SEMESTER-III

St. Xavier's College (Autonomous), Ahmedabad

Syllabus of Semester – III of the following departments under Faculty of Computer Science based on Undergraduate Curriculum Framework to be implemented from the Academic Year 2025-26.

DEPARTMENT OF COMPUTER SCIENCE

SEC : Fundamentals of Operating System

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credit Distribution of The Course			Eligibility Criteria	Pre-Requisite(s) of the Course (if any)
	Lecture	Tutorial	Practical / Practice		
Fundamentals of operating system (CSSE331C)	2	0	0	10 + 2 from a recognized board in any stream	Nil

Course Outcomes:

At the end of the course, the student will be able to:

- Acquire the basic understanding of the Operating system.
- Understand the concepts of process and various process Scheduling Algorithms.
- To appreciate the role of Process synchronization towards increasing throughput of system and apply various concept related with Deadlock for handling deadlock.
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UNIT 1 Introduction to Operating System & Memory Management

- Introduction to Operating System
  - What is Operating System?
  - Operating system software
  - Types of Operating System
- Memory Management
  - Memory Management: Early System
    - Single User Contiguous Scheme
    - Fixed Partitions
    - Dynamic Partitions
    - Allocation and deallocation methods
    - Relocatable Dynamic Partitions
- Memory Management: Virtual Memory
  - Paged Memory Allocation
  - Demand Paging
  - Page Replacement Algorithms

        - i. First In First Out
        - ii. Least Recently Used
    - Segmented Memory allocation
    - Segmented/Demand Paged Memory allocation
    - Virtual Memory

UNIT 2 Processor Management & Deadlock

- Processor Management
    - Job Scheduler, Process Scheduler,
    - Job and Process Status
    - Process Control Block
    - Process Scheduling Policies
    - Process Scheduling Algorithms:
        - First Come First Serve
        - Shortest Job Next
        - Priority Scheduling
        - Shortest Remaining Time
        - Round Robin
- Deadlock
    - Seven cases for dead lock
    - Conditions for Deadlock
    - Strategies for handling Deadlocks
      Starvation (Dining Philosophers Problem)

Text Book:

Operating Systems
Publication: Cengage learning
By Flynn/Mc Hoes