OPERATING SYSTEM- I

Paper Code	**CEN-402**
Course Credits	**4**
Lectures / week	**3**
Tutorial / week	**1**
Course Description	**UNIT – I**

INTRODUCTION To OPERATING SYSTEM

Definition, what operating do, Single Processor Systems, Multiprocessor/parallel Systems. Concept of Multiprogramming, Time-sharing System, operating system operation: Dual Mode Operation: Kernel Mode, User Mode. Distributed system, Real Time system, Process Management, memory management, Storage Management.

UNIT- II

Operating System Services, System Call, Types of System calls, System Programs, Operating System Design and Implementation, Operating system structure, User Operating- System Interface.

UNIT- III

PROCESS MANAGEMENT & PROCESS SCHEDULLING

The Process, Process State, Process Control Block, Process Scheduling, Operations on Processes, Inter-process Communication (IPC). Concept of Threading. scheduling levels, Scheduling Criteria, Scheduling Algorithms: First Come, First Served, Shortest Job First, Priority Scheduling, Round Robin Scheduling, Multilevel Queue Scheduling, Multilevel Feed-back Queue Scheduling, Multiprocessor Scheduling

UNIT- IV

PROCESS COMMUNICATION AND SYNCHRONIZATION

Background**,** The Critical- Section Problem, Synchronization Hardware, Semaphores, Classical Problems of Synchronization:

Bounded- Buffer Problem, The Reader- Writers Problem, Dining- Philosophers Problem, Monitors: Usage, Dining- Philosophers Solution using Monitors.

UNIT – V

MEMORY-MANAGEMENT STRATEGIES

Background**,** The Critical- Section Problem, Synchronization Hardware, Semaphores, Classical Problems of Synchronization: Bounded- Buffer Problem, The Reader- Writers Problem, Dining- Philosophers Problem, Monitors: Usage, Dining- Philosophers Solution using Monitors.

References / Text Books:

- Peterson: Silberschatz, Galvin "Operating System Concepts", Addison Wiley 2006, 7th Addition.
- Milenkovic, Milan: Operating system concepts and Design, McGraw Hill, 1994.
- Andrew S. Tannenbaum, "Modern Operating Systems", PHI, 3rd Edition, 2011,
- E. Madnick, J. Donovan, "Operating Systems", Tata McGraw Hill,
- "Operating Systems: Internals and Design Principles" by William Stallings
- "Operating Systems: A Concept-Based Approach" by D. M. Dhamdhere
- Operating Systems: A Modern Perspective" by Gary J. Nutt

Computer Usage / Software Requires:

Gcc, Dev c++