and Software aspects of Computer Science field.

PSO 2: Understood the development methodologies of Software systems and the ability to analyze, design and develop computer applications for real life problems.

PSO 3: Knowledge and skills to collaborate and communicate with peers for performance enhancement in IT field.

PSO 4: Ability to understand and adapt with the dynamic technical environment for the growth of IT industry.

PSO 5: Capacity to transfer the skills gained, to provide innovative and novel solutions by maintaining ethical norms for the betterment of society.

MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE(Autonomous) - Rasipuram - 637 408

Scheme of Examinations LOCF-CBCS Pattern

(for the Students Admitted from the Academic Year: 2021-2022 Onwards)

B.Sc. Computer Science

SEM	PART	COURSE_CODE	TITLE OF THE COURSE	Hrs./W		CREDIT POINTS	MAX.MARKS		
				Lect.	Lab.		CIA	ESE	TOTAL
I	I	21M1UFTA01	TAMIL - I	5	-	3	25	75	100
I	II	21M1UCEN01	COMMUNICATIVE ENGLISH - I	5	-	3	25	75	100
I	III	21M1UCSC01	PROBLEM SOLVING THROUGH C	6	-	4	25	75	100
I	III	21M1UMAA03	ALLIED: ALGEBRA AND DISCRETE MATHEMATICS	5	-	4	25	75	100
I	III	21M1UCSP01	PRACTICAL - I C PROGRAMMING	-	4	2	40	60	100
I	III	21M2UMAAP1	PRACTICAL: ALLIED MATHEMATICS	-	2	-	-	-	-
I	IV	21M1UVED01	YOGA	1	-	1	100		100
I	IV	21M1UPES01	PROFESSIONAL ENGLISH FOR PHYSICAL SCIENCE-I	2	-	2	25	75	100
I			**TOTAL**	**24**	**6**	**19**	**265**	**435**	**700**
II	I	21M2UFTA02	TAMIL - II	5	-	3	25	75	100
II	II	21M2UCEN02	COMMUNICATIVE ENGLISH - II	5	-	3	25	75	100
II	III	21M2UCSC02	DATA STRUCTURE AND ALGORITHMS	4	-	4	25	75	100
II	III	21M2UCSC03	COMPUTER ORGANIZATION AND ARCHITECTURE	4	-	4	25	75	100
II	III	21M1UMAA04	ALLIED: DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORMS	4	-	4	25	75	100
II	III	21M2UCSP02	PRACTICAL -II DATA STRUCTURE USING C	-	3	2	40	60	100
II	III	21M2UMAAP1	PRACTICAL: ALLIED MATHEMATICS	-	2	2	40	60	100
II	IV	21M2UEVS01	ENVIRONMENTAL STUDIES	1	-	1	100	-	100
II	IV	21M2UPES02	PROFESSIONAL ENGLISH- PHYSICAL SCIENCE - II	2	-	2	25	75	100
II			**TOTAL**	**25**	**5**	**25**	**330**	**570**	**900**

III	I	21M3UFTA03	TAMIL - III	5	-	3	25	75	100
III	II	21M3UCEN03	COMMUNICATIVE ENGLISH - III	5	-	3	25	75	100
III	III	21M3UCSC04	PROGRAMMING IN C++	4	-	4	25	75	100
III	III	21M3UCSC05	OPERATING SYSTEMS	4	-	4	25	75	100
III	III	21M3USTA08	ALLIED: APPLIED STATISTICS - I	4	-	4	25	75	100
III	III	21M3UCSP03	PRACTICAL -III PROGRAMMING IN C++	-	2	2	40	60	100
III	III	21M4USTAP2	PRACTICAL : ALLIED STATISTICS	-	2	-	-	-	-
III	IV	21M3UCSS01	OFFICE AUTOMATION	2	-	2	25	75	100
III	IV	21M3UMAN01	QUANTITATIVE APTITUDE - I	2	-	2	25	75	100
III			**TOTAL**	**26**	**4**	**24**	**215**	**585**	**800**
IV	I	21M4UFTA04	TAMIL - IV	5	-	3	25	75	100
IV	II	21M4UCEN04	COMMUNICATIVE ENGLISH - IV	5	-	3	25	75	100
IV	III	21M4UCSC06	RELATIONAL DATABASE MANAGEMENT SYSTEM	6	-	4	25	75	100
IV	III	21M4USTA09	ALLIED: APPLIED STATISTICS -II	4	-	4	25	75	100
IV	III	21M4UCSP04	PRACTICAL -IV RDBMS	-	4	2	40	60	100
IV	III	21M4USTAP2	PRACTICAL : ALLIED STATISTICS	-	2	2	40	60	100
IV	IV	21M4UCSS02	HTML AND WEB DESIGN	2		2	25	75	100
IV	IV	21M4UMAN03	QUANTITATIVE APTITUDE-II	2	-	2	25	75	100
IV			NAN MUDHALVAN	-	-	-	-	-	-
IV			**TOTAL**	**24**	**6**	**22**	**230**	**570**	**800**

V	III	21M5UCSC07	.NET PROGRAMMING	4	-	4	25	75	100
V	III	21M5UCSC08	PYTHON PROGRAMMING	4	-	4	25	75	100
V	III	21M5UCSC09	COMPUTER NETWORKS	4	-	4	25	75	100
V	III		ELECTIVE - I	4	-	3	25	75	100
V	III		ELECTIVE - II	4	-	3	25	75	100
V	III	21M5UCSP05	PRACTICAL - V .NET PROGRAMMING	-	4	2	40	60	100
V	III	21M5UCSP06	PRACTICAL - VI PYTHON PROGRAMMING	-	4	2	40	60	100
V	IV	21M5UCSS03	MULTI SKILL DEVELOPMENT	2	-	2	25	75	100
V	IV	21M5UCSIS1	INTERNSHIP	-	-	-	-	-	-
V			**TOTAL**	**22**	**8**	**24**	**230**	**570**	**800**
VI	III	21M6UCSC10	PROGRAMMING IN JAVA	5	-	5	25	75	100
VI	III		ELECTIVE - III	5	-	3	25	75	100
VI	III		ELECTIVE - IV	5	-	3	25	75	100
VI	III	21M6UCSP07	PRACTICAL - VII PROGRAMMING IN JAVA	-	5	4	40	60	100
VI	III	21M6UCSPR1	PROJECT WORK	5	-	4	40	60	100
VI	III	21M6UCSOE1	COMPUTER SCIENCE FOR COMPETITIVE EXAMINATIONS	-	-	2	100	-	100
VI	IV	21M6UCSSP1	SBEC PRACTICAL - I PHOTOSHOP	-	4	2	40	60	100
VI	V	21M6UEXA01	EXTENSION ACTIVITIES	1	-	1	-	-	-
VI			NAN MUDHALVAN	-	-	-	-	-	-
			TOTAL	**21**	**9**	**24**	**295**	**405**	**700**
			OVERALL TOTAL	**142**	**38**	**140**	**1565**	**3135**	**4700**
VI		21M6UCSEC1	EXTRA CREDIT SWAYAM/MOOC ONLINE	-	-	2	-	-	-
			VALUE ADDED COURSE - WEB DESIGNING	-	-	2	-	-	-

HOD
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NAMAKKAL (Dt)

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MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE
(AUTONOMOUS)
RASIPURAM - 637 408,
NAMAKKAL DISTRICT.

List of Elective Course (DSE) Details for B.Sc., COMPUTER SCIENCE

SYLLABUS - LOCF-CBCS Pattern
EFFECTIVE FROM THE ACADEMIC YEAR 2021-2022 Onwards

S. NO.	SEM	ELECTIVE_GROUP	COURSE_CODE	TITLE OF THE COURSE
1	V	ELECTIVE – I	21M5UCSE01	DATA MINING AND WAREHOUSING
2	V	ELECTIVE – I	21M5UCSE02	SOFTWARE PROJECT MANAGEMENT
3	V	ELECTIVE – I	21M5UCSE03	SYSTEM SOFTWARE
4	V	ELECTIVE – II	21M5UCSE04	CLOUD COMPUTING
5	V	ELECTIVE – II	21M5UCSE05	E-COMMERCE
6	V	ELECTIVE – II	21M5UCSE06	WIRELESS NETWORK
7	VI	ELECTIVE – III	21M6UCSE07	SOFTWARE ENGINEERING
8	VI	ELECTIVE – III	21M6UCSE08	COMPUTER GRAPHICS
9	VI	ELECTIVE – III	21M6UCSE09	SOFTWARE TESTING
10	VI	ELECTIVE – IV	21M6UCSE10	NETWORK SECURITY
11	VI	ELECTIVE – IV	21M6UCSE11	INTERNET OF THINGS
12	VI	ELECTIVE – IV	21M6UCSE12	MOBILE COMPUTING

Allied Course for any Degree offered by the B.Sc., COMPUTER SCIENCE
LOCF-CBCS Pattern
EFFECTIVE FROM THE ACADEMIC YEAR 2021-2022 Onwards
LIST OF GEC - ALLIED COURSES

S.No.	SEM	COURSE_CODE	TITLE OF THE COURSE
1	III	21M3UCSA01	Digital Fashion Designing
2	III	21M3UCSA02	C Programming
3	III	21M3UCSAP01	Practical : Digital Fashion Designing
4	III	21M3UCSAP02	Practical : C Programming
5	IV	21M4UCSA03	Digital Marketing
6	IV	21M4UCSA04	Python Programming
7	IV	21M4UCSA05	Computer Applications In Biology
8	IV	21M4UCSAP3	Practical: Digital Marketing
9	IV	21M4UCSAP4	Practical : Python Programming
10	IV	21M4UCSAP5	Practical : Office Automation

List of Skill Based Elective Course (SEC) for B.Sc., COMPUTER SCIENCE
SYLLABUS - LOCF-CBCS Pattern
EFFECTIVE FROM THE ACADEMIC YEAR 2021-2022 Onwards

S.No.	SEM	COURSE_CODE	TITLE OF THE COURSE
1	III	21M3UCSS01	Office Automation
2	IV	21M4UCSS02	HTML & Web Design
3	V	21M5UCSS03	Multi Skill Development
4	VI	21M6UCSSP01	SBEC Practical: Photoshop

List of Non Major Elective Course (NMEC) offered by the B.Sc., COMPUTER SCIENCE
SYLLABUS - LOCF-CBCS Pattern
EFFECTIVE FROM THE ACADEMIC YEAR 2021-2022 Onwards

S.No.	SEM	COURSE_CODE	TITLE OF THE COURSE
1	III	21M3UCSN01	NMEC - I Basics of Computers
2	III	21M3UCSN02	NMEC - I Office Automation
3	IV	21M4UCSN03	NMEC - II Image Editing Tool

UG-REGULATIONS

1.Internal Examination Marks- Theory

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

Attendance Percentage	Marks
96% to 100%	5
91% to 95%	4
86% to 90%	3
81% to 85%	2
75% to 80%	1
Below 75%	0

2. QUESTION PAPER PATTERN FOR CIA I, II AND ESE (3 HOURS) MAXIMUM: 75 Marks

SECTION-A (10 Marks) (Objective Type)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks (10 x1=10 marks)

SECTION-B(10 Marks)(Short Answer)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks (5 x 2 = 10 marks)

SECTION-C (25 Marks)(Either or Type)

Answer any **FIVE** questions

ALL Questions Carry **EQUAL** Marks

Either or Type (5 x 5 = 25 marks)

SECTION-D (30 Marks)(Analytical Type)

Answer any **THREE** Questions out of **FIVE** questions

ALL Questions Carry **EQUAL** Marks (3 x 10 = 30 marks)

(**Syllabus for CIA-I 2.5 Unit ,Syllabus for CIA-II All 5 Unit)**

2a)Components for Practical CIA.

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

2.b)Components for Practical ESE.

Components	Marks
Completion of Experiments	50
Record	5
Viva	5
Total	**60**

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

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

- 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.

4. Guidelines for Extension Activity (Part V)

- At least two activities should be conducted within semester consisting of two days each.
- The activities may be Educating Rural Children, Unemployed Graduates, Self Help Group, etc.

The marks may be awarded as follows

No of Activities	Marks
2 x50 (Each Activity for two days)	100

5. Internship/Industrial Training, Mini Project and Major Project Work

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

*[1]Review is for Individual Project and Work Diary is for Group Projects (Group consisting of minimum3 and maximum 5)

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

6. Guidelines for Competitive Exams- Online Mode (Part III) - 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 have to reappear for the same in the subsequent semesters.

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MUTHAYAMMAL COLLEGE OF ARTS & SCIENCE (Autonomous)

Muthayammal College of Arts & Science (Autonomous)

Department of Computer Science

B.Sc. CS Syllabus - I and III Semester [2021-22 Onwards]

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M1UCSC01	PROBLEM SOLVING THROUGH C	DSC THEORY - I	I	6	3	3		4
Objective	1. To apprehend the basic concepts of C Programming language 2. It covers concepts such as arrays, structures, pointers and file handling methods							

Unit	Course Content	Knowledge Levels	Sessions
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	13
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	K1,K2	14
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	K2,K3	15+3
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	K3	17
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	K3,K4	13
Course Outcome	**CO1:** Remember the primary things of C programming language	K1	
	CO2: Understand and use various constructs of the programming language such as conditionals, iteration, and recursion	K2	
	CO3: Apply the concept of string and user-defined function	K3	
	CO4: Apply the process of structure,union and pointers	K3	
	CO5: Analyze the concept of files	K4	

Learning Resources

Text Books	1. "Problem solving and program design in C ", Jeri R. Hanly, Elliot B.Koffman. –7th ed.,PEARSON 2. 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 Science Syllabus LOCF-CBCS with effect from 2021-2022 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
21M1UCSC01	PROBLEM SOLVING THROUGH C	DSC THEORY - I	I	6	3	3		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	Conducting Group Discussion, Class Test
Teaching and Learning Methods	Handling classes through chalk & talk method and presentation
Assessment Methods	Attendance, Assignments, Internal I and II

Designed By	Verified By	Approved By
N.RAMYA	P SUBRAMANIAN	

MAITHAYAMMAL COLLEGE OF ARTS & SCIENCE
RASIPURAM
637 408
Tamil Nadu

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M1UCSP01	PRACTICAL-I C PROGRAMMING	DSC PRACTICAL - I	I	3			3	2
Objective	1. Familiarize the different control and decision making statements, Build programs using arrays , strings and files.							
S.No.	List of Experiments / Programs						Knowledge Levels	Sessions
1	Develop a C program to print prime numbers within the range of integers given.						K1,K2	2
2	Develop a C Program to find the sum and average of given N numbers.						K2	2
3	Develop a C Program using all decision making and looping statements						K2,K3	2
4	Develop a C Program to arrange the given numbers in ascending /descending order.						K3	3
5	Develop a C Program to perform matrix multiplication.						K3,K4	3
6	Develop a C Program to manipulate string functions.						K3,K4	3
7	Develop a C Program to find the Fibonacci series for a give number using recursive function.						K4	3
8	Develop a C Program to show Call by Value and Call by Reference.						K4,K5	3
9	Develop a C program to swap two numbers using pointers.						K4,K5	3
10	Develop a C Program to update the students details using various file modes.						K4,K5	3
11	Develop a C Program to copy the content of one file to another file.						K5	3
Course Outcome	CO1: Remember all the statements in C Programming						K1	
	CO2: Understand the problem and construct the algorithm						K2	
	CO3: Apply the algorithm that are relevant to the casual						K3	
	CO4: Analyze the source lines that are match up with the casual						K4	
	CO5: Evaluate the flow of execution						K5	
Learning Resources								
Text Books	1. Problem solving and program design in C / Jeri R. Hanly, Elliot B.Koffman. –7th ed.,PEARSON 2. 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/							

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M1UCSP01	PRACTICAL-I C-PROGRAMMING	DSC PRACTICAL - I	I	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

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M2UCSC02	DATA STRUCTURE AND ALGORITHMS	DSC THEORY - II	II	4	4			4
Objective	1. To introduce the various data structures and their implementations. 2. Evaluate the performance of various sorting algorithms.							

Unit	Course Content	Knowledge Levels	Sessions
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	7
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	7
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.	K2,K3	11
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.	K2,K3,K4	11
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.	K3,K4	9
Course Outcome	**CO1:** Remember the concept of algorithms	K1	
	CO2: Understanding the arrays and stacks	K2	
	CO3: Apply the queue and linked list for other data structures	K3	
	CO4: Apply the trees and graph concepts	K4	
	CO5: Analyze the sorting methods	K4	

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. Aprita Gopal, "Magnifying Data Structures", 1st Edition, PHI Learning, New Delhi, 2010. 2. Chitra A &Rajan PT, "Data Structures", 2nd Edition, Vijay Nicole Publications, 2016.
Website Link	1. www.freetechbooks.com/a-practical-introduction-to-data-structures-and- algorithm-analysis- thirdedition-c-version-t804.html 2. https://www.geeksforgeeks.org/data-structures/

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M2UCSC02	DATA STRUCTURE AND ALGORITHMS	DSC THEORY - II	II	4	4			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	M	M
CO2	M	M	M	M	M	S	M	M	M	L
CO3	M	M	M	M	M	M	M	M	M	M
CO4	M	M	M	L	S	S	M	M	M	M
CO5	L	M	M	M	S	M	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 I and II

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M2UCSP02	PRACTICAL -II DATA STRUCTURE USING C	DSC PRACTICAL - II	II	3	2	1	-	2
Objective	1. To understand the linear and non-linear data structures 2. To Apply and evaluate the array, stack, queue, linked list and tree structures							
S. No.	List of Experiments / Programmes						Knowledge Levels	Sessions
1	Write a C program to create two array list of integers. Sort and store the elements of both of them in third list.						K1	3
2	Write a C program to multiply two matrices A and B and store the resultant matrix in C using arrays.						K2	3
3	Write a C program to experiment the operation of STACK using array.						K2,K3	3
4	Write a C program to create menu driven options to implement QUEUE to perform the following: (i)Insertion (ii) Deletion (iii) Listing of elements						K3	3
5	Write a C program to create Linked list representations of employee records and do the following operations using pointers i. To add a new record ii. To delete an existing record iii. To print the details about an employee						K3,K4	3
6	Write a C Program to insert an element at the end of the linked list.						K3,K4	3
7	Write a C program to insert an element at the beginning of a doubly linked list.						K4	3
8	Write a C program to display the hash table, using the mid square method.						K4	3
9	Write a C program to traverse the given binary tree using all traversal methods.						K4,K5	3
10	Write a C program to insert an element in a binary tree.						K4,K5	3
Course Outcome	**CO1:** Remember all the statements in C Programming						K1	
	CO2: Understand the problem and construct the algorithm with data structure concepts						K2	
	CO3: Apply the algorithm that are relevant to the casual						K3	
	CO4: Analyze the source lines that are match up with the casual						K4	
	CO5: Evaluate the flow of execution						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. Aprita Gopal, "Magnifying Data Structures", 1st Edition, PHI Learning, New Delhi, 2010. 2. Chitra A &Rajan PT, "Data Structures", 2nd Edition, Vijay Nicole Publications, 2016.							
Website Link	https://www.mygreatlearning.com/blog/data-structures-using-c/							

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M2UCSP02	PRACTICAL -II DATA STRUCTURE USING C	DSC PRACTICAL - II	II	3				2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	S	S	S	S	S	M	M
CO2	S	M	M	M	M	S	S	M	M	M
CO3	S	M	M	M	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	M	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, Model practical's

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M2UCSC03	COMPUTER ORGANIZATION AND ARCHITECTURE	DSC THEORY - III	II	4	4			4
Objective	1. To know Structure and functions of Computer architecture and organizations. 2. To understand the computer arithmetic and machine instructions							

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction to Number system and codes: Different number systems and their conversions (Decimal, Binary, Octal , and Hexadecimal), 1's Complement and 2's complement, Floating Point numbers, Coding - BCD, Gray, ASCII.	K1,K2	5
II	Boolean algebra and Gate networks: Fundamental concepts of Boolean algebra, Inverter gates, AND gate, OR gate, NAND gate, NOR gate, X-OR gate, X-NOR gate, The universal property of NAND gate and NOR gate, Basic laws of Boolean algebra, De Morgan's theorems, Simplification of Boolean expression, Karnaugh map (SOP)	K2,K3	5
III	Combinational circuit & Sequential circuit: Adders (Half and Full), Decoder, Encoder, Multiplexer, De-multiplexer (Introductory Concepts only).Flip-Flops -Flip-flops (SR flip-flops, D flip-flops, JK flip-flops), Edge - Triggered flip-flops and Master Slave flip-flops	K3	6
IV	Introduction - Evolution of Microprocessors - Processing architecture of Intel 8085 - Instruction set of Intel 8085 - Instruction and data formats - Addressing modes of 8085 - Status flags -Stack and subroutines	K3	7
V	Assembly language programming: Simple examples - Addition and Subtraction of Binary and Decimal numbers - Complements - Finding max and min number in an array - Arranging a series of numbers.	K3,K4	7
Course Outcome	**CO1:** Remember the Basic Number system	K1	
	CO2: Understand the logic gates	K2	
	CO3: Apply the combinational circuit and squential circuit	K3	
	CO4: Apply the micro-programming concept	K3	
	CO5: Analyze the assembly language examples	K4	

Learning Resources

Text Books	1. "Computer System Architecture" - M. Morris Mano, Pearson Education, 3rd Edition, 4th Indian Reprint, 2004. 2. "Fundamentals of Microprocessors and Microcomputers" - Badri Ram - 5th revised and enlarged edition - Dhanpat Rai Publications - Reprint 2003.
Reference Books	1. "Digital Principles and Applications" - Donald P. Leach and Albert Paul Malvino, 5th Edition, Tata McGraw - Hill Publishing Company Ltd, New Delhi, 10th Reprint, 2005. 2. "Microprocessor 8085 and its Interfacing" - Sunil Mathur, Prentice Hall of India, 2010
Website Link	https://www.geeksforgeeks.org/computer-organization-and-architecture-tutorials

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M2UCSC03	COMPUTER ORGANIZATION AND ARCHITECTURE	DSC THEORY - III	II	4	4			4

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	M	M	M	M	M	S	M	M	M	M
CO4	M	M	M	S	S	M	M	M	M	M
CO5	L	M	M	S	S	L	M	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 and presentation
Assessment Methods	Conducting Class test I and II, Internal I and II, Gave an Assignments

Designed By	Verified By	Approved By
K.Shunmugapriya		

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSC04	PROGRAMMING IN C++	DSC THEORY - IV	III	4	4			4
Objective	1. Understand about object oriented programming 2. To learn about File management and managing errors							

Unit	Course Content	Knowledge Levels	Sessions
I	INTRODUCTION TO OOPS: Principles of Object Oriented Programming (OOP) : Evolution of C++ -Programming Paradigms - Key Concepts of OOP - Advantages of OOP - Usage of OOP. Input and Output in C++-Streams-Stream classes Unformatted console I/O operations-Member functions of iostream class-manipulators-manipulators with parameters.	K1	8
II	INTRODUCTION TO C++: Introduction - Usage of C++; Tokens, Keywords, Identifiers, Variables, Operators, Expressions and Control Structures: If,If..Else, Switch - Repetitive Statements- for, while, do..While	K1,K2	7
III	FUNCTIONS, CLASSES AND OBJECTS: Functions in C++ - Main Function - Function Prototyping - Parameters Passing in Functions - Values Return by Functions - inline Functions - Function Overloading Classes and Objects; Constructors and Destructors;Operator Overloading	K2,K3	12
IV	INHERITANCE AND POLYMORPHISM: Inheritance: Single Inheritance - Multilevel inheritance-Multiple inheritances-Hierarchical Inheritance - Hybrid Inheritance. Pointers,Virtual Functions and Polymorphism	K3	10
V	FILES WORKING WITH FILES: Classes for File Stream Operations - Opening and Closing a File -End-of-File Detection - File Pointers - Updating a File - Error Handling during FileOperations - Command-line Arguments.	K3,K4	8
Course Outcome	**CO1**: Remember the concept of OOPs and Streams	K1	
	CO2: Understand the basics of C++	K2	
	CO3: Apply the OOPs concepts	K3	
	CO4: Apply the OOPs concepts	K3	
	CO5: Analyze the file stream operations	K4	

Learning Resources

Text Books	1. Balagurusamy.E, "Object Oriented Programming with C++", 6th Edition Tata McGraw-Hill Publication,2013 2. M. T. Somashekara, "Object Oriented programming with C++", 2nd Edition, Prentice Hall of India,2013 Learning Limited, 2012.
Reference Books	1. Herbert Schildt, "C++: The Complete Reference", Tata McGraw publication,2003 2. Behrouz A.Forouzan, "A Structured Approach Using C++", 2nd Edition, Cengage Learning ,2006
Website Link	https://www.geeksforgeeks.org/c-plus-plus/

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

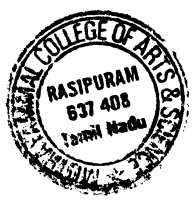
Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSC04	PROGRAMMING IN C++	DSC THEORY - IV	III	4				4

CO-PO Mapping

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

Designed By	Verified By	Approved By
D. Vasanthi	P SUBRAMANIAN	A. L. Jamuna



Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSP03	PRACTICAL-III PROGRAMMING IN C ++	DSC PRACTICAL - III	III	2			2	2
Objective	1. To learn how to design C++ classes for code reusability 2. To learn how to implement OOPs concepts							
S.No.	**List of Experiments / Programs**						**Knowledge Levels**	**Sessions**
1	Write a Program to demonstrate function overloading.						K1,K2	1
2	Write a Program to demonstrate pass by value, pass by reference and return by reference.						K2	1
3	Write a Program to demonstrate classes and objects.						K2,K3	1
4	Write a Program to demonstrate constructors.						K3	2
5	Write a Program to demonstrate friend functions.						K3	2
6	Write a Program to demonstrate operator overloading.						K3,K4	2
7	Write a Program to demonstrate inheritance.						K4	2
8	Write a Program to demonstrate pointers.						K4,K5	1
9	Write a Program to demonstrate Virtual Functions.						K5	1
10	Write a Program to demonstrate File functions.						K4,K5	2
Course Outcome	**CO1:** Remember all the statements in C++ Programming						K1	
	CO2: Understand the problem and construct the algorithm						K2	
	CO3: Apply the algorithm that are relevant to the casual						K3	
	CO4: Analyze the source lines that are match up with the casual						K4	
	CO5: Evaluate the flow of execution						K5	
Learning Resources								
Text Books	1. Balagurusamy.E, "Object Oriented Programming with C++", 6th Edition Tata McGraw-Hill Publication,2013							
Reference Books	1. Herbert Schildt, "C++: The Complete Reference", Tata McGraw publication,2003							
Website Link	https://www.guru99.com/cpp-tutorial.html							

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSP03	PRACTICAL-III PROGRAMMING IN C ++	DSC PRACTICAL - III	III	2			2	2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	l	M	S	S	S	S	S	M	M
CO2	S	M	M	M	M	S	S	M	l	M
CO3	S	M	M	M	M	S	M	M	M	M
CO4	M	M	l	S	S	S	M	M	M	M
CO5	M	M	M	M	M	l	M	M	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, Model practical's

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSC05	OPEARTING SYSTEMS	DSC THEORY - V	III	4	4			4

Objective	1. To understand the fundamental concepts and role of Operating System 2. To learn the Process, Memory, I/O Management

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction - History of operating system- Computer hardware review - various types of operating system - Operating system concepts-Operating system structure - System calls.	K1	8
II	Processes and Threads: Processes concept-Process scheduling - threads - thread model and usage - Inter process communication. CPU Scheduling -Types of scheduling techniques.	K2	8
III	Deadlocks - deadlocks characterization - deadlock detection and recovery - deadlocks avoidance - deadlock prevention	K3	9
IV	Memory Management: Memory Management concept - Swapping - Contiguous memory allocation - Paging -Segmentation. Virtual Memory: Demand Paging - page replacement algorithms- Allocation of Frames -Thrashing	K3,K4	10
V	Storage Management: Overview of Mass-Storage Structure-Disk Structure- Disk Attachment - Disk Scheduling -Disk Management. Input / Output: DMA controller- Files systems: Files -directories.	K2,K3,K4	10
Course Outcome	**CO1**: Remember the concepts of an operating system	K1	
	CO2: Understand the process communication and scheduling	K2	
	CO3: Apply the prevention techniques to deadlock	K3	
	CO4: Analyze the page replacement algorithms	K4	
	CO5: Analyze the partitioning techniques to disks	K4	

Learning Resources

Text Books	1. Andrew S. Tanenbaum, "Modern Operating Systems", 2ndEdition, PHI private Limited, New Delhi, 2008. 2. Abraham Silberschatz, Peter B. Galvin, Greg Gagne, "Operating System Concepts Essentials", John Wiley & Sons Inc., 2010.
Reference Books	1. William Stallings, "Operating Systems - Internals & Design Principles", 5th Edition, Prentice - Hall of India private Ltd, New Delhi, 2004. 2. Sridhar Vaidyanathan, "Operating System", 1st Edition, Vijay Nicole Publications, 2014. 3. Linux Learning the Essentials‖,K.L.James, PHI.
Website Link	https://www.geeksforgeeks.org/operating-systems/

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSC05	OPEARTING SYSTEMS	DSC THEORY - V	III	4				4

CO-PO Mapping

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

Designed By	Verified By	Approved By
T.TAMILARASI	P Subramanian	

MUTHAYAMMAL COLLEGE OF ARTS & SCIENCE
RASIPURAM 637 408 Tamil Nadu

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSC06	RELATIONAL DATABASE MANAGEMENT SYSTEM	DSC THEORY - VI	IV	6	3	3		4
Objective	1. Understand the basic concept of Data Base and Data Base Management System. 2. Understand and apply the SQL fundamentals and Relational database design.							

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction: Database System Applications-Purpose of Database Systems- View of Data- Database Languages - Relational Databases - Database Architecture - Database users and Administrators - Relational Model: Structure of Relational Databases - Relational Algebra - Database Design and ER model: ER model - ER diagram - Constraints - Keys	K1	16
II	SQL: Background - Data Definition - Basic Structure - Set Operation - Aggregate Function - Null Values - Nested Sub Queries - Views - Modification of the Database - Joins	K2	15
III	Functional dependency and decomposition: Introduction- Functional Dependency diagram and examples - Full Functional Dependencies - Armstrong's Axioms for Functional Dependencies. Decomposition - Lossy Decomposition - Lossless-Join decomposition - Dependency preserving decomposition. Normalization - Normal Forms- First Normal Form, Second Normal Form, Third Normal Form - Boyce-Codd Normal Form - Multi-valued dependencies and Fourth Normal Form - Join dependencies and Fifth Normal Form.	K2,K3	15
IV	PL/SQL: A programming language - fundamental of pl/sql - pl/sql block structure - variable declarations - control structures - looping statement - sql in pl/sql - data manipulation - pl/sql cursors & exceptions	K1-K3	12+2
V	PL/SQL Composite Data Types: Records - Tables - arrays. Named Blocks: Procedures - Functions - Packages -Triggers -Data Dictionary- Views.	K3,K4	15
Course Outcome	**CO1:**Remember the concept of data models and ER Diagram	K1	
	CO2: Understand the SQL commands.	K2	
	CO3: Apply the Normal Forms	K3	
	CO4: Apply the concept of PL/SQL	K3	
	CO5: Analyze the PL/SQL procedures	K4	

Learning Resources	
Text Books	1. A Silberschatz, H Korth, S Sudarshan, "Database System and Concepts", 5th Edition McGraw-Hill, 2005. (UNIT I,II) 2. Dr.S.K.Singh, "Database Systems-Concepts - Design and Applications", Pearson Education, Dorling Kindersley(India) Pvt. Ltd., III Edition, 2009 3. "DATABASE SYSTEMS USING ORACLE" - Nilesh Shah, 2nd edition, PHI. (UNIT IV,V)
Reference Books	1. Alexix Leon & Mathews Leon, "Essential of DBMS", 2nd reprint, Vijay Nicole Publications, 2009 & "Fundamentals of DBMS", 2nd Edition, Vijay Nicole Publications, 2014.
Website Link	https://www.geeksforgeeks.org/sql-tutorial/

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSC06	RELATIONAL DATABASE MANAGEMENT SYSTEM	DSC THEORY - VI	IV	6	3	3		4

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	L
CO2	S	M	M	M	S	S	M	M	M	L
CO3	M	M	M	M	L	M	M	M	M	M
CO4	S	M	M	M	S	S	M	M	M	M
CO5	L	M	M	S	S	M	M	M	M	S
Level of Correlation between CO and PO	L-LOW	M-MEDIUM		S-STRONG						

Tutorial Schedule	Conducting Group Discussion
Teaching and Learning Methods	Handling classes through chalk & talk method and presentation
Assessment Methods	Conducting Internal I and II, Gave an Assignments

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS (Autonomous) Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSP04	PRACTICAL - IV RDBMS	DSC PRACTICAL - IV	IV	4			4	2
Objective	1. To understand the concept of DDL ,DML statements and constraints 2. To learn about the PL/SQL control and looping statements,Procedures and functions,Triggers							
S.No.	List of Experiments / Programmes						Knowledge Levels	Sessions
1	Write a SQL block for Table Creation, Data Insertion and Updation.						K1,K2	4
2	Write a SQL block for applying the constraints like primary key, foreign key, NOT NULL to the tables.						K2	4
3	Write a SQL statement for implementing the following functions: MAX,MIN,COUNT,SUM,AVERAGE						K2	4
4	Write the SQL query to perform join operations.						K3	4
5	Write the SQL statement for performing nesting of queries.						K3,K4	4
6	Write a PL/SQL code block for performing control structures.						K3,K4	5
7	Write a PL/SQL code block to performing looping statements.						K4	5
8	Write a PL/SQL block of code for procedures and functions.						K4,K5	5
9	Write a PL/SQL block for reverse a number using arrays.						K4,K5	5
10	Write a PL/SQL block for create database triggers.						K4,K5	5
Course Outcome	**CO1:** Remember all the DDL and DML statements						K1	
	CO2: Understand the problem and construct the queries						K2	
	CO3: Apply the query staements that are relevant to the casual						K3	
	CO4: Analyze the query blocks that are match up with the casual						K4	
	CO5: Evaluate the flow of execution						K5	
Learning Resources								
Text Books	1. A Silberschatz, H Korth, S Sudarshan, "Database System and Concepts", 5th Edition McGraw-Hill, 2005. (UNIT I,II) 2. Dr.S.K.Singh, "Database Systems-Concepts - Design and Applications, Pearson Education, Dorling Kindersley(India) Pvt. Ltd., III Edition, 2009 3. DATABASE SYSTEMS USING ORACLE - Nilesh Shah, 2nd edition, PHI. (UNIT IV,V)							
Reference Books	1. Alexix Leon & Mathews Leon, "Essential of DBMS", 2nd reprint, Vijay Nicole Publications, 2009 & "Fundamentals of DBMS", 2nd Edition, Vijay Nicole Publications, 2014.							
Website Link	1.https://www.guru99.com/sql.html 2.https://www.guru99.com/pl-sql-tutorials.html							

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSP04	PRACTICAL - IV RDBMS	DSC PRACTICAL - IV	IV	4			4	2

CO-PO Mapping

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

Designed By	Verified By	Approved By
S.		A. L. Bano

Curriculum Development Cell MCAS Autonomous Rasipuram

List of Skill Based Elective Course (SEC) for B.Sc., COMPUTER SCIENCE
SYLLABUS - LOCF-CBCS Pattern
EFFECTIVE FROM THE ACADEMIC YEAR 2021-2022 Onwards

B.Sc., Computer Science Syllabus LOCF-CBCS with effective from 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSS01	OFFICE AUTOMATION	SEC - I	III	2	1		1	2
Objective	1. Navigate and perform common tasks in Word, such as opening, viewing, editing, saving, and printing documents, and configuring the application. 2. Format text and paragraphs. Perform repetitive operations efficiently using tools such as Find and Replace, Format Painter, and Styles.							

Unit	Course Content	Knowledge Levels	Sessions
I	Exploring word 2007: Working in the Word Environment - Opening, Moving Around in, and Closing a Document - Displaying Different Views of a Document - Creating and Saving a Document - Previewing and Printing a Document.	K1	3
II	Editing and Proofreading Documents: Make Changes to a Document - Insert Saved Text - Find the Most Appropriate word - Reorganize a Document Outline - Find and Replace Text.	K2	3
III	Error Corrections: Correct Spelling and Grammatical Errors - Finalize a Document. Changing the Look - Quickly Format Text and Paragraphs - Manually Change the Look of Characters. Manually Change the Look of Paragraphs.	K3,K4	3
IV	Bulleted and Numbered Lists: Create and Modify Lists - Presenting Information in Columns. Creating Table: Create a Tabular List - Present Information in a Table.	K3,K4	3
V	Formatting a Table: Format Table Information - Perform Calculation in a Table - Use a Table to Control Page Layout.	K3,K4	3
Course Outcome	CO1: Remembering the basic aspects of word environment	K1	
	CO2: Understanding the document editing and proofreading	K2	
	CO3: Understanding the text and paragraph formatting	K3	
	CO4: Apply the list and table concepts in to a document	K4	
	CO5: Apply the formatting concept in to a table	K4	

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	1. Peter Weverka, "MS Office 2013 All-in-One for Dummies", 1st Edition, Wiley Publications, 2013.
Website Link	https://www.tutorialspoint.com/word/index.htm

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSS01	OFFICE AUTOMATION	SEC - I	III	2	1		1	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	L	M
CO2	S	M	L	M	M	S	M	M	M	M
CO3	M	M	M	M	M	M	M	M	M	M
CO4	M	M	M	M	S	M	L	M	M	M
CO5	M	L	M	S	S	M	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 I and II

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS (Autonomous) Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSS02	HTML AND WEB DESIGN	SEC - II	IV	2	2			2
Objective	1. To learn the language of the web: HTML and CSS 2. Learning how to code allows us to bring out our personality on our own website							

Unit	Course Content	Knowledge Levels	Sessions
I	Getting started with HTML: Editing and Viewing HTML files- Setting Up the Document Structure - Formatting text by Using Tags - Using Lists and Backgrounds - Creating Hyperlinks and Anchors	K1	3
II	Style Sheets and Graphics: Introduction to Style Sheets - Formatting Text by using Style Sheets - Formatting Paragraphs by using Style Sheets	K2	3
III	Displaying Graphics : Selecting a graphics format - Preparing graphics for web use - Inserting graphics - Arranging elements on the page - Controlling image size and Padding - Hyper linking from graphics - Utilizing Thumbnail graphics - Including alternate text for graphics	K2,K3	3
IV	Navigation: Creating Navigational Aids - Creating Tables - Formatting Tables	K3,K4	3
V	Layouts: Creating Division based Layouts - Creating User Forms - Incorporating Sound and Video	K4	3
Course Outcome	**CO1:** Remembering the basic aspects of markup language	K1	
	CO2: Understand the basic aspects of style sheets	K2	
	CO3: Apply the graphics in to a webpage	K3	
	CO4: Apply the navigational aids and tables in to a webpage	K4	
	CO5: Analyze the multimedia contents in to a webpage	K4	

Learning Resources	
Text Books	1. "Microsoft Step by Step - HTML 5", Faithe Wempen, PHI, 2009
Reference Books	1. "Web design with HTML", C. Xavier, TMH Publisher, 2000
Website Link	https://www.w3schools.com/html/default.asp

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSS02	HTML AND WEB DESIGN	SEC - II	IV	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	S	S	M	L
CO2	S	M	M	M	M	S	S	M	M	L
CO3	S	M	M	M	M	S	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	Conducting Internal I and II, Gave an Assignments

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS Autonomous Rasipuram

Allied Course for any Degree offered by the B.Sc., COMPUTER SCIENCE

(LOCF-CBCS Pattern)

EFFECTIVE FROM THE ACADEMIC YEAR 2021-2022 Onwards

LIST OF GEC - ALLIED COURSES

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSA01	DIGITAL FASHION DESIGNING	GEC THEORY - I	III	5	3	2		4
Objective	1. To train the students in the designing software's 2. To impart skill in designing software's by means of different tools techniques							

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction of digital fashion design- Digital technology- Visual representation- Design-Demonstrate- Designing and modeling-Software and equipment.	K1,K2	10
II	Introduction of color management-color combination-color theory in fashion design-primary colors - secondary colors-palettes of colors- composition.	K1,K2	10
III	Introduction to Adobe Illustrator-Working with Documents-Drawing and Transforming Objects-Making and Saving Selections-Working with Shapes and Objects-Working with Color-Gradients, Pattern Fills, and Blends-Points and Paths-Working with Paths-Working with Layers-Working with Type-Drawing and Painting-Illustrator Effects-Symbols-Outputting Your Work.	K1-K3	13
IV	Getting Acquainted with Photoshop- The Photoshop Environment-Basic Image Manipulation- Bitmap Images-Color Basics-Color Modes and Models-Painting Tools-Painting Tools-Brush Settings-Using the Brushes Palette-Making Selections-Selection Basics Filling and Stroking-Layers. Typographic design-vector drawing Techniques-creating roll over visuals-portfolio assignment	K2,K3	13
V	Adobe In Design - Introduction to the workspace - Getting to know in Design - Setting up Document and working with pages - Working with objects - Flowing text - Editing text - Working the Typography - Working with color - Working with styles - Importing and modifying graphics - Creating Tables - Working with Transparency - Printing and Exporting - Creating Adobe PDF document with form field - Exporting for e-readers - Working with long documents	K2,K3	12+2
Course Outcome	CO1: Remember Fashion Accessories and Illustrate	K1	
	CO2: Understand the color categories and color palettes	K2	
	CO3: Apply the fashion illustration using designing software	K3	
	CO4: Apply the techniques of digital image capture	K3	
	CO5: Apply the page creation and working with type	K3	

Learning Resources	
Text Books	1. Harriet Posner, "Marketing Fashion", Strategy, Branding and Promotion, Laurence King Publishing; 2nd edition, 2015 2. Clare Harris, "The Fundamentals of Digital Fashion Marketing", Bloomsbury Publishing Plc, 2017

Reference Books	1. Susan Lazear, "Adobe Illustrator for Fashion Design", Pearson, 2011. 2. Susan Lazear, "Adobe Photoshop for Fashion Design", Pearson, 2007. 3. Marianne Centner , Frances Vereker, "Fashion Designer's Handbook for Adobe Illustrator", John Wiley & Sons Inc, 2011. 4. Robin Schneider, "Adobe for Fashion: Illustrator CS6", lulu.com, 2013								
Website Link	https://onlinecourses.nptel.ac.in/noc20_de01/preview								
	L-Lecture	T-Tutorial	P-Practical						

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSA01	DIGITAL FASHION DESIGNING	GEC THEORY - I	III	5	3	2		4

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	M	S	S	S	M	M
CO2	S	M	M	M	M	S	S	M	M	M
CO3	S	M	M	M	M	M	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	M	M	M	S	S	M	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	Conducting Internal I and II, Gave an Assignments

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSAP1	PRACTICAL - DIGITAL FASHION DESIGNING	GEC PRACTICAL - I	III	3			3	2
Objective	1. To train the students in the designing software's 2. To impart skill in designing software's by means of different tools techniques							

S.No.	List of Experiments / Programs	Knowledge Levels	Sessions
1	Write a program to Develop the Dress Modeling	K1,K2	5
2	Write a program to Develop the Jewelry Modeling	K2	5
3	Write a program to develop the texturing and coloring	K2,K3	5
4	Write a program to Develop the Making portfolio	K3	5
5	Write a program to Develop the Making typography	K4	5
6	Write a program to Develop the Create magazines	K5	5
Course Outcome	CO1: Remember the suitable designing software	K1	
	CO2: Understand the Fashion Accessories and Illustrate	K2	
	CO3: Apply the illustration styles	K3	
	CO4: Analyze the model that have been generated	K4	
	CO5: Evaluate the woven and printed patterns	K5	

Learning Resources	
Text Books	1. Harriet Posner," Marketing Fashion", Strategy, Branding and Promotion, Laurence King Publishing; 2nd edition, 2015 2. Clare Harris, "The Fundamentals of Digital Fashion Marketing", Bloomsbury Publishing Plc, 2017
Reference Books	1. Susan Lazear, "Adobe Illustrator for Fashion Design", Pearson, 2011. 2. Susan Lazear, "Adobe Photoshop for Fashion Design", Pearson, 2007. 3. Marianne Centner , Frances Vereker, "Fashion Designer's Handbook for Adobe Illustrator", John Wiley & Sons Inc, 2011. 4. Robin Schneider, "Adobe for Fashion: Illustrator CS6", lulu.com, 2013
Website Link	https://onlinecourses.nptel.ac.in/noc20_de01/preview

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSAP1	PRACTICAL - DIGITAL FASHION DESIGNING	GEC PRACTICAL - I	III	3			3	2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	S	S	S	S	S	M	M
CO2	S	M	M	M	M	S	S	M	M	M
CO3	S	M	M	M	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	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, Model practical's

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS (Autonomous) Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSA02	C PROGRAMMING	GEC THEORY - I	III	5	3	2		4
Objective	1. To understand basics of computer 2.To apprehend the basic concepts of C- Programming language such as arrays and structures							

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction to Computers: Introduction – Types of Computers - Characteristics of Computers. Generations of Computers - Classification of Computers - Programming Languages: Machine Language - Assembly Language - High level languages. Input Devices- Keyboard - Mouse - Types of mice - Connections - Mouse Pad - Trackball -Joystick - Output Devices - Dot Matrix Printer - Inkjet - Laser Printer - LCD & LED Printers- Line Printer - Auxiliary Storage Devices : Hard Disk - CD -DVD - primary memory	K1	10
II	Overview of C: History of C - Importance of C - Basic structure of C programs. Constants, variables and data types: Character set - Keywords and identifiers - Constants - Variables - Declaration of storage classes. Operators and expression - Evaluation of expressions - Type conversions in expressions - Operator precedence and associatively - Mathematical functions. Managing input and output operations: Reading and writing a character- Formatted input and output.	K2	12
III	Decision making and branching: Simple IF, IF-ELSE. Nesting of IF-ELSE, ELSE-IF ladder. Switch statements - GOTO statements. Decision making and looping: WHILE statement - DO statement - FOR statement - Jumps in loops. Arrays: Definition & Declaration - One dimensional - Two dimensional - Multi dimensional arrays - Dynamic arrays.	K2,K3	10+2
IV	Character arrays and strings: Introduction - Declaring and initializing string variables -User - Defined functions - Definition of functions - Return values and their types - Function calls - Function declaration- All category of functions -Nesting of functions	K2,K3	13
V	Structures and Unions: Introduction - Accessing structure members - Structure initialization -Arrays of structures - Arrays within structures - Unions	K2,K3	13
Course Outcome	**CO1:** Remember the computer fundamentals	K1	
	CO2: Remember the primary things of C programming language	K1	
	CO3: Understand and use various constructs of the programming language such as conditionals, iteration	K2	
	CO4: Apply the concept of string and user-defined function	K3	
	CO5: Analyze the process of structure and union	K4	

Learning Resources

Text Books	1. Fundamentals of computers science and Communication Engineering. Alexis Leon & Mathews Leon. Vikas Publishing House Pvt. Ltd., New Delhi (Unit-I) 2. Programming in ANSI C.E.Balgurusamy Tata McGraw Hall,New Delhi. 4th edition (Unit II, III, IV, V)
Reference Books	1. C The Complete Reference, 4th Ed, Herbert Schildt.
Website Link	https://www.programiz.com/c-programming

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSA02	C PROGRAMMING	GEC THEORY - I	III	5	3	2		4

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	L	L	S	M	M	L	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	Conducting Group Discussion, Class
Teaching and Learning Methods	Handling classes through chalk & talk method and presentation
Assessment Methods	Attendance, Assignments, Internal I and II

Designed By	Verified By	Approved By
SELVAKUMAR G	P. Subramani	A. L. Jamuna

MUTHAYAMMAL COLLEGE OF ARTS & SCIENCE
RASIPURAM
637 408
Tamil Nadu

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSAP2	PRACTICAL - C PROGRAMMING	GEC PRACTICAL - I	III	3			3	2

Objective	1. To learn about how to write a program by using control structures, looping statements and functions 2. To learn about the mathematical functions usage

S.No.	List of Experiments / Programs	Knowledge Levels	Sessions
1	Develop a C program to calculate the sum and average of a given numbers.	K1,K2	2
2	Develop a C program to calculate and display the volume of a cube.	K2	2
3	Develop a C program to print the Fibonacci series.	K2	2
4	Develop a C program to convert feet to centimeter.	K3	2
5	Develop a C program to calculate the factorial of a given number using recursive function.	K3,K4	3
6	Develop a C program to perform addition, subtraction, division and multiplication of two numbers using switch case	K3	4
7	Develop a program to calculate simple and compound interest using math functions.	K4	3
8	Develop a C program to implement the string functions.	K4,K5	4
9	Develop a program to find the roots of quadratic equation using functions.	K4,K5	4
10	Develop a C program to arrange an elements in descending order using arrays.	K5	4
Course Outcome	CO1: Remember all the statements in C Programming	K1	
	CO2: Understand the problem and construct the algorithm	K2	
	CO3: Apply the algorithm that are relevant to the casual	K3	
	CO4: Analyze the source lines that are match up with the casual	K4	
	CO5: Evaluate the flow of execution	K5	

Learning Resources

Text Books	1. Programming in ANSI C.E.Balgurusamy Tata McGraw Hall,New Delhi. 4th edition (Unit II, III, IV, V)
Reference Books	1. "C " The Complete Reference, 4th Ed, Herbert Schildt.
Website Link	1.https://www.geeksforgeeks.org/c-programming-language/

B.Sc-Computer Science Syllabus LOCF-CBCS with effect from 2021-2022 onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSAP2	PRACTICAL - C PROGRAMMING	GEC PRACTICAL - I	III	3			3	2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	S	S	S	S	l	M	M
CO2	S	M	l	M	M	S	S	M	M	M
CO3	S	M	M	M	l	S	M	M	M	M
CO4	M	M	M	S	S	S	M	M	M	M
CO5	M	M	M	M	M	M	l	M	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 and Model Practical's

Designed By	Verified By	Approved By
V. Vasuthaj		

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSA03	DIGITAL MARKETING	GEC THEORY - IV	IV	4	4			4
Objective	1. To Describe knowledge in the areas of digital marketing communications 2. To produce students with sufficient background that will allow them to pursue their careers in the Digital Marketing area.							
Unit	**Course Content**						**Knowledge Levels**	**Sessions**
I	Introduction to the Course and Work plan - Introduction of the digital marketing - Digital vs. Real Marketing - Digital Marketing Channels. Creating initial digital marketing plan - Content management - SWOT analysis - Target group analysis - EXERCISE: Define a target group (working in groups). Web design - Optimization of Web sites - MS Expression Web - EXERCISE: Creating web sites, MS Expression (working in groups).						K1-K3	8
II	SEO Optimization - Writing the SEO content - Exercise: Writing the SEO content (working in groups). Google AdWords - creating accounts - Google AdWords - types - Exercise: Google AdWords (working in groups). Introduction to CRM - CRM platform - CRM models - Exercise: CRM strategy (working in groups).						K1-K2	8
III	Introduction to Web analytics - Web analytics - levels- Introduction of Social Media Marketing - Exercise: Social Media Marketing plan (working in groups). Creating a Facebook page - Visual identity of a Facebook page - Types of publications- Exercise: Making a Facebook page (working in groups). Business opportunities and Instagram options- Optimization of Instagram profiles- Integrating Instagram with a Web Site and other social networks- Keeping up with posts.						K3	8
IV	Business tools on LinkedIn- Creating campaigns on LinkedIn - Analyzing visitation on LinkedIn. Creating business accounts on YouTube - YouTube Advertising - YouTube Analytics. Facebook Ads- Creating Facebook Ads- Ads Visibility.						K3,K4	10
V	E-mail marketing- E-mail marketing plan- E-mail marketing campaign analysis - Keeping up with conversions Recapitulation:- lessons learned- student satisfaction survey- closing Digital Marketing Budgeting- resource plannig- cost estimating- cost budgeting- cost control.						K4	11
Course Outcome	**CO1:** Remember the importance of the digital marketing for marketing success						K1	
	CO2: Understand customer relationship sacross all digital channels and build better customer relationships						K2	
	CO3: Apply a digital marketing plan, starting from the SWOT analysis and defining a target group						K3	
	CO4: Analyze digital channels, their advantages and limitations						K4	
	CO5: Analyze perceiving ways of their integration taking into consideration the available budget						K4	

Learning Resources	
Text Books	1. "Jab, Jab, Jab, Right Hook" - Gary Vaynerchuk 2. Epic Content Marketing - Joe Pulizzi
Reference Books	1. "Digital Marketing", Seema Gupta, McGraw Hill Education (India) Private Limited, 2020
Website Link	https://onlinecourses.swayam2.ac.in/ugc19_hs26/preview https://www.naukri.com/learning/digital-marketing-courses-certification-training-by-nptel-st593-tg301

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSA03	DIGITAL MARKETING	GEC THEORY - IV	IV	4	4			4

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	M	S	S	M	M	L
CO2	S	M	M	M	M	S	M	M	M	M
CO3	S	M	M	M	M	S	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	M	M	M	S	S	M	M	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 and presentation
Assessment Methods	Attendance, Assignments, Internal I and II

Designed By	Verified By	Approved By
M.K		A.L.B

Curriculum Development Cell MCAS (Autonomous) Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSAP3	PRACTICAL - DIGITAL MARKETING	GEC PRACTICAL-II	IV	4	4			2
Objective	1. To Define skills to design interactive and dynamic web sites 2. To Understand basic Photoshop skills and concepts to develop effective graphics for both web and print media.							
S.No.	List of Experiments / Programs						Knowledge Levels	Sessions
1	Write a HTML program illustrating text formatting						K1,K2	4
2	Prepare a sample code to illustrate links between different sections of the page						K2	4
3	Create a simple HTML program to illustrate three types of lists						K2	4
4	Illustrate font variations in your HTML code						K3	4
5	Embed a real player in your web page						K3,K4	5
6	Create Cover page for any text book						K3,K4	4
7	Create a Paper add for advertising of any commercial agency						K4	5
8	Design Texture and patterns						K4,K5	5
9	Create Titles for any forthcoming film						K4,K5	5
10	Create a Web template for your college						K5	5
Course Outcome	**CO1:** Remember the principle of Web page design						K1	
	CO2: Understand the basic concept of HTML						K2	
	CO3: Apply optimize images for both the web and print media						K3	
	CO4: Analyze the techniques of digital image capture						K4	
	CO5: Evaluate Photoshop will help you create your own successful images						K5	
Learning Resources								
Text Books	1. "Jab, Jab, Jab, Right Hook" - Gary Vaynerchuk 2. Epic Content Marketing - Joe Pulizzi							
Reference Books	1. Harvey M. Deitel and Paul J. Deitel, "Internet & World Wide Web How to Program", 4/e, Pearson Education. 2. Uttam Kumar Roy, Web Technologies from Oxford University Press 3. Adobe Photoshop Class Room in a Book by Adobe Creative Team 4. Photoshop: Beginner's Guide for Photoshop - Digital Photography, Photo Editing, Color Grading & Graphic...19 February 2016 by David Maxwell							
Website Link	https://onlinecourses.swayam2.ac.in/ugc19_hs26/preview https://www.naukri.com/learning/digital-marketing-courses-certification-training-by-nptel-st593-tg301							

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSAP3	PRACTICAL - DIGITAL MARKETING	GEC PRACTICAL -II	IV	4	4			2

CO-PO Mapping

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

Designed By	Verified By	Approved By
M. Ichay		A. Hibam

Curriculum Development Cell MCAS (Autonomous) Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSA04	PYTHON PROGRAMMING	GEC THEORY - IV	IV	4	4	1		4

Objective	1. To build basic programs using fundamental programming constructs 2. To explore Python's object-oriented features

Unit	Course Content	Knowledge Levels	Sessions
I	BASICS : Python - Variables - Executing Python from the Command Line - Editing Python Files - Python Reserved Words - Basic Syntax-Comments - Standard Data Types - Relational Operators - Logical Operators - Bit Wise Operators - Simple Input and Output.	K1	11
II	CONTROL STATEMENTS: Control Flow and Syntax - Indenting - if Statement - statements and expressions- string operations- Boolean Expressions -while Loop - break and continue - for Loop. LISTS: List-list slices - list methods - list loop - mutability - aliasing - cloning lists - list parameters. TUPLES: Tuple assignment, tuple as return value -Sets - Dictionaries	K2	11
III	FUNCTIONS: Definition - Passing parameters to a Function - Built-in functions- Variable Number of Arguments - Scope	K2,K3	12
IV	Type conversion:Type coercion-Passing Functions to a Function - Mapping Functions in a Dictionary - Lambda - Modules - Standard Modules - sys - math - time - dir - help Function	K2,K3	13
V	OBJECT ORIENTED FEATURES: Classes Principles of Object Orientation - Creating Classes - Instance Methods - File Organization - Special Methods - Class Variables - Inheritance - Polymorphism.	K3,K4	12+1

Course Outcome	**CO1:** Remember the programming basics	K1
	CO2: Understand and use various constructs of the programming language such as conditionals, iteration	K2
	CO3: Apply the concept of functions	K3
	CO4: Apply the error handling mechanism	K3
	CO5: Analyze the features of Object Oriented Programming	K4

Learning Resources	
Text Books	1. Mark Summerfield, Programming in Python 3: A Complete introduction to the Python Language, Addison-Wesley Professional, 2009. 2. Martin C. Brown, PYTHON: The Complete Reference, McGraw-Hill, 2001 3. E. Balagurusamy (2017), "Problem Solving and Python Programming", McGraw-Hill, First Edition.
Reference Books	1. Allen B. Downey, "Think Python: How to Think Like a Computer Scientist", 2nd edition, Updated for Python 3, Shroff/O'Reilly Publishers, 2016 2. Guido van Rossum and Fred L. Drake Jr, An Introduction to Python - Revised and updated for Python 3.2, Network Theory Ltd., 2011 3. Wesley J Chun, Core Python Applications Programming‖, Prentice Hall, 2012.
Website Link	https://www.w3schools.com/python/

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSA04	PYTHON PROGRAMMING	GEC THEORY - IV	IV	4	4	1		4

CO-PO Mapping

CO Number	PO 1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	M	S	M	M	M	S
CO2	S	M	M	M	M	S	M	M	M	M
CO3	M	M	M	M	M	M	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	M	M	M	S	S	M	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	Conducting Internal I and II, Gave an Assignments

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS (Autonomous) Rasipuram

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Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSAP4	ALLIED PRACTICAL - PYTHON PROGRAMMING	GEC PRACTICAL - II	IV	3				2
Objective	1. To implement Python programs with conditional statements and loops 2. To Use functions for structuring Python programs							
S.No.	**List of Experiments / Programmes**						**Knowledge Levels**	**Sessions**
1	Develop a Python Program to Compute the GCD of two numbers.						K1,K2	2
2	Develop a Python Program to find the square root of a number.						K2	2
3	Develop a Python Program to find Exponentiation (power of a number).						K2,K3	2
4	Develop a Python Program to find the maximum in a list of numbers.						K3	3
5	Develop a Python Program to perform Linear search.						K3	4
6	Develop a Python Program to perform fibonacci series.						K3,K4	4
7	Develop a Python Program to perform Factorial Calculation.						K4	4
8	Develop a Python Program to perform prime numbers.						K4	2
9	Develop a Python Program to perform Multiply two matrices.						K4,K5	3
10	Develop a Python Program to take command line arguments (word count).						K5	4
Course Outcome	**CO1:** Remember all the statements in python Programming						K1	
	CO2: Understand the problem and construct the algorithm						K2	
	CO3: Apply the algorithm that are relevant to the casual						K3	
	CO4: Analyze the source lines that are match up with the casual						K4	
	CO5: Evaluate the flow of execution						K5	
Learning Resources								
Text Books	1. Mark Summerfield, Programming in Python 3: A Complete introduction to the Python Language, Addison-Wesley Professional, 2009. 2. Martin C. Brown, PYTHON: The Complete Reference, McGraw-Hill, 2001 3. E. Balagurusamy (2017), "Problem Solving and Python Programming", McGraw-Hill, First Edition.							
Reference Books	1. Wesley J Chun, Core Python Applications Programming‖, Prentice Hall, 2012							
Website Link	https://www.guru99.com/python-tutorials.html							

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSAP4	ALLIED PRACTICAL - PYTHON PROGRAMMING	GEC PRACTICAL - II	IV	3				2

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	l	S	S	S	S	S	M	M
CO2	S	M	M	M	M	S	S	M	l	M
CO3	S	M	M	M	M	S	M	M	M	M
CO4	M	M	M	l	S	S	M	M	M	M
CO5	M	M	M	M	M	M	M	M	l	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
Assesment Methods	Conducting model practical sessions

Designed By	Verified By		Approved By
V. Muthay			A-h-Sam

Curriculum Development Cell MCAS (Autonomous) Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSA05	COMPUTER APPLICATIONS IN BIOLOGY	GEC THEORY - IV	IV	4	2	2	—	3
Objective	1. To understand the fundamental concept of computer 2. To be able to create documents for printing and sharing,to create and share presentations, to manage and store data in a spreadsheet.							

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction to Computers - Generations of Modern Computers - Classification of Digital Computer Systems - Anatomy of a Digital - Software - Hardware.	K1	7
II	Computer Organization: ALU, CU, Input, Output Units. Memory units - Auxiliary Storage Devices - Magnetic tape - Hard disk- Floppy Disk- CD - ROM - Memory organization - RAM, ROM, EPROM and EEPROM.	K1	8
III	Ms-Word: Learning Word Basics - creating and editing documents - Menus, commands, toolbars and icons - formatting documents - Error Corrections: Correct Spelling and Grammatical Errors - Creating tables - Printing a Document - Mail merge.	K2,K3	10
IV	Ms-Excel: Creating a Simple Spreadsheet - Editing a Spreadsheet - Working with Functions and Formula - Formatting Worksheets - Creating Charts.	K2,K3	10
V	Ms-PowerPoint: Creating and Viewing Presentations - Editing a Presentation - Working with Presentation Special Effects - Animation.	K4	10
Course Outcome	**CO1:** Remember the computer basics	K1	
	CO2: Remember the computer memory units	K1	
	CO3: Understand and Apply the Microsoft word techniques	K2	
	CO4: Apply the Microsoft excel techniques	K3	
	CO5: Analyze the Microsoft powerpoint techniques	K4	

Learning Resources

Text Books	1. Introduction to Computers - Alex Leon, Mathew Leon (UNIT - I) 2. Microsoft Office XP - fast & easy (UNIT II, III, IV & V) Author: DIANE KOERS Publisher: Prentice Hall of India Private Limited, New Delhi, 2001
Reference Books	1. Joyce Cox and Team, "Step by Step 2007 Microsoft Office System", PHI Learning Private limited, New Delhi, 2009.
Website Link	https://www.tutorialspoint.com/all_in_one_microsoft_office_suite_2016_2021/index.asp

L-Lecture TTutorial P-Practical C-Credit

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSA05	COMPUTER APPLICATIONS IN BIOLOGY	GEC THEORY - IV	IV	4				3

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	M
CO2	S	M	M	M	M	S	M	M	M	M
CO3	M	M	M	M	M	M	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	M	M	M	S	S	M	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	Conducting Internal I and II, Gave an Assignments

Designed By	Verified By	Approved By
P. Muthuraj.		A-h-bans

B.Sc.

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSAP5	PRACTICAL - OFFICE AUTOMATION	GEC PRACTICAL -II	IV	3			3	2
Objective	1. To understand the fundamental concept of Microsoft office 2. To be able to create documents for printing and sharing, to create and share presentations, to manage and store data in a spreadsheet.							

S.No.	List of Experiments / Programmes	Knowledge Levels	Sessions
	Word Processor		
1	i) Create a document, save it and edit the document as follows: a) Cut, Copy, Paste options b) Find and Replace options c) Undo and Redo options ii) Format the document: a) Using Bold, Underline and Italic b) Change Character style and size c) Formatting paragraph: Center, Left aligns & Right align d) Changing paragraph and line spacing, Using Bullets and Numbering in Paragraphs	K1,K2	3
2	Enhance the documents using Header, Footer, Page Setup, Border, Page number,Watermarking, Orientation and Print Preview	K2	3
3	Insert tables and pictures in a document as follows a) Creating Tables in a document, Selecting Rows & Column sort the record b) Insert a picture - edit size and add name of the picture above it c) Also do basic text formatting like - bold, italic, underline, alignments etc in table	K2,K3	3
4	Using mail merge, send an invitation /notice (by creating the invitation/notice) for the following situation (at least 5 addresses to be entered)	K3	3
	Spreadsheet	K3,K4	
5	a. Create a worksheet, moving/ copying/ inserting/ deleting rows and columns(usage of cut, paste, commands, copying a single cell, copying a range of data, filling up a cell. Undo command, inserting a row, column, deleting rows and columns) b. Formatting worksheets Bold, Italic, Font size changing, Auto fill, date format, Currency format	K3,K4	3

6	Open an excel and create fields as follows S.No Name of the student M1 M2 M3 M4 M5 Total & Avg a) Enter S.No, Name, marks for 10 students b) Find total and average using formula	K4	3
7	Insert a chart showing the comparison of marks in different subjects of 5 students (to insert three different type of Chart)	K4,K5	3
	Presentation	K4,K5	
8	Create a presentation with apply background/Themes	K4,K5	3
9	Apply custom animation on text, insert images/word art and animate the images with effects	K1,K5	3
10	Making an Organization Structure in Power Point Starting an organization chart, Entering names and Titles, Adding Members, Rearranging the Org Chart, Finishing the Chart	K5	3
Course Outcome	**CO1:** Remembering the basic aspects of word, excel and powerpoint applications	K1	
	CO2: Understand the problem and construct an application	K2	
	CO3: Apply the office techniques that are relevant to the casual	K3	
	CO4: Analyze the result that are match up with the casual	K4	
	CO5: Evaluate the final document, spreadsheet and presentation	K5	
Learning Resources			
Text Books	1. Microsoft Office XP - fast & easy, Author: DIANE KOERS Publisher: Prentice Hall of India Private Limited, New Delhi, 2001		
Reference Books	1. Joyce Cox and Team, "Step by Step 2007 Microsoft Office System", PHI Learning Private limited, New Delhi, 2009.		
Website Link	https://www.tutorialspoint.com/all_in_one_microsoft_office_suite_2016_2021/index.asp		

B.Sc., Computer Science Syllabus LOCF-CBCS with effective from 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSAP5	PRACTICAL - OFFICE AUTOMATION	GEC PRACTICAL - II	IV	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	M	M	S	S	M	M	M
CO3	S	M	l	M	M	S	M	M	M	M
CO4	M	M	M	S	S	S	M	M	M	l
CO5	M	M	M	M	M	M	l	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	Conducting model practical sessions

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS (Autonomous) Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSAP1	PRACTICAL - OFFICE AUTOMATION	GEC PRACTICAL - II	IV	3			3	2
Objective	1. To understand the fundamental concept of Microsoft office 2. To be able to create documents for printing and sharing, to create and share presentations, to manage and store data in a spreadsheet.							

S.No.	List of Experiments / Programmes	Knowledge Levels	Sessions
	Word Processor		
1	i) Create a document, save it and edit the document as follows: a) Cut, Copy, Paste options b) Find and Replace options c) Undo and Redo options ii) Format the document: a) Using Bold, Underline and Italic b) Change Character style and size c) Formatting paragraph: Center, Left aligns & Right align d) Changing paragraph and line spacing, Using Bullets and Numbering in Paragraphs	K1,K2	3
2	Enhance the documents using Header, Footer, Page Setup, Border, Page number,Watermarking, Orientation and Print Preview	K2	3
3	Insert tables and pictures in a document as follows a) Creating Tables in a document, Selecting Rows & Column sort the record b) Insert a picture - edit size and add name of the picture above it c) Also do basic text formatting like - bold, italic, underline, alignments etc in table	K2,K3	3
4	Using mail merge, send an invitation /notice (by creating the invitation/notice) for the following situation (at least 5 addresses to be entered)	K3	3
	Spreadsheet	K3,K4	
5	a. Create a worksheet, moving/ copying/ inserting/ deleting rows and columns(usage of cut, paste, commands, copying a single cell, copying a range of data, filling up a cell. Undo command, inserting a row, column, deleting rows and columns) b. Formatting worksheets Bold, Italic, Font size changing, Auto fill, date format, Currency format	K3,K4	3

6	Open an excel and create fields as follows S.No Name of the student M1 M2 M3 M4 M5 Total & Avg a) Enter S.No, Name, marks for 10 students b) Find total and average using formula	K4	3
7	Insert a chart showing the comparison of marks in different subjects of 5 students (to insert three different type of Chart)	K4,K5	3
	Presentation	K4,K5	
8	Create a presentation with apply background/Themes	K4,K5	3
9	Apply custom animation on text, insert images/word art and animate the images with effects	K1,K5	3
10	Making an Organization Structure in Power Point Starting an organization chart, Entering names and Titles, Adding Members, Rearranging the Org Chart, Finishing the Chart	K5	3
Course Outcome	**CO1:** Remembering the basic aspects of word, excel and powerpoint applications	K1	
	CO2: Understand the problem and construct an application	K2	
	CO3: Apply the office techniques that are relevant to the casual	K3	
	CO4: Analyze the result that are match up with the casual	K4	
	CO5: Evaluate the final document, spreadsheet and presentation	K5	

Learning Resources	
Text Books	1. Microsoft Office XP - fast & easy, Author: DIANE KOERS Publisher: Prentice Hall of India Private Limited, New Delhi, 2001
Reference Books	1. Joyce Cox and Team, "Step by Step 2007 Microsoft Office System", PHI Learning Private limited, New Delhi, 2009.
Website Link	https://www.tutorialspoint.com/all_in_one_microsoft_office_suite_2016_2021/index.asp

B.Sc., Computer Science Syllabus LOCF-CBCS with effective from 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSAP1	PRACTICAL - OFFICE AUTOMATION	GEC PRACTICAL - II	IV	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	M	M	S	S	M	M	M
CO3	S	M	l	M	M	S	M	M	M	M
CO4	M	M	M	S	S	S	M	M	M	l
CO5	M	M	M	M	M	M	l	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	Conducting model practical sessions

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSAP5	PRACTICAL - OFFICE AUTOMATION	GEC PRACTICAL - IV	IV	3			3	2
Objective	1. To understand the fundamental concept of Microsoft office 2. To be able to create documents for printing and sharing, to create and share presentations, to manage and store data in a spreadsheet.							

S.No.	List of Experiments / Programmes	Knowledge Levels	Sessions
	Word Processor		
1	i) Create a document, save it and edit the document as follows: a) Cut, Copy, Paste options b) Find and Replace options c) Undo and Redo options ii) Format the document: a) Using Bold, Underline and Italic b) Change Character style and size c) Formatting paragraph: Center, Left aligns & Right align d) Changing paragraph and line spacing, Using Bullets and Numbering in Paragraphs	K1,K2	3
2	Enhance the documents using Header, Footer, Page Setup, Border, Page number,Watermarking, Orientation and Print Preview	K2	3
3	Insert tables and pictures in a document as follows a) Creating Tables in a document, Selecting Rows & Column sort the record b) Insert a picture - edit size and add name of the picture above it c) Also do basic text formatting like - bold, italic, underline, alignments etc in table	K2,K3	3
4	Using mail merge, send an invitation /notice (by creating the invitation/notice) for the following situation (at least 5 addresses to be entered)	K3	3
	Spreadsheet	K3,K4	
5	a. Create a worksheet, moving/ copying/ inserting/ deleting rows and columns(usage of cut, paste, commands, copying a single cell, copying a range of data, filling up a cell. Undo command, inserting a row, column, deleting rows and columns) b. Formatting worksheets Bold, Italic, Font size changing, Auto fill, date format, Currency format	K3,K4	3

6	Open an excel and create fields as follows S.No Name of the student M1 M2 M3 M4 M5 Total & Avg a) Enter S.No, Name, marks for 10 students b) Find total and average using formula	K4	3
7	Insert a chart showing the comparison of marks in different subjects of 5 students (to insert three different type of Chart)	K4,K5	3
	Presentation	K4,K5	
8	Create a presentation with apply background/Themes	K4,K5	3
9	Apply custom animation on text, insert images/word art and animate the images with effects	K1,K5	3
10	Making an Organization Structure in Power Point Starting an organization chart, Entering names and Titles, Adding Members, Rearranging the Org Chart, Finishing the Chart	K5	3
Course Outcome	**CO1:** Remembering the basic aspects of word, excel and powerpoint applications	K1	
	CO2: Understand the problem and construct an application	K2	
	CO3: Apply the office techniques that are relevant to the casual	K3	
	CO4: Analyze the result that are match up with the casual	K4	
	CO5: Evaluate the final document, spreadsheet and presentation	K5	
Learning Resources			
Text Books	1. Microsoft Office XP - fast & easy, Author: DIANE KOERS Publisher: Prentice Hall of India Private Limited, New Delhi, 2001		
Reference Books	1. Joyce Cox and Team, "Step by Step 2007 Microsoft Office System", PHI Learning Private limited, New Delhi, 2009.		
Website Link	https://www.tutorialspoint.com/all_in_one_microsoft_office_suite_2016_2021/index.asp		

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSAP5	PRACTICAL - OFFICE AUTOMATION	GEC PRACTICAL - IV	IV	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	M	M	S	S	M	M	M
CO3	S	M	l	M	M	S	M	M	M	M
CO4	M	M	M	S	S	S	M	M	M	l
CO5	M	M	M	M	M	M	l	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	Conducting model practical sessions

Designed By	Verified By	Approved By
P.Muthuraj.		A-hisan

Curriculum Development Cell MCAS Autonomous Rasipuram

List of Non Major Elective Course (NMEC) offered by the B.Sc., COMPUTER SCIENCE

SYLLABUS - LOCF-CBCS Pattern

EFFECTIVE FROM THE ACADEMIC YEAR 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSN01	BASICS OF COMPUTERS	NMEC-I	III	2				2

Objective	1. To understand basics of computer and working with OS 2. To develop working skills with productivity tools, graphics designing and Internet

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction to Computer: Introduction - Types of computers- Characteristics of Computers. Generations of Computers: First Generation - Second Generation - Third Generation - Fourth Generation - Fifth Generation. Classification of Digital Computers: Introduction - Microcomputers - Personal Computer-Portable Computers - Mini Computers - Super Computers- Main Frames.	K1	3
II	Number System: Introduction - Decimal Number System - Binary Number System - Binary-Decimal Conversion - Decimal Binary Conversion - Binary Addition - Binary Subtraction - Complements - 9, s Complement - 10, s Complement - 1, s Complements - 2, s Complements - BCD - Bits, Bytes, Words - Octal - Hexadecimal Number System.	K2	3
III	Anatomy of Digital Computer : Functions and Components of Computer - Central Processing Unit - Control Unit - Arithmetic - Logic Unit - Memory - Registers - Addresses. Memory Units: RAM, ROM, PROM, EPROM, EEPROM, and Flash Memory	K2,K3	3
IV	Input Devices: Introduction - Keyboard - Mouse - Types of Mice- Connections - Mouse pad - Trackball - joystick - Digitizing Tablet - Scanners - Digital Camera - MICR - OCR - OMR - Bar Code Reader - Speech Input Device- Touch Screen - Touch Pad - Light Pen. Output Devices: Introduction - Monitor - Classification of Monitors - Monochrome - Gray Scale - Color - Digital Monitor - Analog Monitor - Characteristics of monitor - Printers.	K2	3
V	Computer Software: Introduction - Operating System - Utilities - Compiler and Interpreters - Word Processor - Spreadsheets - Presentation Graphics - DBMS - Programming Languages: Machine Language - Assembly Language - High level language - Types of High Level Language. Data Processing: Data VS Information - File Processing - Sequential File Processing - Direct Access File Processing.	K2,K3,K4	3
Course Outcome	**CO1:** Remembering the computer fundamentals	K1	
	CO2: Understanding the concept of number system	K2	
	CO3: Apply the functions of computer and memory	K3	
	CO4: Apply the purpose of input and output devices	K3	
	CO5: Analyze the basics of computer software and programming languages	K4	

Learning Resources	
Text	1. Alexis Leon and Mathews Leon, —Fundamentals of Computer Science and Communication

Books	Engineering, Leon Techworld, 1998.
Reference Books	1. B. Ram and Sanjay Kumar, –Computer Fundamentals‖, 5th Edition, New Age International Publishers, 2014. 2. Pradeep K Sinha, Priti Sinha, –Computer Fundamentals‖, BPB Publications, 2004. 3. Anita Goel, –Computer Fundamentals, 1st Edition, Pearson Education India, 2010.
Website Link	https://www.tutorialspoint.com/computer_fundamentals/index.htm

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSN01	BASICS OF COMPUTERS	NMEC-I	III	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	M
CO2	S	M	M	M	M	S	M	M	M	M
CO3	M	M	M	M	M	M	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	M	M	M	S	S	M	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	Conducting Internal I and II, Gave an Assignments

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS (Autonomous) Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSN02	OFFICE AUTOMATION	NMEC-I	III	2	1		1	2

Objective	1. Navigate and perform common tasks in Word, such as opening, viewing, editing, saving, and printing documents, and configuring the application. 2. Format text and paragraphs. Perform repetitive operations efficiently using tools such as Find and Replace, Format Painter, and Styles.

Unit	Course Content	Knowledge Levels	Sessions
I	Exploring word 2007: Working in the Word Environment - Opening, Moving Around in, and Closing a Document - Displaying Different Views of a Document - Creating and Saving a Document - Previewing and Printing a Document.	K1	3
II	Editing and Proofreading Documents: Make Changes to a Document - Insert Saved Text - Find the Most Appropriate word - Reorganize a Document Outline - Find and Replace Text.	K2	3
III	Error Corrections: Correct Spelling and Grammatical Errors - Finalize a Document. Changing the Look - Quickly Format Text and Paragraphs - Manually Change the Look of Characters. Manually Change the Look of Paragraphs.	K2,K3	3
IV	Bulleted and Numbered Lists: Create and Modify Lists - Presenting Information in Columns. Creating Table: Create a Tabular List - Present Information in a Table.	K3	3
V	Formatting a Table: Format Table Information - Perform Calculation in a Table - Use a Table to Control Page Layout.	K3,K4	3
Course Outcome	CO1: Remembering the basic aspects of word environment	K1	
	CO2: Understanding the document editing and proofreading	K2	
	CO3: Apply the text and paragraph formatting	K3	
	CO4: Apply the list and table concepts in to a document	K3	
	CO5: Analyze the formatting concept in to a table	K4	

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	1. Peter Weverka, "MS Office 2013 All-in-One for Dummies", 1st Edition, Wiley Publications, 2013.
Website Link	https://www.tutorialspoint.com/word/index.htm

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSN02	OFFICE AUTOMATION	NMEC-I	III	2	1		1	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	M
CO2	S	M	M	M	M	S	M	M	M	M
CO3	M	M	M	M	M	M	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	M	M	M	S	S	M	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 I and II

Designed By	Verified By	Approved By

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSN03	IMAGE EDITING TOOL	NMEC-II	IV	2	2			2
Objective	1. To impart Practical Training in photoshop and Familiarize the different text and filter effects. 2. To provide knowledge on working with several layouts and Build programs using stamp tools.							

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction to Adobe Photoshop: Working with images in PS: Resizing and Cropping Images; Basic Selection in PS; Image resolution by pixels, dpi etc. tool, palettes and menus	K1	3
II	Layers and Cloning: Creation of "composite" images; pen tool-layering and layer style; use of clone stamp image. layer; use of masks and Blending image; Resolution for the Web and Print	K1,K2	3
III	Typography in Photoshop; letters and words a web site or printed materials; complex tools and character settings. type masks and special effects in a professional design project. overlaying typography on photographic imagery	K2,K3	3
IV	Colours and brushes: Different colour correction-file formats and final output options; Brushes:- Kind; preset brushes to colorize B/W images, enhance photos, stamp shapes. Create, save and share brushes and brush sets.	K4	3
V	Filters and Retouching: tricks and techniques in Photoshop images, correcting exposure and contrast problems: retouching or repairing parts of an image: use of filters, adjustment layers, and retouching tools to polish digital images: creating special effects	K4	3
Course Outcome	**CO1:** Remembering the photoshop basics	K1	
	CO2: Understanding the function of layers	K2	
	CO3: Understanding the effects and typograpy of photoshop	K2	
	CO4: Apply the different colour and file formats	K3	
	CO5: Apply the filters in to an application	K3	

Learning Resources

Text Books	1. Photoshop for Dummies. peter Bauer, John Wiley and Sons, 2012. 2. The Photoshop workbook: Professional Retouching and Compositing Tips, Tricks and Techniques. Peachpit Press, 2014.
Reference Books	1. Photoshop CS6 in easy steps. Robert Shuffle botham. Easy Steps Ltd.Uk 2012
Website Link	https://www.javatpoint.com/photoshop

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSN03	IMAGE EDITING TOOL	NMEC-II	IV	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	M	M
CO2	S	M	M	M	M	S	M	M	M	M
CO3	S	M	M	M	M	M	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	M	M	M	S	S	M	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	Conducting Internal I and II, Gave an Assignments

Designed By	Verified By	Approved By
K.S		Archana

Curriculum Development Cell MCAS Autonomous Rasipuram

MUTHAYAMMAL COLLEGE OF ARTS & SCIENCE (Autonomous)

MUTHAYAMMAL COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
RASIPURAM, NAMAKKAL Dt – 637 408, TAMILNADU, INDIA

Affiliated to Periyar University, Salem
Accredited by NAAC with 'A' Grade
Recognized by UGC under Section 2(f) & 12 (B)

Board of Studies in Computer Science

Minutes of the Board of Studies

Meeting held on 13.05.2023 at 'B-Block Mini Seminar Hall.

I. **Resolution:** The board resolved and approved the syllabus of the Periyar University B.Sc., Computer Science, M.Sc., Computer Science & B.Sc Information Technology for this students admitted in the academic year 2023-24 onwards as per TANSCHE guidelines.

II. The Board approved the revised Syllabus of the Office Automation for SBEC Paper for B.Sc Computer Science and (22M3UCSS01) students during the III Semester (2022 to 2023) Batch.

S.No.	Part	Study Components	Course_Code	Title Of The Course	Semester	HRS./W		CREDIT POINTS	MAX.MARKS		
						LECT	LAB		CIA	ESE	TOTAL
1	VI	SEC	22M3UCSS01	Office Automation	III	2		2	25	75	100

The Board approved the revised Syllabus of the Office Automation for NMEC Paper for B.Sc. Mathematics, B.Sc. Chemistry, B.Sc. Statistics and B.Sc. Zoology and (22M3UCSN02) students during the III Semester (2022 to 2023) Batch.

S.No.	Part	Study Components	Course_Code	Title Of The Course	Semester	HRS./W		CREDIT POINTS	MAX.MARKS		
						LECT	LAB		CIA	ESE	TOTAL
1	VI	NMEC	22M3UCSN02	Office Automation	III	2		2	25	75	100

III. Approved the scheme of examination, syllabi for the V and VI Semester B.Sc. Computer Science program for the students admitted from the academic year 2021 – 2022 onwards.DSE courses for V and VI semester were finalized and approved.

IV. **Value added Course**

The Board verified and approved the scheme and syllabi for the Value added course "WEB DESIGNING" other students.

Board Chairman

DEPARTMENT OF COMPUTER SCIENCE
MUTHAYAMMAL COLLEGE OF ARTS&SCIENCE
RASIPURAM-637 408.
NAMAKKAL (Dt)

Principal

PRINCIPAL
MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE
(AUTONOMOUS)
RASIPURAM - 637 408,
NAMAKKAL DISTRICT.

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSS01	OFFICE AUTOMATION	SEC-I	III	2	2			2
Objective	1.To Navigate and perform common tasks in Word 2. To improve skills in office automation							

Unit	Course Content	Knowledge Levels	Sessions
I	MS Word - Working with Documents -Opening & Saving files,- Formatting documents-Insert Menu: Picture-shapes-word art-tables creation-header-footer-page number-adding symbol.	K1	3
II	Page Layout: Themes- Margins- Page Orientation- Page Size- Columns- Watermark- Page color-Page Border-Mail Merge-Spelling and Grammar.	K2	3
III	Ms-Excel: Creating a Simple Spreadsheet - Editing a Spreadsheet - Working with Functions and Formula - Different types of Charts- Pivot table- Sort and Filter.	K2,K3	3
IV	Ms-PowerPoint: Creating and Viewing Presentations - Editing a Presentation - Working with Presentation Special Effects - Animation-Custom Animation- Set up Slide Show.	K3	3
V	MS Access: Introduction-Starting Access- Access Screen- Creating a New Database- Creating Tables- Working with Forms- Creating queries- Finding Information in Databases- Creating Reports- Types of Reports-Importing data from MS Excel etc.	K3,K4	3
Course Outcome	**CO1**: Remember the MS word	K1	
	CO2: Understand the Page layout menu	K2	
	CO3: Apply the Microsoft excel	K3	
	CO4: Apply the animation effects	K3	
	CO5: Analyze the Microsoft access	K4	

Learning Resources

Text Books	1. Microsoft Office - Author: DIANE KOERS Publisher: Prentice Hall of India Private Limited, New Delhi, 2001
Reference Books	1. Peter Weverka, "MS Office 2013 All-in-One for Dummies", 1st Edition, Wiley Publications, 2013.
Website Link	https://www.tutorialspoint.com/word/index.htm

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSS01	OFFICE AUTOMATION	SEC-I	III	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	M
CO2	S	M	M	M	M	S	M	M	M	M
CO3	M	M	M	M	M	M	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	M	M	M	S	S	M	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 I and II

Designed By	Verified By	Approved By
M. KRISHNAMOORTHY	P. Sivaraman	Dr. S. Shanthi

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSN02	OFFICE AUTOMATION	NMEC-I	III	2	2			2
Objective	1. Navigate and perform common tasks in Word, such as opening, viewing, editing, saving, and printing documents, and configuring the application. 2. Format text and paragraphs. Perform repetitive operations efficiently using tools such as Find and Replace, Format Painter, and Styles.							

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction to Computers - Generations of Modern Computers - Classification of Digital Computer Systems - Anatomy of a Digital - Software - Hardware.	K1	3
II	Computer Organization: ALU, CU, Input, Output Units. Memory units - Auxiliary Storage Devices - Magnetic tape - Hard disk- Floppy Disk- CD - ROM - Memory organization - RAM, ROM, EPROM and EEPROM.	K2	3
III	Ms-Word: Learning Word Basics - creating and editing documents - Menus, commands, toolbars and icons - formatting documents - Error Corrections: Correct Spelling and Grammatical Errors - Creating tables - Printing a Document - Mail merge.	K2,K3	3
IV	Ms-Excel: Creating a Simple Spreadsheet - Editing a Spreadsheet - Working with Functions and Formula - Formatting Worksheets - Creating Charts.	K3	3
V	Ms-PowerPoint: Creating and Viewing Presentations - Editing a Presentation - Working with Presentation Special Effects - Animation.	K3,K4	3
Course Outcome	CO1: Remember the computer basics	K1	
	CO2: Remember the computer memory units	K2	
	CO3: Understand and Apply the Microsoft word techniques	K3	
	CO4: Apply the Microsoft excel techniques	K3	
	CO5: Analyze the Microsoft powerpoint techniques	K4	

Learning Resources	
Text Books	1. Introduction to Computers - Alex Leon, Mathew Leon (UNIT - I) 2. Microsoft Office XP - fast & easy (UNIT II, III, IV & V) Author: DIANE KOERS Publisher: Prentice Hall of India Private Limited, New Delhi, 2001
Reference Books	1. Peter Weverka, "MS Office 2013 All-in-One for Dummies", 1st Edition, Wiley Publications, 2013.
Website Link	https://www.tutorialspoint.com/word/index.htm

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSN02	OFFICE AUTOMATION	NMEC-I	III	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	M
CO2	S	M	M	M	M	S	M	M	M	M
CO3	M	M	M	M	M	M	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	M	M	M	S	S	M	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 I and II

Designed By	Verified By	Approved By
M.KRISHNAMOORTHY		Dr. S. SHANTHA

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSC07	.NET PROGRAMMING	DSC THEORY - VII	V	4	4			4
Objective	1. To understand .NET framework 2. To familiar with VB.NET							

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction: Introduction to .NET -.NET Frame work-VB .NET.VB.NET Programming Language: OOP and VB.NET - Hello World-Data Types, Variables and Operators	K1	9
II	Event Procedure, Properties and Controls: Event Procedure-Viewing and changing properties - adding controls to the form. Control structures: if statement - control used for if statements - select case statement. Loop and array: Loop structure arrays	K2	9
III	Procedures: Type of procedure- sub routines-functions-more on arguments-procedure overloading. Helper forms: Message boxes-dialog boxes-owned forms. Menus and Toolbars: Menus-context menu-tool bars	K3	9
IV	Error Handling and Preventions: Structured exception handling-debugging.IDE for VB.Net:VB.NET IDE-compiling and debugging	K4	9
V	Data Access: ADO.NET-Data access in Visual Studio.Net. VB.NET and the Web: Introduction to web development- Introduction to ASP.NET	K5	9
Course Outcome	**CO1**: Remember the basics of .NET framework and the object oriented programming	K1	
	CO2: Understand the procedures, properties and control structures	K2	
	CO3: Apply the Menus in VB.NET	K3	
	CO4: Analyze the VB.NET with Error handling and debugging	K4	
	CO5: Evaluate VB.NET with data access	K5	

Learning Resources

Text Books	1. Bill Evjen, Jason Beres, et.al, Visual Basic .Net programming, Wiley Dreamtech India (p) Ltd. (UNIT I,IV and V) 2. Jeffrey Kent, Visual Basic.Net a Beginners Guide, Tata Mcgraw Hall Edition(UNIT II, III and IV)
Reference Books	1. Fergal Grimes, Microsoft .NET for programmers, Shroff Publishers & Distributors (P) Ltd. ISBN 81-7366-540-0 2. Thuan Thai & Hoang Q.Lam, .NET Framework Essentials, Shroff Publishers & Distributors 2 (P) Ltd. ISBN 81-7366-654-7
Website Link	https://www.javatpoint.com/net-framework

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSC07	.NET PROGRAMMING	DSC THEORY - VII	V	4	4			4

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	L
CO2	S	M	M	M	S	S	M	M	M	L
CO3	M	M	M	M	L	M	M	M	M	M
CO4	S	M	M	M	S	S	M	M	M	M
CO5	L	M	M	S	S	M	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 I and II

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS (Autonomous) Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSP05	PRACTICAL - V .NET PROGRAMMING LAB	DSC PRACTICAL -V	IV	4			4	2
Objective	1.To design/develop programs with GUI interfaces 2.To write programs and develop interface using Visual Basic.Net							
S. No.	List of Experiments / Programs						Knowledge Levels	Sessions
1	Create a VB .Net program to implement if statements						K1	2
2	Create a VB .Net program to implement loop statements						K2	3
3	Create a VB .Net program to implement arrays						K2,K3	3
4	Create a VB .Net program to implement functions						K3	3
5	Create a VB .Net program to implement helper forms(Message box, Dialog box and Owned forms)						K3,K4	3
6	Create a VB .Net program to implement Menus						K3,K4	3
7	Create a VB .Net program to implement Events(Click, Mouse Down, Key Down and Form Load)						K4	3
8	Create an application in VB.Net for Student Information Database and Perform the following operations. i)insert ii)delete and iii) update						K5	3
Course Outcome	CO1: Remember all the .net concepts						K1	
	CO2: Understand to handle visual studio						K2	
	CO3: Apply the design form with menu and controls						K3	
	CO4: Analyze to connect Front end and back end						K4	
	CO5: Evaluate the flow of execution						K5	
Learning Resources								
Text Books	1.Bill Evjen, Jason Beres, et.al, Visual Basic .Net programming, Wiley Dreamtech India (p) Ltd. (UNIT I,IV and V) 2. Jeffrey Kent, Visual Basic.Net a Beginners Guide, Tata Mcgraw Hall Edition(UNIT II, III and IV)							
Reference Books	1.Fergal Grimes, Microsoft .NET for programmers, Shroff Publishers & Distributors (P) Ltd. ISBN 81-7366-540-0 2.Thuan Thai & Hoang Q.Lam, .NET Framework Essentials, Shroff Publishers & Distributors 2 (P) Ltd. ISBN 81-7366-654-7							
Website Link	https://www.javatpoint.com/net-framework							

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSP05	PRACTICAL - V .NET PROGRAMMING LAB	DSC PRACTICAL - V	IV	4			4	2

CO-PO Mapping

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

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS Autonomous Pasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSC08	PYTHON PROGRAMMING	DSC THEORY - VIII	IV	4	4			4
Objective	1. To introduce the fundamentals of Python Programming. 2. To teach about the concept of Functions in Python.							

Unit	Course Content	Knowledge Levels	Sessions
I	Python - origins - features - variable and assignment - Python basics - statement and syntax - Identifiers - Basic style guidelines - Python objects - Standard types and other built-in types - Internal types - Standard type operators - Standard type built-in functions	K1	9
II	Numbers - Introduction to Numbers - Integers - Double precision floating point numbers - Complex numbers - Operators - Numeric type functions - Sequences: Strings, Lists and Tuples - Sequences - Strings and strings operators - String built-in methods - Lists - List type Built in Methods - Tuples	K2	9
III	Mapping type: Dictionaries - Mapping type operators - Mapping type Built-in and Factory Functions - Mapping type built in methods - Conditionals and loops - if statement - else Statement - elif statement - conditional expression - while statement - for statement - break statement - continue statement - pass statement - Iterators and the iter( ) function - Files and Input/Output - File objects - File built-in functions - File builtin methods - File built-in attributes - Standard files - command line arguments.	K2,K3	9
IV	Functions and Functional Programming - Functions - calling functions - creating functions - passing functions - Built-in Functions: apply( ), filter( ), map( ) and reduce( ) - Modules - Modules and Files - Modules built-in functions - classes - class attributes - Instances.	K2,K3,K4	9
V	Database Programming - Introduction - Basic Database Operations and SQL - Example of using Database Adapters, Mysql - Regular Expression - Special Symbols and Characters - REs and Python	K5	9

Course Outcome		
	CO1: Understand the Basic Programming Logic.	K1
	CO2: Understand the basic Statements.	K2
	CO3: Implement Files and SQL.	K3
	CO4: Evaluate Graphics in python.	K4
	CO5: Analyze Version control system.	K5

Learning Resources

Text Books	1. Wesley J. Chun Core Python Programming Pearson Education Publication 2012
Reference Books	1.Wesley J. Chun Core Python Application Programming Pearson Education Publication 2015 2.Eric Matthes Python crash course William pollock 2016 3.Zed Shaw Learn Python the hard way Addition Wesley 2017 4.Mark Lutz Python pocket reference O'Reilly Media 2014 Pedagogy
Website Link	https://www.w3schools.com/python/

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSC08	PYTHON PROGRAMMING	DSC THEORY - VIII	IV	4	4			4

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	S
CO2	S	M	M	M	M	S	M	M	M	M
CO3	M	M	M	M	M	M	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	M	M	M	S	S	M	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	Conducting Internal I and II, Gave an Assignments

Designed By	Verified By	Approved By
K. Shanmugapriya		Dr. S. Shanthi

Curriculum Development Cell MCAS (Autonomous) Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSP06	PYTHON PROGRAMMING	DSC-PRACTICAL VI	V	4			4	2

Objective	1. To implement Python programs with conditional statements and loops 2. To Use functions for structuring Python programs

S. No.	List of Experiments / Programs	Knowledge Levels	Sessions
1	Create a simple calculator to do all the arithmetic operations.	K1	3
2	Write a program to use control flow tools like if.	K2	3
3	Write a program to use for loop.	K2,K3	3
4	Data structures a. use list as stack. b. use list as queue. c. tuple, sequence.	K3	3
5	Create new module for mathematical operations and use in your program	K3,K4	3
6	Write a program to read and write files, create and delete directories.	K3,K4	3
7	Write a program with exception handling.	K4	3
8	Write a program using classes.	K4	3
9	Write a program using string handling and regular expressions.	K4,K5	3
10	Write a Program to take command line arguments (word count).	K4,K5	3
Course Outcome	**CO1**: Remember all the statements in python Programming	K1	
	CO2: Understand the problem and construct the algorithm	K2	
	CO3: Apply the algorithm that are relevant to the casual	K3	
	CO4: Analyze the source lines that are match up with the casual	K4	
	CO5: Evaluate the flow of execution	K5	

Learning Resources

Text Books	1. Mark Summerfield, Programming in Python 3: A Complete introduction to the Python Language, Addison-Wesley Professional, 2009. 2. Martin C. Brown, PYTHON: The Complete Reference, McGraw-Hill, 2001 3. E. Balagurusamy (2017), "Problem Solving and Python Programming", McGraw-Hill, First Edition.
Reference Books	1. Wesley J Chun, Core Python Applications Programming‖, Prentice Hall, 2012
Website Link	https://www.guru99.com/python-tutorials.html

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSP06	PYTHON PROGRAMMING	DSC-PRACTICAL VI	V	4			4	2

CO-PO Mapping

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

Designed By	Verified By	Approved By
K. Shunmugapriya		Dr. S. Sharmila

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSC09	COMPUTER NETWORKS	DSC THEORY	V	4	4			4

Objective	1.To introduce the basic concepts of computer networks. 2. To study the basic concepts of computer networks.

Unit	Course Content	Knowledge Levels	Sessions
I	Network Hardware: LAN - WAN - MAN - Wireless - Home Networks. Network Software: Protocol Hierarchies - Design Issues for the Layers - Connection-oriented and connectionless services - Service Primitives - The Relationship of services to Protocols. Reference Models: OSI Reference Model - TCP/IP reference Model - Comparison of OSI and TCP/IP	K1	9
II	PHYSICAL LAYER - Guided Transmission Media: Magnetic Media - Twisted Pair - Coaxial Cable - Fiber Optics. Wireless Transmission: Electromagnetic Spectrum - Radio Transmission - Microwave Transmission - Infrared and Millimeter Waves - Light Waves. Communication Satellites: Geostationary, Medium-Earth Orbit, Low Earth-orbit Satellites - Satellites versus Fiber.	K2	9
III	DATA-LINK LAYER: Error Detection and correction - Elementary Data-link Protocols - Sliding Window Protocols. MEDIUM-ACCESS CONTROL SUB LAYER: Multiple Access Protocols - Ethernet - Wireless LANs - Broadband Wireless - Bluetooth.	K2,K3	9
IV	NETWORK LAYER: Routing algorithms - Congestion Control Algorithms. TRANSPORT LAYER: Elements of Transport Protocols - Internet Transport Protocols: TCP.	K3	9
V	APPLICATION LAYER: DNS - E-mail. NETWORK SECURITY: Cryptography - Symmetric Key Algorithms - Public Key Algorithms - Digital Signatures.	K3,K4	9
Course Outcome	**CO1:** Remember the basic concepts of Networks and computer network process.	K1	
	CO2: Understanding the computer networks primitives.	K2	
	CO3: Apply real time network process.	K3	
	CO4: Evaluate classification and Prediction.	K4	
	CO5: Implement cluster analysis.	K5	

Learning Resources

Text Books	1. David J.Wetherall, Andrew S.Tanenbaum, "Computer Networks",5th Edition,Pearson Education, 2012.
Reference Books	1. B.A. Forouzan, "Data Communication and Networking", 4 th Edition, Tata McGraw Hill, 2007. 2. B.A. Forouzan,FirouzMosharraf, "Computer Networks - A Top down Approach", Tata McGraw Hill, 2012.
Website Link	https://www.javatpoint.com/computer-network-tutorial

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCS09	COMPUTER NETWORKS	DSC THEORY	V	4	4			4

CO-PO Mapping

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

Designed By	Verified By	Approved By
J. Kalaiselvi		Dr. S. Shanthi

Curriculum Development Cell MCAS (Autonomous) Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSE01	DATA MINING AND WAREHOUSING	DSE-I	V	4	4			3
Objective	1. To introduce the basic concepts and techniques of Data Mining. 2. 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- Naive 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	9
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	9
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	K5	9
Course Outcome	**CO1**: Remember the basic concepts of data mining and data preprocessing.	K1	
	CO2: Understanding the data mining primitives	K2	
	CO3: Apply mining association rule.	K3	
	CO4: Evaluate classification and Prediction.	K4	
	CO5: Implement cluster analysis.	K5	

Learning Resources	
Text Books	G.K. Gupta, Introduction to Data mining with case studies‖, 2nd Edition, PHI Private limited, New Delhi, 2011 **Jain Pei and Jiawei Han and Micheline Kamber , Data Mining: Concepts And Techniques 3Rd Edition by, Elsevier Science,2011**
Reference Books	Arun K Pujari, –Data Mining Techniques, 10th impression, University Press, 2008.
Website Link	NPTEL & MOOC courses titled Data Mining 1. https://nptel.ac.in/courses/106105174/ 2. http://cecs.louisville.edu/datamining/PDF/0471228524.pdf

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSE01	DATA MINING AND WAREHOUSING	DSE-I	V	4	4			3

CO-PO Mapping

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

Designed By	Verified By	Approved By
D. Vasanthi		

Curriculum Development Cell MCAS Autonomous Pasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSE04	CLOUD COMPUTING	DSE-II	V	4	4			3

Objective	1.To Understanding the basics of cloud computing along with virtualization 2.To Understanding cloud computing is one of the fastest growing domain from a while now.

Unit	Course Content	Knowledge Levels	Sessions
I	Cloud Computing Foundation: Introduction to Cloud Computing-Move to Cloud Computing-Types of Cloud -Working of Cloud Computing.	K1	9
II	Cloud Computing Architecture: Cloud Computing Technology-Cloud Architecture- Cloud Modeling and Design -Virtualization: Foundation - Grid, Cloud and Virtualization - Virtualization and Cloud Computing	K2	9
III	Data Storage and Cloud Computing: Data Storage-Cloud Storage-Cloud Storage from LANs to WANs -Cloud Computing Services: Cloud Services - Cloud Computing at Work	K3	9
IV	Cloud Computing and Security: Risks in Cloud Computing-Data Security in Cloud- Cloud Security Services -Cloud Computing Tools: Tools and Technologies for Cloud - Cloud Mashaps-Apache Hadoop -Cloud Tools	K4	9
V	Cloud Applications: Moving Applications to the Cloud -Microsoft Cloud Services - Google Cloud Applications -Amazon Cloud Services -Cloud Applications	K5	9

Course Outcome	CO1: Remember the basic concepts of Cloud.	K1
	CO2: Understanding Cloud Architecture	K2
	CO3: Apply data storage in cloud.	K3
	CO4: Evaluate with cloud security.	K4
	CO5: Implement cloud applications.	K5

Learning Resources

Text Books	1.A.Srinivasan and J.Suresh, "Cloud Computing -A Practical Approach for Learning and Implementation", Pearson India Publications2014.
Reference Books	1. RajkumarBuyya, James Broberg, Andrzej, "Cloud Computing: Principles and Paradigms",Wiley India Publications2011. 2. ArshdeepBahga and Vijay Madisetti, "Cloud Computing -A Hands on Approach", Universities Press (India) Pvt Ltd. 2014.
Website Link	/ https://www.visma.com/cloud-technology/

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSE04	CLOUD COMPUTING	DSE-II	V	4	4			3

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	L	M	L	M	M	M	M
CO2	S	M	L	L	M	L	M	L	M	L
CO3	S	M	M	L	L	M	L	M	M	S
CO4	M	S	L	L	M	L	L	M	M	M
CO5	S	M	M	L	L	L	M	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 and presentation
Assessment Methods	Attendance, Assignments, Internal I and II

Designed By	Verified By	Approved By
M. Krishnamoorthi KRISHNAMOORTHI.M		Dr. J. Shanthini

Curriculum Development Cell MCAS (Autonomous) Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSS03	MULTISKILL DEVELOPMENT	SEC - III	V	2	2			2

Objective	1. To improve communications skills 2. To prepare for competitive exams

Unit	Course Content	Knowledge Levels	Sessions
I	Communication: Question tag - Gerund and Infinitives - Spotting the errors - Vocabulary - Synonyms - Antonyms - Prepositions - Articles - One word substitution - Sentence completion.	K1	3
II	Numerical Aptitude : Problems on numbers - Problems on Ages - Percentage - Profit and loss - Ratio & Proportion - Time & Work - Time & Distance - Simple Interest - Compound Interest.	K2	3
III	Critical Reasoning: Logical Inference Questions and Syllogism. Analytical Reasoning: Arrangement problems - Family / Blood Relation Qualms - Sense of Directions - Age Doubts. Verbal Reasoning: Verbal Analogy: Letter series - number series - Coding and Decoding.	K2,K3	3
IV	Self Introduction - Soft Skills - Interpersonal Skills - Employability Skills - Soft Skills Training - Resume Preparation - Interview Tips and Questions.	K3,K4	3
V	Group Discussion - Importance - Types of GD - GD Skills - GD Etiquette - Essential Elements of a GD - Movements and Gestures to be avoided in a GD	K4	3
Course Outcome	**CO1:** Remembering the basics of communication	K1	
	CO2: Understand the number related problems	K2	
	CO3: Apply the reasoning skills to problems	K3	
	CO4: Apply the skills in verbal and non verbal	K4	
	CO5: Apply the speaking skills with their friends.	K4	

Learning Resources

Text Books	1. Hari Mohan Prasad & Uma Rani Sinha, "Objective English for Competitive Examinations", Tata McGraw Hill Education Private Ltd., 2. R.S. Aggarwal, "Quantitative Aptitude", S.Chand 2010. 3. Alex.K, "Soft Skills-Know Yourself and Know the World", S.Chand Company Ltd., 2011.
Reference Books	1. R.S. Agarwal, "A Modern Approach to Verbal Reasoning (Fully Solved)" -Revised Edition, S.Chand Company Limited, New Delhi, 2012.
Website Link	https://www.indiabix.com/aptitude/questions-and-answers/

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSS03	MULTISKILL DEVELOPMENT	SEC - III	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	S	S	M	L
CO2	S	M	M	M	M	S	S	M	M	L
CO3	S	M	M	M	M	S	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	Conducting Internal I and II, Gave an Assignments

Designed By	Verified By	Approved By
[L. Nandhini]		[Dr. S. Shanthi]

Curriculum Development Cell MCAS (Autonomous) Rasipuram

B.Sc.-Computer Science Syllabus LOCF-CBCS with effect from 2021-2022 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
21M3UCSIS1	INTERNSHIP TRAINING	INTERNSHIP	V	-	-	-	-	2
Objective	To give optimum exposure on the practical aspects of mathematics in Industries							

Guidelines for Internship Programme	**Knowledge Levels**	**Sessions**
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:** Analyze and Evaluate 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 https://www.w3schools.com/java/java_intro.asp https://www.w3schools.com/r/

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

B.Sc.-Computer Science Syllabus LOCF-CBCS with effect from 2021-2022 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
21M5UCSIS1	INTERNSHIP TRAINING	INTERNSHIP	V	-	-	-	-	2

CO-PO Mapping

CO Number	PO1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO4	PSO 5
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 % 1. Work Diary - 25% 2. Training Report and Viva-voce - 75%

Designed By	Verified By	Approved By
S. NARMADHA		Dr. S. Sujatha

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSC10	PROGRAMMING IN JAVA	DSC THEORY	VI	5	5			5

Objective	1. To expose the students with the introduction to OOPs and advantages of object oriented programming. 2. The concepts of OOPs make it easy to represent real world entities.

Unit	Course Content	Knowledge Levels	Sessions
I	Object-Oriented Paradigm -Basic Concepts of Object-Oriented Programming - Benefits of Object Oriented Programming - Application of Object-Oriented Programming. Java Evolution: History - Features - How Java differs from C and C++ - Java and Internet - Java and www -Web Browsers. Overview of Java: simple Java program - Structure - Java Tokens - Statements - Java Virtual Machine	K1,K2	12
II	Constants, Variables, Data Types - Operators and Expressions - Decision Making and Branching: if, if...else, nested if, switch, ? : Operator - Decision Making and Looping: while, do, for - Jumps in Loops - Labeled Loops - Classes, Objects and Methods	K2-K4	12
III	Arrays, Strings and Vectors - Interfaces: Multiple Inheritance - Packages: Putting Classes together - Multithreaded Programming	K2,K3	12
IV	Managing Errors and Exceptions: Introduction, Types of Exception Handling Code, Multiple Catch Statements, Using Finally Statement, Throwing Our Own Exceptions- Applet Programming, Graphics Programming, How Applets Differ from Applications, Preparing to Write Applets, Building Applet Code- Applet Life Cycle- Creating an Executable applet- Designing a Web Page, Applet Tag, Adding Applet to HTML File, running the Applet-Graphics Programming.	K3	12
V	Concepts of Streams- Stream Classes - Byte Stream classes - Character stream classes - Using streams - I/O Classes - File Class - i/O exceptions - Creation of files - Reading / Writing characters, Byte-Handling Primitive data Types - Random Access Files	K3	12
Course Outcome	**CO1**:The competence and the development of small to medium sized application programs that demonstrate professionally acceptable coding	K1-K2	
	CO2:Demonstrate the concept of object oriented programming through Java	K2	
	CO3:Apply the concept of Inheritance, Modularity, Concurrency, data persistence to develop java program	K3	
	CO4:Develop java programs for Exceptions handling , applets and graphics programming	K4	
	CO5:Understand the fundamental concepts of stream classes and Random Access Files in java	K1	

Learning Resources

Text Books	1. Programming with Java - A Primer - E. Balagurusamy, 5 th Edition, TMH. 2. Herbert Schildt , Java: The Complete Reference, McGraw Hill Education, Oracle Press 10th Edition, 2018 3. Programming with Java - A Primer - E. Balagurusamy, 3rd Edition, TMH.
Reference Books	1. The Complete Reference Java 2 - Patrick Naughton & Hebert Schildt, 3rd Edition, TMH 2. Programming with Java - John R. Hubbard, 2nd Edition, TMH.
Website Link	1. www.nptel.ac.in 2. https://www.w3schools.in/java-tutorial/

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCS10	PROGRAMMING IN JAVA	DSC THEORY	VI	5	5			5

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	S	S	S	S	S	M	M
CO2	S	M	M	M	M	S	S	M	M	M
CO3	S	M	M	M	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	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 and Presentation
Assessment Methods	Attendance, Assignments, Internal I and II

Designed By	Verified By	Approved By
V. Arbutharaj [V. ARBUTHARAJ]		Dr. S. Shanthi

Curriculum Development Cell MCAS (Autonomous) Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSP07	PROGRAMMING IN JAVA	DSC PRACTICAL	VI	5			5	4

Objective	1. To impart Practical Training in JAVA Programming Language. 2. To familiarize the different control and decision making statements in JAVA.

S. No.	List of Experiments / Programs	Knowledge Levels	Sessions
1	Write a program to find the Area of Square, Rectangle and Circle using Method Overloading	K1,K2	2
2	Write a program to sort the list of numbers using Command Line Arguments	K1,K2	2
3	Write a program to multiply the given two matrices.	K1,K2	2
4	Write a program that import the user defined package and access the Member variable of classes that contained by Package	K3	2
5	Write a program to extract a portion of a character string and print the extracted string	K1,K2	2
6	Write a program to handle the Exception using try and multiple catch blocks	K3	2
7	Write a program to illustrate the use of multithreads	K3	2
8	Write a program to demonstrate the Multiple Selection List-box	K2,K3	2
9	Write a program to draw the line, rectangle, oval, text using the graphics method	K2,K3	2
10	Write a program which open an existing file and append text to that file	K3	2
Course Outcome	**CO1:**Understand the basic concepts of Java Programming with emphasis on ethics and principles of professional coding	K1	
	CO2: Demonstrate the creation of objects, classes and methods and the concepts of constructor, methods overloading, Arrays, branching and looping	K2	
	CO3: Create data files and Design a page using AWT controls and Mouse Events in Java programming Implement the concepts of code reusability and debugging.	K3	
	CO4: Develop applications using Strings, Interfaces and Packages and applets	K4	
	CO5: Construct Java programs using Multithreaded Programming and Exception Handling	K5	

Learning Resources

Text Books	1. Programming with Java - A Primer - E. Balagurusamy, 5 th Edition, TMH. 2. Herbert Schildt , Java: The Complete Reference, McGraw Hill Education, Oracle Press 10th Edition, 2018 3. Programming with Java - A Primer - E. Balagurusamy, 3 rd Edition, TMH
Reference Books	1. The Complete Reference Java 2 - Patrick Naughton & Hebert Schildt, 3rd Edition, TMH 2. Programming with Java - John R. Hubbard, 2 nd Edition, TMH.
Website Link	1. https://www.w3resource.com/java-exercises/ 2. https://www.udemy.com/introduction-to-java-programming/

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSP07	PROGRAMMING IN JAVA	DSC PRACTICAL	VI	5			5	4

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	S	S	S	S	S	M	M
CO2	S	M	M	M	M	S	S	M	M	M
CO3	S	M	M	M	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	M	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, Model Practical's

Designed By	Verified By	Approved By
V. Arbutharaj [ARBUTHARAJ]		

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSE07	SOFTWARE ENGINEERING	DSE-III	VI	4	4			3

Objective	1. To introduce the software development life cycles. 2. To introduce concepts related to structured and objected oriented analysis & design.

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction - Software Engineering Discipline - Evolution and Impact - Programs Vs Software Products. Software Life Cycle Models: Use of a Life Cycle Models - Classical Waterfall Model - Iterative Waterfall Model - Prototyping Model - Evolutionary Model - Spiral Model. Software Project Management: Responsibilities of a Software Project Manager - Project Planning - Metrics for Project Size Estimation - Project Estimation Techniques -Risk Management.	K1	9
II	Requirements Analysis and Specification: Requirements Gathering and Analysis -Software Requirements Specification (SRS) - Formal System Development Techniques. Software Design: Characteristics of a Good Software Design - Cohesion and Coupling -Neat Arrangement - Software Design Approaches.	K2	9
III	Function-Oriented Software Design: Overview of SA/SD Methodology - Structured Analysis - Data Flow Diagrams (DFDs).Object Modeling Using UML: Overview of Object-Oriented Concepts - UML Diagrams - Use Case Model - Class Diagrams - Interaction Diagrams - Activity Diagrams - State Chart Diagram.	K2,K3	9
IV	User Interface Design: Characteristics of a Good User Interface - Basic Concepts - Types of User Interfaces - Component-Based GUI Development; Coding and Testing: Coding - Testing - UNIT Testing - Black-Box Testing - White-Box Testing - Debugging -Integration Testing - System Testing	K2,K3,K4	9
V	Software Reliability and Quality Management: Software Reliability - Statistical Testing -Software Quality - Software Quality Management System - ISO 9000.Computer Aided Software Engineering: CASE Environment - CASE support in Software Life Cycle - Characteristics of CASE Tools - Architecture of a CASE Environment. Software Maintenance: Characteristics of Software Maintenance - Software Reverse Engineering - Software Maintenance Process Models - Estimation of Maintenance Cost. Software Reuse: Issues in any Reuse Program - Reuse Approach.	K3,K4	9
Course Outcome	**CO1**: Remember the basic concepts of software Engineering.	K1	
	CO2: Understanding requirement analysis.	K2	
	CO3: Apply software design.	K3	
	CO4: Evaluate with testing	K4	
	CO5: Evaluate software reliability.	K4	

Learning Resources

Text Books	1.Rajib Mall, —*Fundamentals of Software Engineering*‖, PHI 2018, 5th Edition.
Reference Books	1. Roger S. Pressman, —*Software Engineering - A Practitioner's Approach*‖, McGraw Hill 2010, 7th Edition. 2. Pankaj Jalote, —*An Integrated Approach to Software Engineering*‖, Narosa Publishing House 2011, 3rd Edition.
Website Link	1.NPTEL online course - Software Engineering - https://nptel.ac.in/courses/106105182/

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSE07	SOFTWARE ENGINEERING	DSE-II	V	4	4			3

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	S	S	S	S	S	M	M
CO2	S	M	M	M	M	S	S	M	M	M
CO3	S	M	M	M	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	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 and presentation
Assessment Methods	Attendance, Assignments, Internal I and II

Designed By	Verified By	Approved By
T.Tamilarasi [T.TAMILARASI]		[Dr. S. SHANTHI]

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSE11	INTERNET OF THINGS	DSE-IV	VI	5	5			3
Objective	1. Use of Devices, Gateways and Data Management in IoT. 2. Implement basic IoT applications on embedded platform.							

Unit	Course Content	Knowledge Levels	Sessions
I	IoT & Web Technology- The Internet of Things Today- Time for Convergence- Towards the IoT Universe- Internet of Things Vision-IoT Strategic Research and Innovation Directions- IoT Applications-Future Internet Technologies-Infrastructure-Networks and Communication-Processes- Data Management- Security- Privacy &Trust-Device Level Energy Issues-IoT Related Standardization-Recommendations on Research Topics.	K1	12
II	M2M to IoT - A Basic Perspective- Introduction- Some Definitions-M2M Value Chains-IoT Value Chains-An emerging industrial structure for IoT- The international driven global value chain and global information monopolies.M2M to IoT-An Architectural Overview - Building an architecture-Main design principles and needed capabilities-An IoT architecture outline-standards considerations.	K2	12
III	IoT Architecture -State of the Art - Introduction, State of the art-Architecture. Reference Model- Introduction, Reference Model and architecture-IoT reference Model- IoT Reference Architecture-Introduction- Functional View- Information View- Deployment and Operational View- Other Relevant architectural views.	K3	12
IV	IoT Architecture Introduction- IoT applications for industry: Future Factory Concepts-Brown field IoT-Smart Objects-Smart Applications-Four Aspects in your Business to Master IoT- Value Creation from Big Data and Serialization-IoT for Retailing Industry- IoT For Oil and Gas Industry- Opinions on IoT Application and Value for Industry-Home Management- eHealth.	K4	12
V	Internet of Things Privacy- Security and Governance Introduction-Overview of Governance- Privacy and Security Issues- Contribution from FP7 Projects-Security-Privacy and Trust in IoT-Data-Platforms for Smart Cities-First Steps Toward Platform-Smart Approach. Data Aggregation for the IoT in Smart Cities-Security	K5	12
Course Outcome	**CO1**: Remember IoT and Web technology.	K1	
	CO2: Understanding M2M to IoT.	K2	
	CO3: Apply IoT Architecture.	K3	
	CO4: Evaluate IoT Applications.	K4	
	CO5: Implement IoT Privacy, Security and Governance.	K4	

Learning Resources	
Text Books	Vijay Madisetti and ArshdeepBahga, —*Internet of Things: (A Hands-on Approach)*‖, Universities Press (INDIA) Private Limited 2014, 1st Edition.
Reference Books	1. Michael Miller, —*The Internet of Things: How Smart TVs, Smart Cars, Smart Homes, and Smart Cities Are Changing the World*‖, Pearson Education 2015. 2. Francis da Costa, —*Rethinking the Internet of Things: A Scalable Approach to Connecting Everything*‖, Apress Publications 2013, 1st Edition.
Website Link	1. https://github.com/connectIOT/iottoolkit 2. https://www.arduino.cc/ 3. http://www.zettajs.org/

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSE11	INTERNET OF THINGS	DSE-IV	VI	5	5			3

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	S	S	M	M	M
CO2	S	M	M	M	M	S	M	M	M	L
CO3	S	M	M	M	M	L	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	S	S	M	S	S	S	M	s	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 and presentation
Assessment Methods	Attendance, Assignments, Internal I and II

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSSP1	PHOTOSHOP	SEC PRACTICAL-I	VI	4	-	-	4	2

Objective	1. To familiarize the students with various approaches, methods and techniques of Photoshop. 2. To develop competencies and skills needed for becoming an effective photo editor

S. No.	List of Experiments / Programs	Knowledge Levels	Sessions
1	Design a greeting card for birthday using different text effects	K1,K2	4
2	Apply various filter effects to an image	K2	4
3	Design the front page of the college calendar using gradient	K2	4
4	Create a pattern using pattern stamp tool and clone stamp tool	K3	4
5	Design a web page layout	K3,K4	4
6	Design a bunch of flowers	K3,K4	5
7	Perform/Simulate Plastic Surgery on any part of the face	K4	5
8	Create See-through texts	K4,K5	5
9	Convert Black and White Photo to Color Photo	K4,K5	5
10	Fill a text with an appropriate image (Example: The word "Flower" should be filled with some flower images)	K4,K5	5

Course Outcome	CO1: Remember all the Basic of editing	K1
	CO2: Understand the Photoshop Technique	K2
	CO3: Apply various Photoshop Effects	K3
	CO4: Analyze the Camera Views	K4
	CO5: Evaluate File Rendering	K5

Learning Resources

Text Books	1. Kogent Learning Solutions Inc, "Photoshop CS5 in Simple Steps", Dreamtech Press, New Delhi, 2012. 2. The Animator's Survival Kit: A Manual of Methods, Principles and Formulas forClassical, Computer, Games, Stop Motion and Internet Animators Paperback -Illustrated, September 25, 2012 . by Richard Williams
Reference Books	1.Brie Gyncild, "Adobe Photoshop CS6 Classroom in a Book", Adobe Press/Peachpit, 2012 2.Lisa Danae Dayley, Brad Dayley , "Adobe Photoshop Cs6 Bible", Wiley India Pvt Ltd.
Website Link	https://www.photoshopessentials.com/

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSSP1	PHOTOSHOP	SEC PRACTICAL-I	VI	4	-	-	4	2

CO-PO Mapping

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

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSOE1	Computer Science for Competitive Examination	Self study Online - Competitive Examination	6			2		2
Objective	Creating the awareness on competitive examination among students. Impartingknowledge about the appearing for Competitive Examination and it impacts anddeveloping 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, OperatingSystem, 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 givea 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 beconducted at the end of 4th semester. 2. Questions must be taken from all previous questionpapers of TANCET,IBPS And SSC. 3. Test critical thinking. Multiple choice questions totest the superficial knowledge. Learners to interpretfacts, evaluate situations, explain cause and effect, make inferences, and predict results. Emphasize Higher-Level Thinking. Use memory-plus application oriented questions. These questions require students to recall principles, rules or facts in areal 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 minimum500 questions booklet (cumulatively for each programme) with solutions and circulate among the students.		

Course Outcome	**CO1:** Remember and Understand the basic language implementation techniques	K1	
	CO2: Apply the problem and develop problem solving skills in competitive exams	K2	
	CO3: Apply on Computational problems	K3	
	CO4: Analyze computer science theory and software development fundamentals to produce computing-based solutions	K4	
	CO5: Evaluate complex computing problem and to apply principles of computing	K5	
Learning Resources			
Reference Books	**Objective Computer Science and Information Technology by Jushta Jaiswal, Jushta Jaiswal publications.**		
Website Link	https://nptel.ac.in/courses/106106092 https://www.digimat.in/nptel/courses/video/106101061/L01.html https://www.digimat.in/nptel/courses/video/106104122/L01.html		

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSPR1	PROJECT WORK	PROJECT	VI	5	5			4
Objective	The aim of the mini project is that the student has to understand the real time software development environment. The student should gain a thorough knowledge in the problem and language / software which he/she has selected for their project work.							

Unit	Course Content	Knowledge Levels	Sessions

Project Planning:

B.Sc (Information Technology)/ Project is an involved exercise, which has to be planned well 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 minutesshall 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.

3. 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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSPR1	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

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSE02	SOFTWARE PROJECT MANAGEMENT	DSE-I	V	4	4			3
Objective	1. To define and highlight importance of software project management. 2. To formulate and define the software management.							

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction to Competencies - Product Development Techniques - Management Skills - Product Development Life Cycle - Software Development Process and models - The SEI CMM - International Organization for Standardization.	K1	9
II	Managing Domain Processes - Project Selection Models -Project Portfolio Management - Financial Processes - Selecting a Project Team - Goal and Scope of the Software Project -Project Planning - Creating the Work Breakdown Structure - Approaches to Building a WBS - Project Milestones - Work Packages - Building a WBS for Software.	K1,K2	9
III	Tasks and Activities - Software Size and Reuse Estimating - The SEI CMM - Problems and Risks - Cost Estimation - Effort Measures - COCOMO: A Regression Model - COCOMO II - SLIM: A Mathematical Model - Organizational Planning - Project Roles and Skills Needed.	K3	9
IV	Project Management Resource Activities - Organizational Form and Structure - Software Development Dependencies - Brainstorming - Scheduling Fundamentals - PERT and CPM Leveling Resource Assignments - Map the Schedule to a Real Calendar - Critical Chain Scheduling.	K3,K4	9
V	Quality: Requirements - The SEI CMM - Guidelines - Challenges - Quality Function Deployment - Building the Software Quality Assurance - Plan - Software Configuration Management: Principles - Requirements - Planning and Organizing - Tools - Benefits - Legal Issues in Software - Case Study	K5	9
Course Outcome	**CO1**: Remember the basic concepts of software project management	K1	
	CO2: Understanding domain processes in project management	K2	
	CO3: Apply task and activities	K3	
	CO4: Evaluate issues in resource management.	K4	
	CO5: Implement quality requirements.	K4	

Learning Resources

Text Books	Robert T. Futrell, Donald F. Shafer, Linda I. Safer, —*Quality Software Project Management*‖, Pearson Education Asia 2002.
Reference Books	1. Pankaj Jalote, —*Software Project Management in Practice*‖, Addison Wesley 2002. 2. Hughes, —*Software Project Management*‖, Tata McGraw Hill 2004, 3rd Edition.
Website Link	NPTEL & MOOC courses titled Software Project Management https://nptel.ac.in/courses/106/105/106105218/

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSE02	SOFTWARE PROJECT MANAGEMENT	DSE-I	V	4	4			3

CO-PO Mapping

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

Designed By	Verified By	Approved By
M. Krishnamoorthy		Dr. S. Shanthi

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSE03	SYSTEM SOFTWARE	DSE - I	VI	4	4			3

Objective	1. To understand the relationship between system software and machine architecture 2. To know the design and implementation of assemblers, macro processors, loaders, linkers and compilers.

Unit	Course Content	Knowledge Levels	Sessions
I	System Software Vs. Application Software, Different System Software- Assembler, Linker, Loader, Macro Processor, Text Editor, Debugger, Device Driver, Compiler, Interpreter, Operating System(Basic Concepts only) SIC & SIC/XE Architecture, Addressing modes, SIC & SIC/XE Instruction set, Assembler Directives and Programming.	K1	9
II	Assemblers: Basic Functions of Assembler. Assembler output format - Header, Text and End Records- Assembler data structures, Two pass assembler algorithm, Hand assembly of SIC/XE program, Machine dependent assembler features. Machine-Dependent Assembler Features - Machine-Independent Assembler Features - Assembler Design Options	K2	9
III	Loaders and Linkers: Basic Loader functions - Design of absolute loader, Simple bootstrap Loader, Machine dependent loader features- Relocation, Program Linking, Algorithm and data structures of two pass Linking Loader, Machine dependent loader features, Loader Design Options. Basic Loader Functions	K3	9
IV	Macro Processors: Basic Macro Processor Functions - Machine-Independent Macro Processor Features - Macro Processor Design Options Anatomy of a device driver, Character and block device drivers, General design of device drivers Compilers: Basic Compiler Functions - Machine Dependent Compiler Features - Machine-Independent Compiler Features	K3,K4	9
V	Debugging Functions and Capabilities, Relationship with other parts of the system, Debugging Methods- By Induction, Deduction and Backtracking. Overview of Editing, User Interface, Editor Structure.	K3,K4	9

Course Outcome	**CO1: Remember** the relationship between system software and machine architecture	K1
	CO2: Understanding the design and implementation of assemblers, macro processors, loaders, linkers and compilers.	K2
	CO3: Apply the various concepts of scanning and parsing of a program	K3
	CO4: Analysis the processing of a HLL program	K4
	CO5: Analysis execution on a computer system	K4

Learning Resources

Text Books	Leland L. Beck & Manjula. D - System Software - An Introduction to Systems Programming - 3rd Edition. India: Pearson Education (2009).
Reference Books	1. Dhamdhere.D.M - System Programming and Operating Systems - India: Tata McGraw Hill Education Private Limited. (2006) 2. Donovan.J.J - Systems Programming - India: Tata McGraw Hill Education Private Limited. (2001).
Website Link	https://www.tutorialspoint.com/computer_fundamentals/computer_software.htm

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSE03	SYSTEM SOFTWARE	DSE - I	VI	4	4			3

CO-PO Mapping

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

Designed By	Verified By	Approved By
M. KRISHNAMOORTHY		Dr. S. SHANTHA

Curriculum Development Cell
MCAS
Autonomous
Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSE05	E-COMMERCE	DSE- II	V	4	4			3

Objective	1. To establish knowledge about computers and to acquaint the basic concepts of e-commerce. 2.To instill idea of convergence of business relationship through recent technologies.

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction to computers- Importance of Computers- Computer Applications in various Areas of Business- General Application of Computers in Various Fields. Fundamentals of Computers: Classification of Computers-Basic Principles of operation of Digital Computer - Computer system computer virus-Development of computers and Computer Generation-Computer Number System.	K1	9
II	Electronic commerce - Introduction - Business Models of e-Commerce-Business to Business e-commerce customer to customer e-commerce and EDI-Business Applications of e-commerce. Infrastructure for e-commerce-Communication-Networks for e-commerce. General applications of electronic commerce	K2	9
III	Network services: secure messaging-paymentsystemsine-commerce-Structuredelectronicdocuments.Crypto currency: Understanding Crypto currency-Types of Crypto currency-Advantages and Disadvantages.	K2,K3	9
IV	E-online Banking: Introduction Concepts and Meaning-Needforcomputerization-Electronicdeliverychannels-Automated Teller Machine (ATM)-Electronic Fund Transfer (EFT)-uses computerization in clearing houses-Tele banking-Electronic Money Transfer (EMT) -e-Cheque Financial Transactions Terminals-MICR Cheques-e-Banking in India. Android Applications- Introduction-Concept-Applications. V-Commerce: Introduction and Features.	K2,K3,K4	9
V	E-Commerce Technology - Security Issues in e-Commerce - Legal and Ethical Issues - Role of social media in e-Commerce Industry-M-Commerce and WAP- Mobile Commerce Risk , Security and Payment Methods - Mobile money-infrastructure and fraud prevention for M-payment- Current Trends in electronic world- e-Waste- e-Surveillance-e-Governance- e-Care.	K3,K4	9

Course Outcome		
	CO1:Remember the technological changes in trade	K1
	CO2: understand E-commerce on business models and strategy	K2
	CO3: Apply various terminologies of electronic commerce.	K3
	CO4: Analysis the e-commerce technology and security issues.	K4
	CO5: Analysis execution on a E-Commerce	K4

Learning Resources

Text Books	1.R.SaravanaKumar R.Parameswaran T.Jayalakshmi, S.Chand,"Information Technology (Unit-I)", 2015. 2.V.Rajaraman, "Essentials of E-Commerce Technology (Unit-II, III)", PHI Learning Private Limited, 2015. 3.Dr.C.S.Rayudu,"e-Commerce e-Business(Unit-IV)",Himalaya publishing house,2015. 4.Dr.U.S.Pandey Er.SaurabhShukla S.Chand, "e-Commerce and Mobile Commerce Technologies (Unit-II, V)", 2015.
Reference Books	1.S.Jaiswal, "Doing Business on the Internet e-Commerce (Electronic Commerce for Business)", Galgotia Publications, 2015. 2.CSV Murthy, "e-Commerce-Concepts, Models, Strategies", Himalaya Publishing House, 2015.
Website Link	https://www.geeksforgeeks.org/wireless-mobile-computing-technologies/

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSE05	E-COMMERCE	DSE- II	V	4	4			3

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	S	S	M	M	M
CO2	S	M	M	M	M	S	M	M	M	L
CO3	S	M	M	M	M	L	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	S	S	M	S	S	S	M	s	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 and presentation
Assessment Methods	Attendance, Assignments, Internal I and II

Designed By	Verified By	Approved By
[L. Nandhini]		

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSE06	WIRELESS NETWORK	DSE-III	VI	5	5			3
Objective	1. To understand about Wireless Networks 2. To be exposed to 3G/4G Services.							

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction-WLAN Technologies: Infrared, UHF Narrowband, Spread Spectrum -IEEE802.11: System Architecture, Protocol Architecture, Physical Layer, MAC Layer, 802.11b, 802.11a - Hiper LAN: WATM, BRAN, HiperLAN2 - Bluetooth: Architecture, Radio Layer, Baseband Layer, Link Manager Protocol, Security - IEEE802.16-WIMAX: Physical Layer, MAC, Spectrum Allocation For WIMAX.	K1	12
II	Introduction - Mobile IP: IP Packet Delivery, Agent Discovery, Tunneling And Encapsulation, IPV6-Network Layer In The Internet- Mobile IP Session Initiation Protocol - Mobile Ad-Hoc Network: Routing, Destination Sequence Distance Vector, Dynamic Source Routing.	K2	12
III	TCP Enhancements For Wireless Protocols - Traditional TCP: Congestion Control, Fast Retransmit/Fast Recovery, Implications Of Mobility - Classical TCP Improvements: Indirect TCP, Snooping TCP, Mobile TCP, Time Out Freezing, Selective Retransmission, Transaction Oriented TCP - TCP Over 3G Wireless Networks.	K2,K3	12
IV	Overview Of UTMS Terrestrial Radio Access Network-UMTS Core Network Architecture: 3G-MSC, 3G-SGSN, 3G-GGSN, SMS-GMSC/SMS-IWMSC, Firewall, DNS/DHCP-High Speed Downlink Packet Access (HSDPA) - LTE Network Architecture And Protocol.	K2,K3,K4	12
V	4G Introduction - 4G Vision - 4G Features And Challenges - Applications Of 4G - 4G Technologies: Multicarrier Modulation, Smart Antenna Techniques, OFDM-MIMO Systems, Adaptive Modulation And Coding With Time Slot Scheduler, Cognitive Radio.	K3,K4	12
Course Outcome	**CO1**: Remember the basic concepts of WLAN technologies	K1	
	CO2: Understanding mobile IP.	K2	
	CO3: Apply TCP enhancements.	K3	
	CO4: Evaluate UTMS.	K4	
	CO5: Implement 4G.	K4	

Learning Resources

Text Books	1. Jochen Schiller, ‖Mobile Communications‖, Second Edition, Pearson Education 2012.(Unit I,II,III) 2. Vijay Garg , —Wireless Communications And Networking‖, First Edition, Elsevier 2007.(Unit IV,V)
Reference Books	1. Erik Dahlman, Stefan Parkvall, Johan Skold And Per Beming, —3G Evolution HSPA And LTE For Mobile Broadband‖, Second Edition, Academic Press, 2008. 2. Anurag Kumar, D.Manjunath, Joy Kuri, —Wireless Networking‖, First Edition, Elsevier 2011.
Website Link	www.tutorialspoint.com/wireless-network www.iqytechnicalcollege.com www.rejinPaul.com

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSE06	WIRELESS NETWORK	DSE-III	VI	5	5			3

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	S	S	M	M	M
CO2	S	M	M	M	M	S	M	M	M	L
CO3	S	M	M	M	M	L	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	S	S	M	S	S	S	M	s	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 and presentation
Assessment Methods	Attendance, Assignments, Internal I and II

Designed By	Verified By	Approved By
P. Muthuraj.		

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSE08	COMPUTER GRAPHICS	DSE-III	VI	5	5			3

Objective	1. To understand about Computer Graphics 2. To be exposed to 2D Transformations and clipping.

Unit	Course Content	Knowledge Levels	Sessions
I	Overview of graphics Systems: Video Display Device - Refresh Cathode-Ray tubes Raster - Scan Displays Random - Scan Displays - Color CRT Monitors -Direct view Storage tubes Flat - Panel Displays Three - Dimensional Viewing Devices. Stereoscopic and Virtual - Reality Systems.	K1	12
II	Raster - Scan Systems Video Controller - Random - Scan Systems Video Controller - Random-Scan Systems - Input device - Keyboard Mouse - Trackball and Space ball . Joysticks - Data Glove - Digitizers- Image Scanners - Touch Panels - Light pens. Voice Systems - Hard-Copy Devices - Line Drawing Algorithms DDA Algorithms - Circle generating Algorithm Properties of Ellipses	K2	12
III	Two Dimensional Geometric Transformation: Basic Transformations - Translation - Rotation - Scaling - Matrix Representations and Homogeneous Coordinates - Other Transformations Reflections Two Dimensional Viewing : Windows to view point coordinate Transformations - Clipping Operations - Point Clipping - Line Clipping - Curve Clipping - Text Clipping - Exterior Clipping.	K2,K3	12
IV	Three Dimensional Concepts: Three Dimensional Display method - Parallel projection - Depth cueing - visible line and surface - Three Dimensional Geometric and modeling Transformations: Translation - Rotation - Scaling - Composite Transformations. Three Dimensional Viewing: Viewing pipeline - Viewing Coordinates - Projections - Parallel Projections - Perspective Projections.	K2,K3,K4	12
V	Visible Surface Detection Methods : Classification Visible Surface Detection Algorithms - Back Face Detection - Depth - Buffer Method - A-Buffer Method - Scan line method - Depth sorting method - BSP tree method - Area Subdivision Method.	K3,K4	12
Course Outcome	**CO1**: Remember the basic concepts of Graphics system.	K1	
	CO2: Understanding scans system and I/O Devices.	K2	
	CO3: Apply 2D Transformations.	K3	
	CO4: Evaluate 3D Transformations.	K4	
	CO5: Implement visual surface techniques.	K4	

Learning Resources

Text Books	Donald Hearn & M.Pauline Baker , —Computer Graphics‖,2nd Edition, 1996
Reference Books	John f. Hughes, Andries Van Dam, Morgan Mcguire, David F. Sklar, James D. Foley, Steven K. Feiner, Kurt Akeley, —*Computer Graphics* Principles and Practice‖ 3rd*Edition*, Pearson Education,2014.
Website / Link	www.javatpoint.com/computer-graphics www.taylorfrancis.com

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSE08	COMPUTER GRAPHICS	DSE-III	VI	5	5			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	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 I and II

Designed By	Verified By	Approved By
T.Tamilarasi [T.TAMILARASI]		[Dr.S. SHANTHI]

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSE09	SOFTWARE TESTING	DSE-III	VI	5	5			3
Objective	1. To study various Software techniques 2. To study fundamental concepts in software testing							

Unit	Course Content	Knowledge Levels	Sessions
I	SOFTWARE DEVELOPMENT LIFE CYCLE MODELS: Phases of Software project -Quality, Quality Assurance, Quality control - Testing, Verification and Validation - Process Model to represent Different Phases - Life Cycle models. White-Box Testing: Static Testing - Structural Testing - Challenges in White-Box Testing	K1	12
II	BLACK-BOX TESTING: What is Black-Box Testing? - Why Black-Box Testing? - When to do Black-Box Testing? - How to do Black-Box Testing? Integration Testing: Integration Testing as Type of Testing - Integration Testing as a Phase of Testing - Scenario Testing - Defect Bash	K2	12
III	SYSTEM AND ACCEPTANCE TESTING: System Testing Overview - Why is System testing done? - Functional versus Non-functional Testing - Functional System Testing - Non-Functional Testing-Acceptance Testing - Summary of Testing Phases	K3	12
IV	PERFORMANCE TESTING: Factors Governing Performance Testing - Methodology for Performance Testing - Tools for Performance Testing - Process for Performance Testing - Challenges. Regression Testing: What is Regression Testing? - Types of Regression Testing - When to do Regression Testing? - How to do Regression Testing? - Best Practices in Regression Testing	K4	12
V	TEST PLANNING, MANAGEMENT, EXECUTION AND REPORTING:Test Planning - Test Management-Test Process - Test Reporting. Quick Test Professional (QTP): Overview of QTP - Testing an Application using QTP - Creating Check Points - Testing Database Application - Testing a Web Application	K5	12
Course Outcome	**CO1:** Remember the basic concepts of SDLC	K1	
	CO2: Understanding Block box testing	K2	
	CO3: Apply system testing	K3	
	CO4: Evaluate performance testing	K4	
	CO5: Implement test planning.	K4	

Learning Resources	
Text Books	Srinivasan Desikan, Gopalaswamy Ramesh Software Testing Principles and Practices, Pearson Education 2012
Reference Books	1. Dr.K.V.K.K.Prasad ,Software Testing Tools ,Dreamtech Press2012 2. RenuRajani, Testing Practitioner ,Handbook Packt Publishing Limited2017 3. NareshChauhan ,Software Testing, Oxford University Press2nd edition, 2016
Website Link	https://s3_ap_southeast-1,amazonaws.com/tv-prod/documents%2F7619-2.software+system+principles+and+practices_srinivasan+desikan_gopalaswamy+ramesh.pdf

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSE09	SOFTWARE TESTING	DSE-III	VI	5	5			3

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	L
CO2	S	M	M	M	S	S	M	M	M	L
CO3	M	M	M	M	L	M	M	M	M	M
CO4	S	M	M	M	S	S	M	M	M	M
CO5	L	M	M	S	S	M	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 I and II

Designed By	Verified By	Approved By
V. Arbutharaj ARBUTHARAJ		

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSE10	NETWORK SECURITY	DSE-IV	VI	5	5			3

Objective	1. To Understand OSI security architecture. 2. To learn the system security practices.

Unit	Course Content	Knowledge Levels	Sessions
I	OSI Security Architecture - Security attacks, services and mechanisms - Network security Model - Classical encryption techniques: Symmetric cipher model, Substitution techniques - Transposition techniques - Rotor machines - Steganography	K1	12
II	Number theory and finite fields: The Euclidean algorithm - Modular arithmetic - Groups, Rings and Fields - Finite fields of the Form GF (p) - Polynomial arithmetic - prime numbers - Fermat's and eulers theorems	K2	12
III	Block Ciphers and Data Encryption Standard: Traditional block cipher structure - Data Encryption - Strengths of DES - Block Cipher Design Principles - Advanced Encryption Standard - AES structure - AES transformation functions - AES Key expansion - implementation	K2,K3	12
IV	Public Key Cryptography and RSA - Principles of Public-key Crypto systems - RSA algorithm - Diffie - Hellman Key exchange - Elgamal Cryptographic System	K2,K3,K4	12
V	Hash functions - Applications - two simple hash functions - Hash functions based on Cipher block chaining - Secure Hash Algorithm (SHA)	K3,K4	12

Course Outcome	**CO1:** Remember the OSI Security Architecture.	K1
	CO2: Understanding Number theory and finite fields.	K2
	CO3: Apply Block Ciphers and Data Encryption Std.	K3
	CO4: Evaluate Public Key Cryptography and RSA.	K4
	CO5: Implement Hash functions.	K4

Learning Resources

Text Books	William Stallings, —*Cryptography and Network Security: Principles and Practice*‖, Pearson Education 2013,6th Edition.
Reference Books	1. Behrouz A. F-erouzan, —*Cryptography & Network Security*‖, Tata McGraw Hill 2007. 2. Man Young Rhee, —*Internet Security: Cryptographic Principles, Algorithms and Protocols*‖, Wiley Publications 2003. 3. Charles Pfleeger, —*Security in Computing*‖, Prentice Hall of India 2006, 4th Edition.
Website Link	1.NPTEL & MOOC courses titled Network Security 2.https://nptel.ac.in/courses/106/105/106105031/

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSE10	NETWORK SECURITY	DSE-IV	VI	5	5			3

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	S	S	M	M	M
CO2	S	M	M	M	M	S	M	M	M	L
CO3	S	M	M	M	M	L	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	S	S	M	S	S	S	M	s	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 and presentation
Assessment Methods	Attendance, Assignments, Internal I and II

Designed By	Verified By	Approved By
[A.M.NIRMALA]		

Curriculum Development Cell MCAS Autonomous Rasipuram

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M6UCSE12	MOBILE COMPUTING	DSE - IV	VI	4	4			3
Objective	1. To clearly understanding the mobile communications environment 2. To get clear idea about Satellite Systems.							

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction: Applications - A Simplified Reference Model. Wireless Transmission: Frequencies for radio transmission - Signals - Antennas - Signal Propagation - Multiplexing - Modulation - Spread Spectrum - Cellular System. Cellular system, Hexagonal geometry cell and concept of frequency reuse, Channel Assignment Strategies Distance to frequency reuse ratio	K1	9
II	Medium Access Control: Motivation for a Specialized MAC- Hidden and exposed terminals - Near and far terminals - SDMA - FDMA - TDMA - Fixed TDM - Classical Aloha - Slotted Aloha - Carrier Sense Multiple Access - Demand assigned Multiple Access - PRMA Packet Reservation Multiple Access - Reservation TDMA - Multiple Access with Collision Avoidance - Polling - Inhibit Sense Multiple Access. CDMA - Spread Aloha multiple access. Comparison of S/T/F/CDMA.	K2	9
III	Telecommunication Systems: GSM - Mobile Services - System Architecture - Radio Interface - Protocols - Localization and Calling - Handover - Security. UMTS and IMT 2000: UMTS releases and standardization - UMTS System Architecture - UMTS Radio Interface - UTRAN - UMTS Handover.	K3	9
IV	Satellite System: History - Applications - Basics - Routing- Localization - Handover. Wireless LAN: IEEE 802.11- System Architecture - Protocol Architecture - Physical Layer - Medium Access Control Layer. Bluetooth: User scenarios - Architecture - Radio Layer - Baseband Layer - Link Manager Protocol.	K3,K4	9
V	Mobile Network Layer: Mobile IP - Goals, Assumption, and Requirements - Entities and Terminology - IP Packet delivery - Agent discovery - Registration. Dynamic Host Configuration Protocol - Mobile Transport Layer: Traditional TCP - Congestion Control - Slow Start - Fast Retransmit.	K3,K4	9
Course Outcome	**CO1**: Remember fundamentals of wireless communications.	K1	
	CO2: understand security, energy efficiency, mobility, scalability, and their unique characteristics in wireless networks.	K2	
	CO3: Apply basic skills for cellular networks design.	K3	
	CO4:Analysis knowledge of TCP/IP extensions for mobile and wireless networking.	K4	
	CO5: Analysis execution on a computer system	K4	

Learning Resources	
Text Books	Jochen Schiller, "Mobile Communications",2nd Edition, eighth impression, Pearson Education, 2011.
Reference Books	1. William Stallings, "Wireless Communication and Networks", 2nd Edition, Pearson Education, 2005. 2. Theodore Rappaport, "Wireless Communications: Principles and Practice", Prentice Hall Communications, 1996.
Website Link	https://www.geeksforgeeks.org/wireless-mobile-computing-technologies/

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

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M5UCSE12	MOBILE COMPUTING	DSE - IV	V	4	4			3

CO-PO Mapping

CO Number	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	S	S	M	M	M
CO2	S	M	M	M	M	S	M	M	M	L
CO3	M	M	M	M	M	L	M	M	M	M
CO4	M	M	M	M	S	M	M	M	M	M
CO5	S	S	M	S	S	S	M	s	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 and presentation
Assessment Methods	Attendance, Assignments, Internal I and II

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS Autonomous Rasipuram

B.Sc., Computer Science Value Added Course Syllabus LOCF-CBCS with effective from 2021-2022 onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
	WEB DESIGNING	VAC	VI					2
Objective	1. To define and highlight importance of software project management. 2. To formulate and define the software management.							

Unit	Course Content	Knowledge Levels	Sessions
I	Introduction to HTML5: Basic HTML Tags-Using Image maps-Working with CSS- Using different Semantics Tags.	K1	6
II	Designing Tables- designing web form- Embedding multimedia Content- Introduction to JavaScript: Introduction to Client-Side Scripting Languages- Functions-Events and Event Handlers.	K2	6
III	JavaScript Objects, Document and its associated objects-Introduction to PHP: Basic PHP Concepts- Operators-Working with Control & looping statements- Functions in PHP.	K3	6
IV	String and String Functions- Regular Expressions- Error Handling- Working with Forms- Cookies and Sessions- EMails.	K4	6
V	PHP and MySQL: Introduction to MySQL-Integrating web forms and database- Building Forms from queries- Mini Project: Designing of the website	K5	6
Course Outcome	CO1: Remember the basic concepts of HTML	K1	
	CO2: Understanding the designing in HTML tags.	K2	
	CO3: Apply Java script in webpage.	K3	
	CO4: Evaluate the string functions in web pages.	K4	
	CO5: Implement and designing website using php.	K5	

Learning Resources	
Text Books	1.Web Design With HTML, CSS, JavaScript and jQuery Set 2.Learn JavaScript VISUALLY With Interactive Exercises
Reference Books	1. Chris Bates, —Web Programming: Building Internet Applications‖, Third Edition, Wiley India Edition, 2007
Website Link	NPTEL & MOOC courses titled Software Project Management https://nptel.ac.in/courses/106/105/106105218/

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

B.Sc., Computer Science Value Added Course Syllabus LOCF-CBCS with effective from 2021-2022 onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
	WEB DESIGNING	VAC	VI					2

CO-PO Mapping

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

Designed By	Verified By	Approved By

Curriculum Development Cell MCAS Autonomous Rasipuram