



MANONMANIAM SUNDARANAR UNIVERSITY

TIRUNELVELI – 12

B.C.A

SYLLABUS

FROM THE ACADEMIC YEAR 2026 – 2027

OUTCOME BASED EDUCATION - CHOICE BASED CREDIT SYSTEM

VISION AND MISSION OF THE UNIVERSITY

Vision

"To provide quality education to reach the un-reached"

Mission

- To conduct research, teaching and outreach programmes to improve conditions of human living.
- To offer a wide variety of off-campus educational and training programs, including the use of information technology, to individuals and groups.
- To develop partnership with industries and government so as to improve the quality of the workplace and to serve as catalyst for economic and cultural development.
- To provide quality/inclusive education, especially for the rural and un-reached segments of economically downtrodden students including women, socially oppressed and differently abled.

PREAMBLE

BCA is a Professional UG degree Programme which provides students with an opportunity to develop technical computing skills and core competence in the field of software development. The Learning Outcome Based Curriculum Framework (LOCF) for the program has been formulated with the Programme Educational Outcomes, Programme Specific Outcomes, Course Outcomes, Regulations, Curriculum structure, the detailed Syllabus for the Core, Allied, Practical, Supportive and Skill-based courses; and the guidelines for the Project works/Internship activities. The Curriculum focuses on imparting conceptual knowledge, coding skills, software development and debugging, software testing and maintenance, and problem-solving using computers.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

In alignment with the Vision and Mission of the University, the following have been defined as the PEOs for the graduates.

PEO1: Developing strong positive attitude to learn independently the concepts in the field of study.

PEO2: Ensuring confidence among the learners to apply the knowledge and skills gained to solve real life issues.

PEO3: Habituating ethical values among the learners to succeed in personal and professional life.

PROGRAMME OUTCOMES (POs)

After the successful completion of Undergraduate Programme from the University, the learner should be able to

PO1: Comprehend the knowledge acquired and communicate the same to others.

PO2: Analyze and compare the factual data/situation to comprehend and to critically evaluate to find solution to the problem ahead.

PO3: Apply theories and philosophies learned in solving the problem in scientific manner.

PO4: Think reflectively on the earlier activities and attempt for self-directed lifelong learning process.

PO5: Understand multicultural existence and identify the means to prolong moral/ethical values in personal and professional life.

PO6: Expose the learner to the digital technology to learn through multiple sources.

PO7: Train the learner to be a responsible player in teams and impart leadership qualities in them.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1: Apply fundamental knowledge of computer science, programming languages, databases, networking, and software development in solving computing problems.

PSO2: Design, develop, test, and maintain software applications using appropriate programming tools and technologies.

PSO3: Analyze computational problems and provide efficient, secure, and optimized IT solutions for real-world applications.

PSO4: Utilize modern computing tools, web technologies, database systems, and emerging technologies for application development and deployment.

PSO5: Demonstrate professional ethics, teamwork, communication skills, and leadership qualities in multidisciplinary environments.

PSO6: Adapt to evolving technologies through lifelong learning, research orientation, and continuous professional development.

PSO7: Develop entrepreneurial skills and innovative thinking to create technology-driven solutions and contribute effectively to society and industry.

COURSE OUTCOMES (COs)

Four Course Outcomes (COs) for each course that can be achieved by the learners on completion of that particular course are as follows:

Considering outcomes related to

- i. K1 and K2 level of evaluation in all the Units as CO1

- ii. K3 level of evaluation in all the Units as CO2
- iii. K4 level of evaluation in all the Units as CO3
- iv. K5 and K6 level of evaluation in all the Units as CO4.

Level of Correlation between COs, POs and PSOs

0 – No Correlation 1 – Low 2 – Medium 3 – High

ELIGIBILITY FOR ADMISSION TO THE PROGRAMME

Candidates shall be admitted to the course provided he/she has passed plus two examinations of the State or Central Board with Mathematics or Business Mathematics or Computer Science as one of the subjects.

MEDIUM OF INSTRUCTION AND EXAMINATION

The medium of instruction as well as examination will be in English.

DURATION OF THE PROGRAMME

The students shall undergo the prescribed course of study for a period of not less than three academic years (Six semesters). Each semester contains 90 working days.

MEASUREMENT OF ATTAINMENT OF COURSE OUTCOME

The Course Outcome (COs) are measured through the performance of learners by direct and indirect assessment methods for that particular course.

i. Internal Assessment (25 Marks)

Each paper carries an internal component and each test will be of one hour duration.

Tests – 20 Marks

Seminar / Attention (Participation) in Class – 5 Marks

ii. Semester End Examinations (75 Marks)

Written exams, Practical, Project report, and Comprehensive Viva Voce.

Note: In both Internal and Semester End Examinations

Lower Order Thinking (K1, K2, & K3) – 60 % in each part

Higher Order Thinking (K4, K5, & K6) – 40 % in each part

QUESTION PAPER PATTERN

The question paper pattern for all theory papers shall be as follows.

Part-A Internal Choice questions (Two questions from each unit compulsory) $10 \times 1 = 10$ Marks

Part-B Internal Choice questions (One question from each unit: either/or) $5 \times 5 = 25$ Marks

Part-C Internal Choice questions (One question from each unit: either/or) $5 \times 8 = 40$ Marks

The candidate shall be declared to have passed the examination if the candidates secure not less than 30 marks out of 75 marks in the semester examination in each theory course and in total (CIA mark + Theory Exam mark) not less than 40 marks.

MODEL QUESTION PAPER

PYTHON PROGRAMMING

(For those who joined in July 2026 onwards)

Time: Three hours

Maximum: 75 marks

Part-A (10×1=10 Marks)

Answer All questions

1. Which keyword is used to define a function in Python? **(K1)**
 - a) function
 - b) define
 - c) def
 - d) fun
2. Which of the following is a valid variable name in Python? **(K2)**
 - a) 1name
 - b) name_1
 - c) class
 - d) name-1
3. Which statement is used for decision making in Python? **(K1)**
 - a) loop
 - b) if
 - c) def
 - d) break
4. Which loop is used when the number of iterations is known? **(K3)**
 - a) while loop
 - b) for loop
 - c) if loop
 - d) switch loop
5. What is a function in Python? **(K2)**
 - a) A storage unit
 - b) A reusable block of code
 - c) A variable type
 - d) A loop type
6. Which keyword is used to import a module in Python? **(K1)**
 - a) include
 - b) import
 - c) using
 - d) load
7. Which statement correctly compares list and tuple? **(K4)**
 - a) Both are immutable
 - b) List is mutable, tuple is immutable
 - c) Tuple is mutable, list is immutable
 - d) Both are dictionaries
8. Which of the following best differentiates a list and dictionary? **(K4)**
 - a) Both store key-value pairs
 - b) List uses index, dictionary uses key-value pairs
 - c) Both are immutable
 - d) Both are same
9. What is the advantage of file handling in Python? **(K5)**
 - a) Reduces program size

- b) Stores data permanently
 - c) Increases memory usage
 - d) Removes loops
10. Which Python code correctly creates and writes to a file? **(K6)**
- a) `open("file.txt","w").write("Hello")`
 - b) `print("file.txt")`
 - c) `input("file.txt")`
 - d) `loop(file.txt)`

Part-B (5×5=25 Marks)

Answer all questions

11. (a) Explain the features of Python. **(K2)**
OR
(b) Explain identifiers and data types. **(K2)**
12. (a) Explain continue statement with example. **(K3)**
OR
(b) Explain for loop with examples. **(K3)**
13. (a) Explain function arguments in Python. **(K3)**
OR
(b) Explain modules in Python. **(K3)**
14. (a) Explain list operations and methods. **(K4)**
OR
(b) Compare tuple and dictionary. **(K4)**
15. (a) Evaluate the importance of file handling in Python programming. Explain how file operations improve data storage and retrieval in applications. **(K5)**
OR
(b) Write a program for file read and write operations. **(K5)**

Part-C (8×5=40 Marks)

Answer all questions

16. (a) Explain input/output statements, operators, and expressions. **(K3)**
OR
(b) Explain type conversion and comments in Python. **(K3)**
17. (a) Explain if statements with programs. **(K3)**
OR
(b) Explain array methods with examples. **(K3)**
18. (a) Explain the concept of functions with suitable examples. Include definition, function call, and return statement. **(K2)**
OR
(b) Explain strings and describe any four string operations with examples. **(K2)**

19. (a). Evaluate the importance of lists, tuples, and dictionaries in Python. Justify which data structure is most suitable for real-time applications with reasons **(K5)**

OR

(b) Explain nested data structures and dictionary methods. **(K5)**

20. (a) Explain file modes, file methods, and file positions. **(K6)**

OR

(b) Write a program to perform file operations (create, write, append, read, rename). **(K6)**

TEMPLATE FOR CURRICULUM DESIGN FOR B.C.A

First Year

Semester-I

Part	List of Courses	Credit	Hours per week (L/T/P)
Part-I	Language	3	6
Part-II	English	3	6
Part-III	Core Courses 2 (CC1, CC2)	7	8
	Elective Course 1 (Generic / Discipline Specific) EC1	4	4
Part-IV	Skill Enhancement Course SEC1	3	3
	Foundation Course FC	3	3
		23	30

Semester-II

Part	List of Courses	Credit	Hours per week (L/T/P)
Part-I	Language	3	6
Part-II	English	3	4
Part-III	Core Courses 2 (CC3, CC4)	7	8
	Elective Course 1 (Generic / Discipline Specific) EC2	4	4
Part-IV	Skill Enhancement Course -SEC2	2	3
	Skill Enhancement Course -SEC3 (Discipline Specific / Generic)	2	3
	Naan Mudhalvan	2	2
		23	30

**Second Year
Semester-III**

Part	List of Courses	Credit	Hours per week (L/T/P)
Part-I	Language	3	6
Part-II	English	3	6
Part-III	Core Courses 2 (CC5, CC6)	7	8
	Elective Course 1 (Generic / Discipline Specific) EC3	4	4
Part-IV	Skill Enhancement Course -SEC4 (Discipline Specific / Generic)	2	2
	EVS	2	2
	Naan Mudhalvan	2	2
		23	30

Semester-IV

Part	List of Courses	Credit	Hours per week (L/T/P)
Part-I	Language	3	6
Part-II	English	3	6
Part-III	Core Courses 2 (CC7, CC8)	7	8
	Elective Course 1 (Generic / Discipline Specific) EC4	4	4
Part-IV	Skill Enhancement Course -SEC5 (Discipline Specific / Generic)	2	2
	Value Education	2	2
	Naan Mudhalvan	2	2
		23	30

**Third Year
Semester-V**

Part	List of Courses	Credit	Hours per week (L/T/P)
Part-III	Core Courses 4 (CC9, CC10, CC11, CC12)	15	18
	Core / Mini Project (CC13)	3	6
	Elective Course 1 (Generic / Discipline Specific) EC5	4	4
Part-IV	Naan Mudhalvan	2	2
	Internship / Industrial Training / Field Visit / Knowledge Updating	1	-
		25	30

Semester-VI

Part	List of Courses	Credit	Hours per week (L/T/P)
Part-III	Core Courses 4 (CC14, CC15, CC16, CC17)	15	18
	Core / Project with viva-voce (CC18)	3	6
	Elective Course 1(Generic / Discipline Specific) EC6	4	4
Part-IV	Naan Mudhalvan	2	2
Part V	Extension Activity	1	-
		25	30

CREDIT DISTRIBUTION FOR B.C.A

Sem I	Credit	Sem II	Credit	Sem III	Credit	Sem IV	Credit	Sem V	Credit	Sem VI	Credit
1.1. Language	3	2.1. Language	3	3.1Language	3	4.1Language	3	5.1. Core Course CC9	4	6.1. Core Course CC14	4
1.2. English	3	2.2. English	3	3.2. English	3	4.2. English	3	5.2. Core Course CC10	4	6.2. Core Course CC15	4
1.3. Core Course CC1	4	2.3. Core Course CC3	4	3.3. Core Course CC5	4	4.3. Core Course CC7	4	5.3. Core Course CC11	4	6.3. Core Course CC16	4
1.4. Core Course CC2	3	2.4. Core Course CC4	3	3.4. Core Course CC6	3	4.4. Core Course CC8	3	5.4. Core Course CC12	3	6.4 Core Course CC17	3
1.5. Elective EC1	4	2.5. Elective EC2	4	3.5. Elective EC3	4	4.5. Elective EC4	4	5.5. Mini Project CC13	3	6.5. Major Project CC18	3
1.6. Skill Enhancement Course SEC1	3	2.6. Skill Enhancement Course SEC2	2	3.6. Skill Enhancement Course SEC4	2	4.6. Skill Enhancement Course SEC5	2	5.6 Elective EC5	4	6.6. Elective EC6	4
1.7. Skill Enhancement (Foundation Course)	3	2.7. Skill Enhancement Course SEC3	2	3.7. EVS	2	4.7. Value Education	2	5.7. Naan Mudhalvan 4	2	6.7 Naan Mudhalvan5	2
-	-	2.8. Naan Mudhalvan 1	2	3.8. Naan Mudhalvan 2	2	4.8. Naan Mudhalvan 3	2	5.8 Internship	1	6.8. Extension Activity	1
	23		23		23		23		25		25

CONSOLIDATED SEMESTER WISE AND COMPONENT WISE CREDIT DISTRIBUTION

Parts	Sem I	Sem II	Sem III	Sem IV	Sem V	Sem VI	Total Credits
Part I	3	3	3	3	-	-	12
Part II	3	3	3	3	-	-	12
Part III	11	11	11	11	22	22	88
Part IV	6	6	6	6	3	2	29
Part V	-	-	-	-	-	1	1
Total	23	23	23	23	25	25	142

*Part I, II, and Part III components will be separately taken into account for CGPA calculation and classification for the under graduate programme and the other components. IV, V have to be completed during the duration of the programme as per the norms, to be eligible for obtaining the UG degree.

ILLUSTRATIVE B.C.A CURRICULUM DESIGN

First Year

Semester-I

Part	Courses	Credit	Hours per week (L/T/P)
Part-I	Language – Tamil	3	6
Part-II	English	3	6
Part-III	CC1 Python Programming	4	4
	CC2 Python Lab	3	4
	EC1 Discrete Mathematics-I / Numerical Methods	4	4
Part-IV	SEC1 Office Automation Lab	3	3
	FC Fundamentals of Information Technology	3	3
		23	30

Semester-II

Part	Courses	Credit	Hours per week (L/T/P)
Part-I	Language – Tamil	3	6
Part-II	English	3	4
Part-III	CC3 Object Oriented Programming Concepts using C++	4	4
	CC4 C++ Programming Lab	3	4
	EC2 Digital Logic Fundamentals / Optimization Techniques	4	4
Part-IV	SEC2 Web Designing	2	3
	SEC3 HTML Lab	2	3
	AECC1 Naan Mudhalvan	2	2
		23	30

Second Year**Semester-III**

Part	Courses	Credit	Hours per week (L/T/P)
Part-I	Language – Tamil	3	6
Part-II	English	3	6
Part-III	CC5 Data Structures and Algorithms	4	4
	CC6 Data Structures and Algorithms using C++ Lab	3	4
	EC3 Computer Architecture / Cyber Forensics	4	4
Part-IV	SEC4 PHP Programming Lab	2	2
	Environmental Studies	2	2
	AECC2 Naan Mudhalvan	2	2
		23	30

Semester-IV

Part	Courses	Credit	Hours per week (L/T/P)
Part-I	Language – Tamil	3	6
Part-II	English	3	6
Part-III	CC7 Java Programming	4	4
	CC8 Java Programming Lab	3	4
	EC4 Financial Accounting / Cloud Computing	4	4
Part-IV	SEC5 Multimedia Systems Lab	2	2
	Value Education	2	2
	AECC3 Naan Mudhalvan	2	2
		23	30

Third Year**Semester -V**

Part	Courses	Credit	Hours perweek (L/T/P)
Part-III	CC9 RDBMS with PL/SQL	4	5
	CC10 Operating Systems	4	4
	CC11 Software Project Management	4	4
	CC12 PL/SQL Lab	3	5
	CC13 Mini Project	3	6
	EC5 Artificial Intelligence / Machine Learning	4	4
Part IV	AECC4 Naan Mudhalvan	2	2
	Internship/Industrial Visit/Field Visit/Knowledge Updation Activity	1	-
		25	30

Semester-VI

Part	Courses	Credit	Hours per week (L/T/P)
Part-III	CC14 ASP .Net Programming	4	5
	CC15 Computer Networks	4	4
	CC16 Image Processing	4	4
	CC17 ASP .Net Programming Lab	3	5
	CC18 Project with Viva Voce	3	6
	EC6 Introduction to Data Science / Robotics and Its Applications	4	4
Part IV	AECC5 Naan Mudhalvan	2	2
Part V	Extension Activity	1	-
		25	30

Total Credits: 142

Internship (minimum of 30 hours): The students should submit certificate of attendance from the industry stating the nature of work done, duration and role played along with report (minimum of 20 pages) at the end of V semester for external evaluation.

Industrial Visit/Field Visit: A report based on the observation and learning outcome to be submitted (minimum of 10 pages) along with suitable evidences at the end of V semester for external evaluation.

Knowledge Updation Activity: A report to be submitted (minimum of 10 pages) based on the study made along with the completion certificate stating the work done (MOOC/NPTEL) at the end of V semester for external evaluation.

Internship/Industrial Visit/Field Visit/Knowledge Updation Activity:

Internal – 50 Marks, External – 50 Marks

Mini Project: Case studies related to Business Analytics (any tool can be used).

Individual Project report should be submitted for external evaluation.

Internal – 50 Marks, External – 50 Marks

Project: Group Project report should be submitted for external evaluation.

Internal – 50 Marks, External – 50 Marks

Extension Activity (NSS/ NCC/ YRC/ RRC/ Games and Sports/ Youth Welfare Activities Outreach Programmes/Migration Awareness in the Tamil Nadu Education System):

Internal – 50 Marks, External – 50 Marks

Ability Enhancement Compulsory Course (AECC): The students who reappear for Naan Mudhalvan course shall write the substitute paper.

II Semester - Understanding IT

III Semester - Organizational Behaviour

IV Semester - Advanced Excel

V Semester - Problem Solving Techniques

VI Semester - Open Source Technologies

There shall only be an external examination for those papers.

No Internal Marks, External – 100 Marks

COURSE - PSO MAPPING

Type of the Course	Title of the Course	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CC1	Python Programming	3	3	3	2	2	3	2
CC2	Python Lab	3	3	2	3	2	3	3
EC1	Discrete Mathematics-I	3	3	3	2	3	3	2
EC1	Numerical Methods	3	3	3	2	2	2	2
SEC1	Office Automation Lab	3	3	3	3	3	2	2
FC	Fundamentals of Information Technology	3	3	3	2	2	2	2
CC3	Object Oriented Programming Concepts using C++	3	3	3	3	2	3	3
CC4	C++ Programming Lab	3	3	3	3	3	2	2
EC2	Digital Logic Fundamentals	3	3	3	3	2	3	2
EC2	Optimization Techniques	3	3	3	2	2	2	3
SEC2	Web Designing	3	3	3	3	2	2	2
SEC3	HTML Lab	3	3	3	3	2	2	3

DETAILED SYLLABUS

SEMESTER I

CC 1 – PYTHON PROGRAMMING

Course Outcomes (COs)

		L	P	T
		3	-	1
CO1	Explain the fundamentals of Python programming including syntax, data types, operators, expressions, input/output statements, and control structures.	K1 and K2		
CO2	Apply Python programming concepts such as loops, arrays, functions, strings, and modules to develop simple Python programs.	K3		
CO3	Analyze and implement appropriate Python data structures including lists, tuples, dictionaries, and file handling techniques for problem solving.	K4		
CO4	Design and develop Python applications using functions, modules, data structures, and file operations to solve real-world computational problems efficiently.	K5 and K6		

Unit I

Basics of Python Programming: History of Python-Features of Python-Literal-Constants-Variables - Identifiers–Keywords–Built-in Data Types–Input Statements – Output Statements–Comments – Indentation- Operators–Expressions–Type conversions.

Unit II

Control Statements: Selection/Conditional Branching statements: if, if-else, nested if and if-elif-else statements. Iterative Statements: while loop, for loop, else suite in loop and nested loops. **Jump Statements:** break, continue and pass statements. **Python Arrays:** Defining and Processing Arrays – Array methods.

Unit III

Functions: Function Definition – Function Call – Variable Scope and its Lifetime–return Statement. **Function Arguments:** Required Arguments, Keyword Arguments, Default Arguments and Variable Length Arguments- Recursion. **Python Strings:** String operations-Immutable Strings - Built-in String Methods and Functions - String Comparison. **Modules:** import statement- The Python module – dir() function – Modules and Namespace – Defining our own modules.

Unit IV

Lists: Creating a list -Access values in list-Updating values in lists-Nested lists -Basic list operations-List Methods. **Tuples:** Creating, Accessing, Updating and Deleting Elements in a tuple – Nested tuples– Difference between lists and tuples. **Dictionaries:** Creating, Accessing, Updating and Deleting Elements in a Dictionary – Dictionary Functions and Methods - Difference between Lists and Dictionaries.

Unit IV

Python File Handling: Types of files in Python - Opening and Closing files-Reading and Writing files: write() and writelines() methods- append() method – read() and readlines()

methods – with keyword – Splitting words – File methods - File Positions- Renaming and deleting files.

Text Books

- 1.Reema Thareja, “Python Programming using problem solving approach”, First Edition, 2017, Oxford University Press.
- 2.Dr. R. Nageswara Rao, “Core Python Programming”, First Edition, 2017, Dream tech Publishers.

Reference Books

- 1.Vamsi Kurama, “Python Programming: A Modern Approach”, Pearson Education.
- 2.Mark Lutz,” Learning Python”, Orielly.
- 3.Adam Stewarts, “Python Programming”, Online.
- 4.Fabio Nelli, “Python Data Analytics”, A Press.
- 5.Kenneth A. Lambert, “Fundamentals of Python – First Programs”, CENGAGE Publication.

CO - PO & PSO Mapping

COs	POs							PSOs						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
CO1	3	1	2	2	-	3	-	3	2	1	2	-	3	1
CO2	1	3	3	2	-	3	1	2	3	3	2	2	3	2
CO3	2	3	3	2	-	3	2	2	3	3	2	2	3	2
CO4	2	3	3	2	-	3	2	3	3	3	2	1	3	2
Weightage of course contribution to each PSO								10	11	10	8	5	12	7

CC2 – PYTHON LAB

Course Outcomes (COs)

L	P	T
-	4	-

CO1	Demonstrate the fundamentals of Python programming including variables, constants, operators, input/output statements, conditional statements, and loops.	K1 and K2
CO2	Apply functions, recursion, arrays, strings, and modules to develop Python programs for solving computational problems.	K3
CO3	Analyze and implement appropriate Python data structures such as lists, tuples, and dictionaries for data manipulation and problem solving.	K4
CO4	Develop Python applications using file handling and integrated programming concepts to create efficient and real-world solutions.	K5 and K6

Exercises

1. Program using variables, constants and I/O statements.
2. Program using operators.
3. Program using conditional Statements.
4. Program using loops.
5. Program using jump statements.
6. Program using functions.
7. Program using recursion.
8. Program using arrays.
9. Program using strings.
10. Program using modules.
11. Program using lists.
12. Program using tuples.
13. Program using dictionaries.
14. Program for file handling

CO – PO & PSO Mapping

COs	POs							PSOs						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
CO1	3	2	2	1	1	2	1	3	2	1	2	1	2	2
CO2	3	2	2	1	1	2	1	3	2	1	2	1	2	2
CO3	2	3	3	2	1	2	2	3	3	3	3	2	3	3
CO4	2	3	3	3	2	3	2	3	3	3	3	2	3	2
Weightage of course contribution to each PSO								12	10	8	10	6	10	9

EC1 – DISCRETE MATHEMATICS-1

Course Outcomes (COs)		L	P	T
		3	-	1
CO1	Explain the fundamental concepts of relations, functions, mathematical logic, matrices, and graphs.	K1 and K2		
CO2	Apply relations, functions, logical operations, matrix operations, and graph concepts to solve mathematical and computational problems effectively.	K3		
CO3	Analyze logical propositions, matrix properties, and graph structures using appropriate mathematical techniques and representations.	K4		
CO4	Evaluate and construct mathematical models using relations, matrices, logic, and graph theory for problem-solving applications in computer science.	K5 and K6		

Unit I: RELATIONS

Introduction to Relations – Binary relation – Classification of Relations – Composition of Relations – Inverse of Relation – Closure operation on Relations – Matrix representation of Relation - digraphs.

Unit II: FUNCTIONS

Introduction to Functions – Addition and Multiplication of Functions- Classifications of Functions – Composition of Function – Inverse Function.

Unit III: MATHEMATICAL LOGIC

Introduction – Statement (Propositions) – Laws of Formal Logic – Basic Set of Logical operators/operations - Propositions and Truth Tables – Algebra Propositions - Tautologies and Contradictions – Logical Equivalence – Logical Implication – Normal Forms.

Unit IV: MATRIX ALGEBRA

Introduction – Definition of a Matrix - Types of Matrices – Operations on Matrices – Related Matrices – Transpose of a Matrix – Symmetric and Skew-symmetric Matrices –Complex Matrix– Conjugate of a Matrix – Determinant of a Matrix – Typical Square Matrices – Adjoint and Inverse of a Matrix – Singular and Non-singular Matrices – Adjoint of a Square Matrix – Properties of Adjoint of a Matrix – Properties of Inverse of a Matrix.

Unit V: GRAPH

Introduction – Graph and Basic Terminologies – Types of Graphs – Sub Graph and Isomorphic Graph – Operations on Graphs – Representation of Graph.

Text Book

1.Discrete Mathematics, Swapan Kumar Chakraborty and Bikash Kanti Sarkar, Oxford University Press.

Reference Books

1.Discrete Mathematics, Third Edition, Seymour Lipschutz and Marc Lars Lipson, Tata McGraw Hill Education Private Limited.

2. Discrete Mathematical Structures with Applications to Computer Science by J.P. Tremblay,
R. Manohar TMH edition

CO – PO & PSO Mapping

COs	POs							PSOs						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
CO1	3	2	2	1	1	1	1	3	2	1	1	2	2	1
CO2	2	3	3	2	1	2	1	3	3	2	2	3	2	1
CO3	2	3	3	2	1	2	2	3	3	3	2	2	2	1
CO4	2	3	3	3	2	2	2	3	3	3	3	2	3	2
Weightage of course contribution to each PSO								12	11	9	8	9	9	5

EC1 - NUMERICAL METHODS

L	P	T
3	-	1

Course Outcomes (COs)

CO1	Explain the fundamental concepts of numerical methods including curve fitting, root finding, linear systems, interpolation, integration, differentiation, and differential equations.	K1 and K2
CO2	Apply numerical techniques such as bisection, Newton-Raphson, Gauss elimination, interpolation, and numerical integration methods to solve mathematical problems.	K3
CO3	Analyze numerical algorithms to evaluate accuracy, convergence, and efficiency in solving algebraic, transcendental, and differential equations.	K4
CO4	Develop and evaluate computational solutions for real-world mathematical problems using numerical methods and iterative techniques.	K5 and K6

Unit I:

Curve Fitting: Introduction, Method of Least squares, Curve Fitting, Fitting a Straight Line.

Unit II:

Solution of Algebraic and Transcendental Equations: Bisection method, Regula Falsi method, Newton Raphson Method.

Unit III:

Solution of Simultaneous Linear Equations: Solution of Simultaneous Linear Equations: Gauss Elimination method, Gauss-Jordan method, Gauss Seidel Method, Jacobi's method.

Unit IV:

Numerical Differentiation & Integration: Differentiation: Using Newton's Forward Difference, Newton's Backward Difference, Newton's Divided Difference (First Order Differentiation only) Integration: Using Trapezoidal rule, Simpson's 1/3 & Simpson's 3/8 rules.

Unit V:

Solution of Ordinary Differential Equations: Runge-Kutta 2nd Order and 4th Order methods, Predictor-Corrector Methods: Milne and Adam's methods.

Text Books

- 1.S. Arumugam and A. Thangapandi Isaac, Numerical Methods, Scitech Publications, Chennai.
- 2.P. Kandasamy, K. Thilagavathy and K. Gunavathy, Numerical Methods, S. Chand & Company Ltd., New Delhi.
- 3.S. S. Sastry, Introductory Methods of Numerical Analysis, PHI Learning Pvt. Ltd., New Delhi.

Reference Books

- 1.M. K. Jain, S. R. K. Iyengar and R. K. Jain, Numerical Methods for Scientific and Engineering Computation, New Age International Publishers.
- 2.Curtis F. Gerald and Patrick O. Wheatley, Applied Numerical Analysis, Pearson Education.

- 3.E. Balagurusamy, Numerical Methods, Tata McGraw Hill Publishing Company Ltd.
 4.K. E. Atkinson, An Introduction to Numerical Analysis, Wiley Publications.

CO – PO & PSO Mapping

COs	POs							PSOs						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
CO1	3	2	2	1	1	1	1	2	2	1	1	1	1	1
CO2	2	3	3	2	1	2	1	3	3	2	2	1	2	1
CO3	2	3	3	3	1	2	2	3	3	3	2	2	2	1
CO4	2	3	3	3	2	3	2	3	3	3	3	2	3	2
Weightage of course contribution to each PSO								11	11	9	8	6	8	5

SEC1 - OFFICE AUTOMATION LAB

Course Outcomes (COs)

L	P	T
-	3	-

CO1	Demonstrate basic skills in MS Word, MS Excel, MS PowerPoint, and MS Access for creating and formatting documents, spreadsheets, presentations, and databases.	K1 and K2
CO2	Apply formatting tools, formulas, functions, charts, mail merge, and presentation features to create professional documents and reports.	K3
CO3	Analyze and organize data using spreadsheets and databases by applying sorting, calculations, queries, and report generation techniques.	K4
CO4	Design and develop real-world office applications such as documents, presentations, databases, and reports using MS Office tools effectively.	K5 and K6

Exercises

MS – Word

- 1.Prepare a word document for Spell checking and Thesaurus.
- 2.Find a word and Replace with another in a document.
- 3.Insert Header with College Name, Footer with Page No., and Footnote in a document.
- 4.Insert mathematical symbols using Microsoft equation 3.0.
- 5.Preparing Newspaper format (Apply Alignment, Font, Property, Line spacing, Picture Format).
- 6.Prepare a Bio-Data and insert the contents of qualification within the table.
- 7.Mail Merge

MS – Excel

- 1.Apply formulas and functions.
- 2.Prepare a chart for population growth.
- 3.Apply ascending and descending order.
- 4.Apply auto format.

MS – PowerPoint

- 1.Create a power point presentation with 3 slides.
- 2.Create a design template with 3 slides.
- 3.Create a presentation with animation.
- 4.Create a power point presentation with 4 slides. Set slide transition time of 3seconds and display your presentation.

MS – Access

1. Create an employee database.
2. Create a mark statement for a class of 20 students. Find total, average and rank the marks. Give proper headings.
3. Create a report.

CO – PO & PSO Mapping

COs	POs							PSOs						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
CO1	3	2	1	1	1	2	1	2	2	1	3	3	1	1
CO2	2	3	2	2	1	3	1	3	3	2	3	2	2	1
CO3	2	3	3	2	1	3	2	3	3	3	3	2	2	2
CO4	2	3	3	3	2	3	2	3	3	3	3	2	3	2
Weightage of course contribution to each PSO								11	11	9	12	9	8	6

FC - FUNDAMENTALS OF INFORMATION TECHNOLOGY

L	P	T
2	-	1

Course Outcomes (COs)

CO1	Explain the basic concepts of computers including evolution, characteristics, classification, architecture, and applications.	K1 and K2
CO2	Identify and describe computer hardware components such as input/output devices and storage systems.	K3
CO3	Apply knowledge of software types, programming languages, and system software in understanding computer operations.	K4
CO4	Analyze operating system concepts, system performance, and processing techniques used in modern computing environments.	K5 and K6

Unit I Introduction to Computers

Introduction, Definition, Characteristics of computer, Evolution of Computer, Block Diagram of a computer, Generations of Computer, Classification of Computers, Applications of Computer, Capabilities and limitations of computer.

Unit II Basic Computer Organization

Role of I/O devices in a computer system. Input Units: Keyboard, Terminals and its types. Pointing Devices, Scanners and its types, Voice Recognition Systems, Vision Input System, Touch Screen, Output Units: Monitors and its types. Printers: Impact Printers and its types. Non-impact Printers and its types, Plotters, types of Plotters, Sound cards, Speakers.

Unit III Storage Fundamentals

Primary Vs Secondary Storage, Data storage & retrieval methods. Primary Storage: RAM ROM, PROM, EPROM, EEPROM. Secondary Storage: Magnetic Tapes, Magnetic Disks. Cartridge tape, hard disks, Floppy disks Optical Disks, Compact Disks, Zip Drive, Flash Drives.

Unit IV Software

Software and its needs, Types of S/W. System Software: Operating System, Utility Programs Programming Language: Machine Language, Assembly Language, High Level Language, their advantages & disadvantages. Application S/W and its types: Word Processing, Spread Sheets Presentation, Graphics, DBMS.

Unit V Operating System

Functions, Measuring System Performance, Assemblers, Compilers and Interpreters. Batch Processing, Multiprogramming, Multitasking, Multiprocessing, Time Sharing, DOS, Windows, Unix/Linux.

Text Books

1. Anoop Mathew, S. Kavitha Murugesan (2009), "Fundamental of Information Technology", Majestic Books.
2. Alexis Leon, Mathews Leon, "Fundamental of Information Technology", 2nd Edition.
3. S. K Bansal, "Fundamental of Information Technology".

Reference Books

1. Bhardwaj Sushil Puneet Kumar, "Fundamental of Information Technology"
2. GG Wilkinson, "Fundamentals of Information Technology", Wiley-Blackwell
3. A Ravichandran, "Fundamentals of Information Technology", Khanna Book Publishing

CO – PO & PSO Mapping

COs	POs							PSOs						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
CO1	3	2	1	1	1	1	1	3	2	1	1	1	1	1
CO2	3	3	2	1	1	2	1	3	3	2	2	1	1	1
CO3	2	3	3	2	1	3	1	3	3	3	2	2	2	1
CO4	2	3	3	3	2	3	2	3	3	3	3	2	3	2
Weightage of course contribution to each PSO								12	11	9	8	6	7	5

SEMESTER II

CC3 - OBJECT ORIENTED PROGRAMMING CONCEPTS USING C++

Course Outcomes (COs)

L	P	T
3	-	1

CO1	Explain the fundamental concepts of Object-Oriented Programming using C++ including control structures, functions, and basic program constructs.	K1 and K2
CO2	Apply classes, objects, constructors, destructors, and function overloading concepts to develop modular C++ programs.	K3
CO3	Analyze and implement advanced OOP features such as operator overloading, inheritance, polymorphism, and dynamic binding.	K4
CO4	Design and develop efficient C++ applications using pointers, files, templates, exception handling, and real-world programming concepts.	K5 and K6

Unit I

Introduction to C++ - key concepts of Object-Oriented Programming –Advantages – Object Oriented Languages – I/O in C++, C++ Declarations. Control Structures: - Decision Making Statements: if ..else, jump, goto, break, continue, switch case statements - Loops in C++: for, while, do - Functions in C++ - inline functions – Function Overloading.

Unit II

Classes and Objects: Declaring Objects – Defining Member Functions – Static Member variables and functions – array of objects –friend functions – Overloading member functions – Constructors and Destructors.

Unit III

Operator Overloading: Overloading unary, binary operators – Overloading using friend function – type conversion – Inheritance: Types of Inheritance – Single, Multilevel, Multiple, Hierarchal, Hybrid, Multipath inheritance – Virtual base Classes – Abstract Classes.

Unit IV

Files – File stream classes – file modes – Sequential Read / Write operations – Binary and ASCII Files – Random Access Operation – Templates – Command Line Arguments - Exception Handling - String – Declaring and Initializing string objects – String attributes – String functions.

Unit V

Pointers – Declaration – Pointer to Class, Object – this pointer – Pointers to derived classes and Base classes – Arrays – Characteristics – array of classes – Memory models – new and delete operators – dynamic object – Binding, Polymorphism and Virtual Functions.

Text Book

1.E. Balagurusamy, “Object-Oriented Programming with C++”, TMH 2013, 7th Edition.

Reference Books

1.Ashok N Kamthane, “Object-Oriented Programming with ANSI and Turbo C++”, Pearson Education 2003.

2.Maria Litvin& Gray Litvin, “C++ for you”, Vikas publication 2002.

CO – PO & PSO Mapping

COs	POs							PSOs						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
CO1	3	2	2	1	1	2	1	3	2	1	2	1	2	2
CO2	2	3	3	2	1	2	1	3	3	2	2	1	2	2
CO3	2	3	3	3	1	2	2	3	3	3	3	2	3	3
CO4	2	3	3	3	2	3	2	3	3	3	3	2	2	2
Weightage of course contribution to each PSO								12	11	9	10	6	9	9

CC4 - C++ PROGRAMMING LAB

Course Outcomes (COs)

L	P	T
-	4	-

CO1	Demonstrate basic C++ programming concepts including classes, objects, functions, and function overloading.	K1 and K2
CO2	Apply object-oriented programming concepts such as constructors, destructors, friend functions, inheritance, and operator overloading in C++ programs.	K3
CO3	Analyze advanced programming features including virtual functions, templates, and exception handling to build efficient C++ solutions.	K4
CO4	Develop real-world applications using file handling, command-line arguments, and reusable code structures in C++.	K5 and K6

Exercises

1. Write a C++ program to demonstrate Function Overloading.
2. Write a C++ program to demonstrate Class and Objects.
3. Write a C++ program to demonstrate the concept of Passing Objects to Functions.
4. Write a C++ program to demonstrate friend Function.
5. Write a C++ program to demonstrate Constructor and Destructor.
6. Write a C++ program to demonstrate Unary Operator Overloading.
7. Write a C++ program to demonstrate Binary Operator Overloading.
8. Write a C++ program to demonstrate Multilevel Inheritance.
9. Write a C++ program to manipulate a Text File.
10. Write a C++ program to perform Sequential I/O Operations on a file.
11. Write a C++ program to find the Biggest Number using Command Line Arguments.
12. Write a C++ program to demonstrate Class Template.
13. Write a C++ program to demonstrate Function Template.
14. Write a C++ program to demonstrate Exception Handling.
15. Write a C++ program to demonstrate Virtual Functions.

CO – PO & PSO Mapping

COs	POs							PSOs						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
CO1	3	2	2	1	1	2	1	3	3	2	2	3	1	1
CO2	2	3	3	2	1	2	1	3	3	3	3	2	2	1
CO3	2	3	3	3	1	2	2	3	3	3	3	2	3	1
CO4	2	3	3	3	2	3	2	3	3	3	3	2	3	2
Weightage of course contribution to each PSO								12	12	11	11	9	9	5

EC2 – DIGITAL LOGIC FUNDAMENTALS

Course Outcomes (COs)

L	P	T
3	-	1

CO1	Explain number systems, binary arithmetic, Boolean algebra, logic gates, and digital system fundamentals.	K1 and K2
CO2	Apply Boolean algebra laws, Karnaugh maps, and logic gate concepts to simplify and design combinational logic circuits.	K3
CO3	Analyze combinational and sequential circuits including adders, multiplexers, flip-flops, and counters.	K4
CO4	Design and evaluate digital systems using combinational and sequential logic, registers, counters, and memory devices.	K5 and K6

Unit I:

Digital System and binary numbers:

Digital systems – binary numbers – number base conversion – Octal and hexadecimal numbers – complements – signed binary numbers – binary codes – binary storage and registers – binary logic.

Boolean algebra:

Introduction – basic definition – axiomatic definition of Boolean algebra – basic theorem and properties and of Boolean algebra – Boolean functions.

Unit II:

Logic gates:

Canonical and standard forms – other logic operations – digital logic gates and integrated circuits.

Gate-Level minimization:

Introduction: The Map method – Four- variable Map –Five-variable Map – Product –of-sums simplifications- Don ‘t conditions.

Unit III:

NAND and NOR implementation- other two-level implementations – Exclusive OR Functions.

Combinational Logic: Introduction – Combinational circuits – Analysis Procedure – Design Procedure – Binary Adder – Subtractor – Decimal Adder – Binary Multiplier – Magnitude Comparator.

Unit IV:

Combinational Logic: Decoders – Encoders – Multiplexers.

Synchronous Sequential Logic:

Introduction –Sequential Circuits – Storage Element Latches – Storage Element Flip- Flops – Analysis of Clocked Sequential Circuits.

Unit V:

Registers and Counters: Registers – Shift Registers – Ripple Counters – Synchronous Counters – Other Counters.

Memory: Introduction – Random access memory –Memory Decoding –Error Detection and Correction – Read Only Memory.

Text Book

1.Digital Design – Fourth Edition – M. Morris Mano, Michael D Ciletti,Prentice Hall of India Pvt Ltd., 2007

Reference Books

1.Digital Principles and Applications – Albert Paul Malvino, Donald P Leach, Tata McGraw-Hill Publishing Company Ltd.

2.Digital Principles and Design – Donald D.Givone, Tata McGraw-Hill Publishing Company Limited

CO – PO & PSO Mapping

COs	Pos							PSOs						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
CO1	3	2	1	1	1	1	1	3	2	1	1	1	1	1
CO2	2	3	3	2	1	2	1	3	3	2	3	1	3	1
CO3	2	3	3	2	1	2	2	3	3	3	2	2	2	1
CO4	2	3	3	3	2	2	2	3	3	3	3	2	3	2
Weightage of course contribution to each PSO								12	11	9	9	6	9	5

EC2 - OPTIMIZATION TECHNIQUES

Course Outcomes (COs)

L	P	T
3	-	1

CO1	Explain the fundamental concepts of Operations Research, modeling, and its applications in decision-making problems.	K1 and K2
CO2	Apply linear programming techniques to formulate and solve optimization problems using graphical and standard methods.	K3
CO3	Analyze and solve assignment and transportation problems using appropriate mathematical techniques such as Hungarian and transportation methods.	K4
CO4	Design and evaluate project scheduling and optimization models using PERT and CPM techniques for real-world applications.	K5 and K6

Unit I

Introduction Operations Research

The Nature and Meaning of OR–Management–Applications of OR– Modeling in OR–General methods for solving OR models– Scope of OR – Advantages and disadvantages of OR.

Unit II

Linear Programming Problem

Linear Programming Problem: Formulation of LP problems–Graphical solution of LP Problems– General formulation of LPP – Slack and Surplus variables–Standard form of LPP.

Unit III

Assignment Problems

Assignment Problem: Mathematical formulation–Hungarian method–Unbalanced assignment problem–Various types.

Unit IV

Transportation Problems

Transportation Model: Mathematical formulation – Matrix form–Methods for finding Initial Basic Feasible solution and Optimal solution.

Unit V

PERT and CPM Techniques

PERT and CPM Techniques: Basic Steps–Network Diagram representation– Rules for drawing Network Diagram–Labeling Fulkerson’s I–J Rule – Time Estimates and Critical Path in Network Analysis – Examples on optimum duration and minimum duration cost –PERT.

Text Book

1.S.D. Sharma, “Operations Research”, Tenth Edition, Pearson,2017.

Reference Books

1. Hamdy A Taha, “Operations Research” Ninth Edition, Pearson, 2016.
2. V.Sundaresan, K.S.Ganapathy Subramanian, K.Ganesan, “Resource Management Techniques”, Ninth Edition, A.R.Publications, 2015

CO – PO & PSO Mapping

COs	POs							PSOs						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
CO1	3	2	1	1	1	1	1	2	2	1	1	1	1	2
CO2	2	3	3	2	1	2	1	3	3	2	2	1	2	3
CO3	2	3	3	3	1	2	2	3	3	3	2	2	2	2
CO4	2	3	3	3	2	3	2	3	3	3	3	2	3	2
Weightage of course contribution to each PSO								11	11	9	8	6	8	9

SEC2 - WEB DESIGNING

Course Outcomes (COs)

		L	P	T
		2	-	1
CO1	Explain the fundamentals of web designing using HTML, including page structure, formatting, links, lists, tables, and frames.	K1 and K2		
CO2	Apply HTML, forms, images, CSS, and XML concepts to design static and structured web pages.	K3		
CO3	Analyze and implement dynamic web page behaviour using DHTML, DOM, and Java Script concepts.	K4		
CO4	Develop interactive and dynamic web applications using JavaScript and PHP with proper scripting and backend integration.	K5 and K6		

Unit I

HTML:HTML-Introduction-tag basics-page structure-adding comments working with texts, paragraphs and line break. Emphasizing text- heading and horizontal rules-list-font size, face and color-Alignment links-tables-frames.

Unit II

Forms & Images Using Html: Graphics: Introduction-How to work efficiently with images in web pages, imagemaps, GIF animation, adding multimedia, data collection with html forms textbox, password, list box, combo box, text area, tools for building webpage frontpage.

Unit III

XML & DHTML: Cascading style sheet (CSS)-what is CSS-Why we use CSS-adding CSS to webpages-Grouping styles-extensible markup language (XML).

Dynamic HTML: Document object model (DCOM)-Accessing HTML & CSS through DCOM Dynamic content styles & positioning-Event bubbling-databinding.

Unit IV

JavaScript: Client-side scripting, What is JavaScript, How to develop JavaScript, simple JavaScript, variables, functions, conditions, loops and repetition.

Unit V

Introduction to PHP-Basic Knowledge of websites-Introduction to Dynamic Website-Scope of PHP-XAMPP and WAMP Installation-PHP Programming Basics-Syntax of PHP-Embedding PHP in HTML-Embedding HTML in PHP.

Text Books

1. Pankaj Sharma, Web Technology, SkKataria & Sons Bangalore 2011.
2. Mike Mcgrath, JavaScript, Dream Tech Press 2006, 1st Edition.
3. Achyut S Godbole & Atul Kahate, Web Technologies, 2002, 2nd Edition.
4. Lynn Mighley and Michael Morrison., Head First PHP & MySQL: A Brain-Friendly Guide, 2009.

Reference Books

1. Laura Lemay, Rafe Colburn, Jennifer Kyrnin, —Mastering HTML, CSS & JavaScript Web Publishing, BPB Publications, 2016.
2. DT Editorial Services (Author), HTML5 Black Book (Covers CSS3, JavaScript, XML, HTML, AJAX, PHP, jQuery), Paperback 2016, 2nd Edition.
3. Alan Forbes, The Joy of PHP: A Beginner's Guide to Programming Interactive Web Applications with PHP and MySQL.

CO – PO & PSO Mapping

COs	POs							PSOs						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
CO1	3	2	1	1	1	3	1	3	2	1	3	1	1	1
CO2	2	3	3	2	1	3	1	3	3	2	3	2	2	1
CO3	2	3	3	3	1	3	2	3	3	3	3	2	2	2
CO4	2	3	3	3	2	3	2	3	3	3	3	2	3	2
Weightage of course contribution to each PSO								12	11	9	12	7	8	6

SEC3 - HTML LAB

Course Outcomes (COs)

L	P	T
-	3	-

CO1	Demonstrate the basic structure of web pages using HTML elements such as links, images, lists, tables, and frames.	K1 and K2
CO2	Apply HTML tags, forms, multimedia elements, and CSS styling techniques to create structured web pages.	K3
CO3	Analyze and implement interactive web page designs using frames, navigation links, and form-based inputs.	K4
CO4	Develop simple interactive web applications such as quizzes and multimedia-based web pages using HTML and CSS.	K5 and K6

Exercises

1. Create a website using internal links and images.
2. Design a calendar using table tag.
3. Create a HTML document to display a list of five flowers and link each one to another document displaying brief description of the flower, add pictures wherever possible.
4. Write a HTML code to display a list of 5 cars in a frame, link each one to a brief description in second frame. The left frame should display the list and the right frame should display the paragraph about the frame.
5. Create a simple HTML form covering major form elements.
6. Embed Audio and Video in a HTML page.
7. Rotate an element using CSS.
8. Build a simple quiz.

Textbooks

1. "Mastering HTML5 and CSS3 Made Easy", Teach U Comp Inc., 2014.
2. Thomas Michaud, "Foundations of Web Design: Introduction to HTML & CSS".

CO – PO & PSO Mapping

COs	POs							PSOs						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
CO1	3	2	1	1	1	3	1	2	2	1	3	1	1	2
CO2	2	3	2	2	1	3	1	3	3	2	3	2	2	2
CO3	2	3	3	2	1	3	2	3	3	3	3	2	2	2
CO4	2	3	3	3	2	3	2	3	3	3	3	2	3	3
Weightage of course contribution to each PSO								11	11	9	12	7	8	9

UNDERSTANDING INTERNET

Course Outcomes (COs)

CO1	Explain the concepts, development, technological features, audience characteristics, and contemporary issues related to the Internet and World Wide Web.	K1 and K2
CO2	Apply the knowledge of Internet technologies, infotainment content, and online communication tools in various real-world contexts.	K3
CO3	Analyze Internet audiences, digital media usage patterns, cyber issues, and the social impact of Internet technologies.	K4
CO4	Evaluate the ethical, social, and technological challenges of the Internet and develop solutions for secure and effective digital communication practices.	K5 and K6

Unit I

The emergence of internet as a mass medium—the world of World Wide Web.

Unit II

Features of internet as a technology.

Unit III

Internet as a source of infotainment—classification based on content and style.

Unit IV

Demographic and psychographic descriptions of internet audiences –effect of internet on the values and life-styles.

Unit V

Present issues such as cyber crime and future possibilities.

Textbooks

1. Barnouw, E and Krishnaswamy S [1990] Indian Film. New York OUP.
2. Kumar, Keval [1999] Mass Communication in India. Mumbai, Jaico.
3. Srivastava, KM [1992] Media Issues Sterling Publishers Pvt Ltd.

Reference Books

1. Acharya, RN [1987] Television in India, Manas Publications, New Delhi
2. Barnouw, E [1974] Documentary—A History of Nonfiction. Oxford, OUP
3. Luthra, HR [1986] Indian Broadcasting. Ministry of I& B, New Delhi
4. Vasudev, Aruna [1986] The New Indian Cinema. Macmillan India, New Delhi

CO – PO & PSO Mapping

COs	POs							PSOs						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
CO1	3	2	1	–	–	2	1	2	1	–	–	1	2	–
CO2	2	3	2	1	–	2	2	3	2	1	–	2	2	1
CO3	2	2	3	2	1	1	2	2	3	2	1	2	1	2
CO4	1	2	2	3	3	2	3	2	3	2	3	1	2	3
Weightage of course contribution to each PSO								9	9	5	4	6	7	6