

Course Outcomes, Program Outcomes & Mapping

Course Title: Problem Solving using C Programming

Semester: II

Program: B.Sc. Computer Science

Course Outcomes (COs)

CO1: Understand the basic concepts and fundamentals of C programming.

CO2: Develop algorithms and flowcharts for problem solving.

CO3: Apply appropriate C constructs like loops, functions, arrays, and pointers to solve problems.

CO4: Write modular programs using structures and unions for real-world applications.

CO5: Debug, test, and interpret results of C programs effectively.

Program Outcomes (POs)

PO1: Apply knowledge of computing fundamentals and mathematics to solve real-world problems.

PO2: Analyze problems, identify computing requirements, and design appropriate solutions.

PO3: Use modern tools and techniques for efficient problem solving.

PO4: Demonstrate communication skills and teamwork in multidisciplinary domains.

PO5: Understand ethical, societal, and environmental issues relevant to computer applications.

PO6: Engage in continuous learning and professional development.

Program Specific Outcomes (PSOs)

PSO1: Apply programming skills, database concepts, and software tools for developing computing solutions.

PSO2: Solve domain-specific problems using modern computing practices and programming languages.

CO-PO & CO-PSO Mapping Matrix

CO\PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2
CO1	3	2	2	1	1	1	2	2
CO2	3	3	2	1	-	1	2	3

C03	3	3	3	1	-	2	3	3
C04	2	3	3	1	1	2	3	3
C05	2	2	3	2	1	2	3	3

Legend:

- 3 – Strongly related
- 2 – Moderately related
- 1 – Slightly related
- Not related

Course Documentation: Object Oriented Software Engineering

1. Course Outcomes (COs)

- CO1: Understand and apply object-oriented software engineering principles and life cycle models.
- CO2: Analyze system requirements and develop use-case models and class diagrams using UML.
- CO3: Design object-oriented architectures using design principles and patterns.
- CO4: Apply appropriate software development methodologies (e.g., Agile, Unified Process).
- CO5: Evaluate and validate software using testing techniques and quality metrics.
- CO6: Work effectively in teams to deliver documented and modular software solutions.

2. Program Outcomes (POs)

- PO1: Apply knowledge of computing fundamentals, mathematics, and domain knowledge.
- PO2: Identify, analyze, and formulate computing requirements for problem-solving.
- PO3: Design, implement, and evaluate computer-based systems.
- PO4: Use modern tools and techniques for software development.
- PO5: Understand professional, ethical, and social responsibilities.
- PO6: Communicate effectively and work in multidisciplinary teams.
- PO7: Engage in lifelong learning and self-development.
- PO8: Apply project management and financial principles in computing practice.

3. Program Specific Outcomes (PSOs)

- PSO1: Apply theoretical and practical knowledge of computer science to solve real-world problems using programming and design techniques.
- PSO2: Demonstrate expertise in software development using contemporary tools and technologies.
- PSO3: Apply object-oriented methodologies and structured approaches in software engineering projects.

4. CO-PO-PSO Mapping Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	2	1	1	2	1	3	2	3
CO2	3	3	2	2	-	-	2	-	3	2	3
CO3	3	2	3	3	1	-	2	1	3	3	3

Course Documentation: Object Oriented Software Engineering

CO4	2	2	2	3	1	2	3	2	2	3	3
CO5	2	2	3	3	2	-	3	-	3	3	2
CO6	2	2	2	2	2	3	3	2	2	2	3

Course Outcomes, Program Outcomes & Mapping

B.Sc. Computer Science - Semester III

Course: Object-Oriented Programming through Java

Course Outcomes (COs):

CO1: Understand the basic concepts of object-oriented programming and Java syntax.

CO2: Apply the principles of classes, objects, inheritance, polymorphism, abstraction, and encapsulation.

CO3: Develop Java programs using file handling, exception handling, and multithreading.

CO4: Implement GUI applications using AWT and Swing libraries.

CO5: Create robust and reusable code using Java Collections Framework and generics.

Program Outcomes (POs):

PO1: Demonstrate knowledge of programming fundamentals and computer science concepts.

PO2: Apply problem-solving skills to develop software systems and applications.

PO3: Understand the professional, ethical, legal, and social issues related to computing.

PO4: Communicate effectively in both technical and non-technical contexts.

PO5: Engage in continuous learning for career development and lifelong improvement.

PO6: Work effectively in teams to design and implement software systems.

Program Specific Outcomes (PSOs):

PSO1: Ability to apply theoretical foundations of Computer Science to develop real-world applications.

PSO2: Proficiency in programming languages and software tools to solve computational problems.

PSO3: Capability to analyze, design, and implement systems to meet desired needs.

CO-PO & CO-PSO Mapping Matrix:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
CO1	3	2	-	-	1	-	2	3	-
CO2	3	3	-	1	2	-	3	3	2

CO3	2	3	-	1	2	1	3	3	3
CO4	2	3	-	2	2	2	3	3	2
CO5	3	3	1	1	3	2	3	3	3

Operating System - Course Outcomes and Mapping

Program: B.Sc. Computer Science

Semester: III

Course: Operating System

Course Outcomes (COs)

CO Code	Course Outcome Description
CO1	Understand the basic concepts, structure, and functions of operating systems.
CO2	Analyze and compare various scheduling algorithms.
CO3	Understand concepts of process synchronization and deadlock.
CO4	Apply memory management techniques and understand virtual memory.
CO5	Explore file system management and I/O system functionalities.

Program Outcomes (POs)

PO Code	Program Outcome Description
PO1	Apply the knowledge of science and computer science fundamentals to solve real-world problems.
PO2	Identify, analyze and solve problems using computational techniques.
PO3	Design and develop efficient algorithms and software systems.
PO4	Communicate effectively and function ethically in a multidisciplinary team.
PO5	Apply modern tools, software, and techniques for problem solving.
PO6	Understand professional, ethical, social responsibilities and lifelong learning.

Program Specific Outcomes (PSOs)

PSO Code	Program Specific Outcome Description
PSO1	Apply core concepts of operating systems, databases, networking, and programming to build software solutions.
PSO2	Demonstrate practical knowledge in designing system software and application software.

CO-PO Mapping Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	-	1	1
CO2	3	3	2	-	2	1
CO3	3	3	2	-	2	1
CO4	2	3	3	-	3	1

Operating System - Course Outcomes and Mapping

CO5	2	2	3	1	3	1
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CO-PSO Mapping Matrix

CO\PSO	PSO1	PSO2
CO1	3	2
CO2	3	3
CO3	3	3
CO4	3	3
CO5	2	3