

# Operating System

Program: B.Tech in Computer Science

Semester: 5th Semester

Prerequisites: C Programming, Computer Organization

Credits: 3 Lecture Hours, 1 Tutorial, 0 Practical

## Overall Aim

To introduce the core principles of operating systems including process scheduling, memory management, and file systems.

## Course Outcomes (COs)

**CO1:** Describe the different types and functionalities of operating systems.

**CO2:** Explain the architectural structure of an operating system.

**CO3:** Implement and compare various process scheduling algorithms.

**CO4:** Analyze and resolve deadlock situations in a multi-process environment.

**CO5:** Analyze the effectiveness of different memory allocation strategies such as paging and segmentation.

**CO6:** Evaluate the performance of memory management techniques.

**CO7:** Explain the design and implementation of various file systems.

**CO8:** Design and implement synchronization solutions using semaphores and monitors.

**CO9:** Evaluate the efficiency and correctness of concurrent programming solutions.

## Program Outcomes (POs)

**PO1:** Apply knowledge of mathematics, science, and engineering fundamentals to solve complex engineering problems.

**PO2:** Identify, formulate, and solve engineering problems using modern tools and techniques.

**PO3:** Design and conduct experiments, analyze and interpret data.

**PO4:** Design a system, component, or process to meet desired needs within realistic constraints.

**PO5:** Function effectively as an individual and as a member or leader in diverse teams.

**PO6:** Understand professional and ethical responsibilities.