

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 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 | 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 |

[Handwritten Signature]
 PRINCIPAL

| | | | | | | | | | |
|-----|-----|------------|---------------------------------------|-----------|----------|-----------|------------|------------|------------|
| 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 |

HOD

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 x 1 = 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 | | | | | | Knowl 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. Ranja | P. Subramanian P. Subramanian | A. K. S. Srinivasan A. K. S. Srinivasan |



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 | 1 | 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. 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 | | |

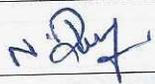
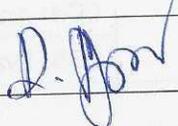
B.Sc-Computer Science Syllabus LOCF-CBCS with effect from 2021-2022 onwards

| 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 |
|---|--|---|
|  |  |  |



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 |
| 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.freotechbooks.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

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 |



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 |
|---------------------------|---|--------------------|-----|-------|---|---|-------------------------|-----------------|
| 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

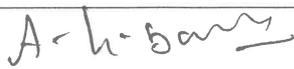
B.Sc., Computer Science Syllabus LOCF-CBCS with effective from 2021-2022 Onwards

| Course Code | Course Title | Course Type | Sem | Hours | L | T | P | C |
|-------------|--------------------------------------|--------------------|-----|-------|---|---|---|---|
| 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 |
|---|---|---|
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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 |
| 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 sequential 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

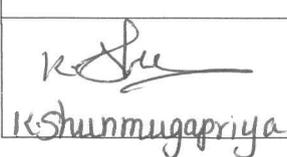
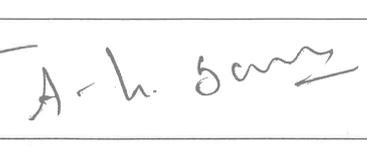
B.Sc., Computer Science Syllabus LOCF-CBCS with effective from 2021-2022 Onwards

| 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 | | | | |

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| 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. L. Sany |



| 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>Du</i> | P. SOBANANANDH <i>PS</i> | A. h. Sany <i>A-h. Sany</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 Essentialsll,K.L.James, PHI. | | | | | | | |
| Website Link | https://www.geeksforgeeks.org/operating-systems/ | | | | | | | |

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

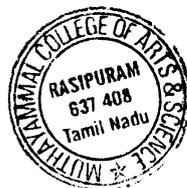
| Course Code | Course Title | Course Type | Sem | Hours | L | T | P | C |
|-------------|-------------------|----------------|-----|-------|---|---|---|---|
| 21M3UCSC05 | OPEARTING SYSTEMS | DSC THEORY - V | III | 4 | | | | 4 |

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. Tailor | P. Srinivasan HP | A. K. S. Srinivasan |



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 | | | | | | | |



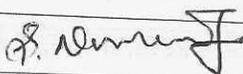
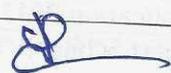
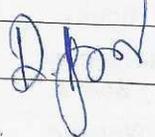
B.Sc-Computer Science Syllabus LOCF-CBCS with effect from 2021-2022 onwards

| 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 |
|---|--|---|
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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 |
|-----------------------|---|-----------------|-----|-------|---|---|------------------|----------|
| 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

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 |
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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 |
| 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 | | | | | | | |

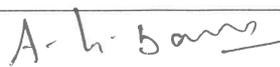
B.Sc., Computer Science Syllabus LOCF-CBCS with effective from 2021-2022 Onwards

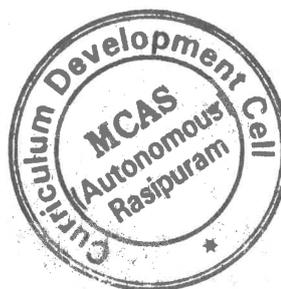
| Course Code | Course Title | Course Type | Sem | Hours | L | T | P | C |
|-------------|----------------------|--------------------|-----|-------|---|---|---|---|
| 21M4UCSP04 | PRACTICAL - IV RDBMS | DSC PRACTICAL - IV | IV | 4 | | | 4 | 2 |

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 |
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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 | | | | | | | | |

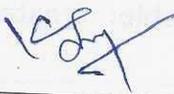
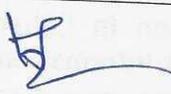
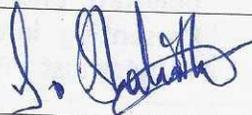
B.Sc., Computer Science Syllabus LOCF-CBCS with effective from 2021-2022 Onwards

| 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 |
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| Course Code | Course Title | Course Type | Sem | Hours | L | T | P | C |
|---------------------------|--|-------------|-----|-------|---|---|------------------|----------|
| 21M4UC5502 | 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

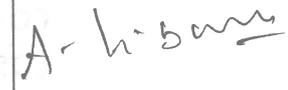
C-Credit

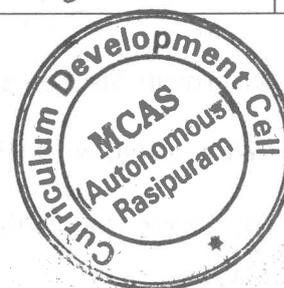
| Course Code | Course Title | Course Type | Sem | Hours | L | T | P | C |
|-------------|---------------------|-------------|-----|-------|---|---|---|---|
| 21M4UCSS02 | HTML AND WEB DESIGN | SEC - II | IV | 2 | 2 | | | 2 |

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 |
|---|---|---|
|  |  |  |



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

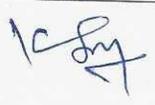
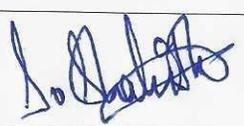
| Course Code | Course Title | Course Type | Sem | Hours | L | T | P | C |
|---------------------------|---|----------------|-----|-------|------------------|---|---|----------|
| 21M3UCSA01 | DIGITAL FASHION DESIGNING | GEC THEORY - I | III | 5 | 3 | 2 | | 4 |
| Objective | 1. To train the students 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 | | | | | | | |

| 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 |
|--------------------|--------------------|--------------------|
| <i>[Signature]</i> | <i>[Signature]</i> | <i>[Signature]</i> |



| 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 associativity - 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

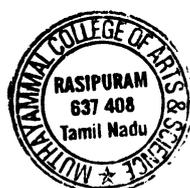
| Course Code | Course Title | Course Type | Sem | Hours | L | T | P | C |
|-------------|---------------|----------------|-----|-------|---|---|---|---|
| 21M3UCSA02 | C PROGRAMMING | GEC THEORY - I | III | 5 | 3 | 2 | | 4 |

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 <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. Suttaj</i> | <i>[Signature]</i> | <i>[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. Jay | | A-h-sany |



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, 20013. 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, 20162. Guido van Rossum and Fred L. Drake Jr, An Introduction to Python - Revised and updated for Python 3.2, Network Theory Ltd., 20113. 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 W | 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. Anitha</i> | <i>[Signature]</i> | <i>A. h. b. a. n. y.</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. Muthy</i> | <i>[Signature]</i> | <i>A-h-bans</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 |
|------------------|---|--------------------|-----|-------|---|---|------------------|----------|
| 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 | | |



BT

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. K. Jay</i> | <i>[Signature]</i> | <i>A. K. Bani</i> |



Sheet

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 |
| 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 ProgrammingII, Prentice Hall, 2012 | | | | | | | |
| Website Link | https://www.guru99.com/python-tutorials.html | | | | | | | |

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 |
|------------------|-------------|-----------------|
| <i>V. Pruthi</i> | <i>HP</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 |
|------------------|---|-------------------|-----|-------|---|---|------------------|----------|
| 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 |
|---------------|-------------|--------------------|
| <i>J. Kal</i> | <i>AB</i> | <i>A. h. b. an</i> |



| 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 | | |

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. Muthy. | | A. H. B. Sanyal |



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

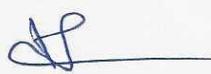
| Course Code | Course Title | Course Type | Sem | Hours | L | T | P | C |
|---------------------------|--|-------------|-----|-------|---|---|------------------|----------|
| 21M3UCSN01 | BASICS OF COMPUTERS | NMEC-I | III | 2 | | | | 2 |
| Objective | 1. To understand basics of computer and working 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 | | | | | | | |

| 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 |
|---|--|---|
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| 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

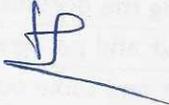
C-Credit

| 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 |
|---|--|---|
|  |  |  |



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 | | | 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 typography 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

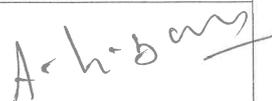
B.Sc., Computer Science Syllabus LOCF-CBCS with effective from 2021-2022 Onwards

| 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 | | | | | | | |

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|-------------------------------|---|
| 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 |
|---|---|---|
|  |  |  |

