

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)



ESTD-1994

**MUTHAYAMMAL
COLLEGE OF ARTS
AND SCIENCE**

(Autonomous)

A UNIT OF VANETRA GROUP

| Learn.
Lead

www.muthayammal.in

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

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 spirit 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	21M1UMAA01 / 21M1UMAA03	ALGEBRA AND DISCRETE MATHEMATICS / ALGEBRA AND DISCRETE MATHEMATICS	5	-	4	25	75	100
I	III	21M1UCSP01	PRACTICAL - I C PROGRAMMING	-	4	2	40	60	100
I	III	21M2UMAAP1 / 21M2UMAAP2	ALLIED PRACTICAL - I MATHEMATICS		2				
I	IV	21M1UVED01	YOGA	1		2	100		
I	IV	21M1UPES01	PROFESSIONAL ENGLISH FOR PHYSICAL SCIENCE I	2		2	25	75	100
I			TOTAL	24	6	20	265	435	600
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	21M2UMAA04	DIFFERENTIAL EQUATIONS AND INTEGRATIONS	4		4	25	75	100
II	III	21M2UCSP02	PRACTICAL -II DATA STRUCTURE USING C		3	2	40	60	100
II	III	21M2UMAAP1 / 21M2UMAAP2	ALLIED PRACTICAL - I MATHEMATICS		2	2	40	60	100
II	IV	21M2UEVS01	ENVIRONMENTAL STUDIES	1		2	100		
II	IV	21M2UPES02	PROFESSIONAL ENGLISH- PHYSICAL SCIENCE - II	2		2	25	75	100
II			TOTAL	25	5	26	330	570	800

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	ALLIED PRACTICAL: 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	21M3USTA09	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	21M3UMAN03	QUANTITATIVE APTITUDE-II	2	-	2	25	75	100
IV			TOTAL	24	6	22	230	570	800

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PRINCIPAL

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

V	III	21M5UCS07	.NET PROGRAMMING	4	-	4	25	75	100
V	III	21M5UCS08	PYTHON PROGRAMMING	4	-	4	25	75	100
V	III	21M5UCS09	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			TOTAL	22	8	24	230	570	800
VI	III	21M6UCS10	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	-	
VI	IV	21M6UCSSP1	SBEC PRACTICAL - I PHOTOSHOP	-	4	2	40	60	100
VI	V	21M6UEXA01	EXTENSION ACTIVITIES	1	-	1	100	-	-
VI			TOTAL	21	9	24	395	405	600
VI			OVERALL TOTAL	142	38	140	1665	3135	4400
VI		21M6UCSEC1	EXTRA CREDIT SWAYAM/MOOC ONLINE	-	-	2	-	-	-

HOD - CS

PRINCIPAL

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

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

*²Evaluation 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.

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	Hou rs	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						Knowle dge Levels	Sessio ns
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. RANJA N. R. R.	P. Subramanian P. S.	A. h. S.



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
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	Knowle dge Levels	Sessi ons					
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. Yashvvant 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								

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
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
		



[illegible]

L-Lecture

T- Tutorial

P-Practical

C-Credit

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
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
M. K. Singh	[Signature]	A. K. Bora



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
<i>M. V. S. S.</i>	<i>[Signature]</i>	<i>A. K. B. S.</i>



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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
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		 A. K. Sanyal



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

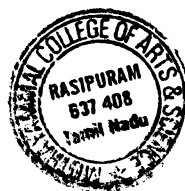
Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSC04	PROGRAMMING IN C++	DSC THEORY - IV	III	4				4

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 <i>[Signature]</i>	P. SOBRANANDAN <i>[Signature]</i>	A. K. Sanyal <i>[Signature]</i>



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 EssentialsI,K.L.James, PHI.							
Website Link	https://www.geeksforgeeks.org/operating-systems/							

L-Lecture

T-Tutorial

P-Practical

C-Credit

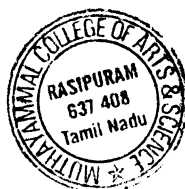
Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSC05	OPEARTING SYSTEMS	DSC THEORY - V	III	4				4

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 T. T. T. T.	P. S. S. S. P. S. S. S.	A. L. L. L. A. L. L. L.



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
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							



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
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
		



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

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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


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
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
		



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

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

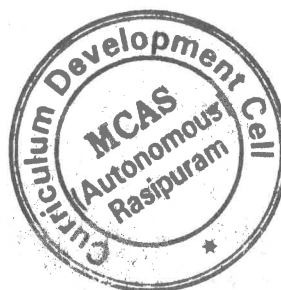
Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSP04	PRACTICAL - IV RDBMS	DSC PRACTICAL - IV	IV	4			4	2

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
		



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

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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

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
		



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

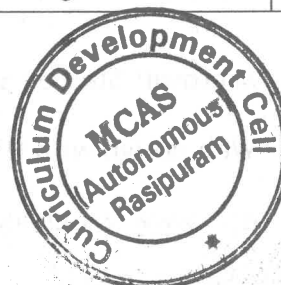
Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSS02	HTML AND WEB DESIGN	SEC - II	IV	2	2			2

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
		



EFFECTIVE FROM THE ACADEMIC YEAR 2021-2022 Onwards
LIST OF GEC - ALLIED COURSES

[illegible]

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
21M3UCSA0 1	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
		



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
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							

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
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
		



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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

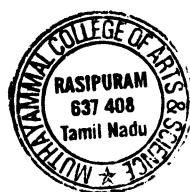
Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UCSA02	C PROGRAMMING	GEC THEORY - I	III	5	3	2		4

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 <i>[Signature]</i>	P. Subramaniam <i>[Signature]</i>	A. h. Sanyal <i>[Signature]</i>



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
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
<i>V. Buttaf</i>	<i>[Signature]</i>	<i>D. [Signature]</i>



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 planning- 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 across 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
H.K. Singh	[Signature]	A. h. bany



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
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	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 Programmingll, Prentice Hall, 2012.
Website Link	https://www.w3schools.com/python/

L-Lecture

T-Tutorial P-Practical

C-Credit

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
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
<i>V. Butthay</i>	<i>[Signature]</i>	<i>A. h. bany</i>



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
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						Knowl edge Levels	Ses sio ns
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

T-Tutorial

P-Practical

C-Credit

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

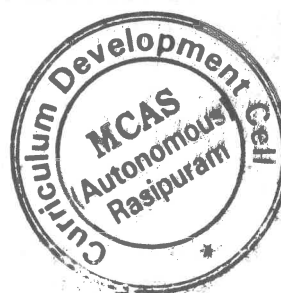
Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSA05	COMPUTER APPLICATIONS IN BIOLOGY	GEC THEORY - IV	IV	4				3

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
<i>P. Muthu</i>	<i>[Signature]</i>	<i>A. h. b. m. s.</i>



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		

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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
<i>M. Kae</i>	<i>[Signature]</i>	<i>A. h. Sam</i>



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

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
21M4UCSAP3	PRACTICAL - DIGITAL MARKETING	GEC PRACTICAL -II	IV	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
<i>M. I. Sanyal</i>	<i>[Signature]</i>	<i>A. K. Banerjee</i>



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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
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. Pruthi	HP	A. K. Sanyal



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		

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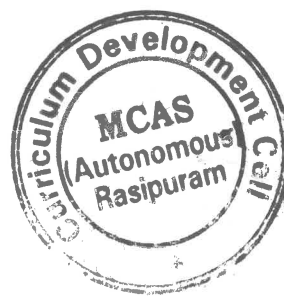
Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UCSAP5	PRACTICAL - OFFICE AUTOMATION	GEC PRACTICAL - II	IV	3				2

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
<i>J. Kal</i>	<i>AB</i>	<i>A. h. b. m</i>



[illegible]

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 - 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. N. M. L. G.	AS	A. h. b. m. y.



**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**

[illegible]

Books	Engineering, Leon Techworld, 1998.
Reference Books	1. B. Ram and Sanjay Kumar, –Computer FundamentalsII, 5th Edition, New Age International Publishers, 2014. 2. Pradeep K Sinha, Priti Sinha, –Computer FundamentalsII, 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
		



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

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
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
