Th.1-OPERATING SYSTEM
COMMON TO (CSE/IT)

Theory	4 Periods per week	Internal Assessment	20 Marks
Total Periods	60 Periods	End Sem Exam	80 Marks
Examination	3hours	Total Marks	100Marks

A.   Topic wise distribution of periods

Sl. No.	Topics	Periods
1	INTRODUCTION	03
2	PROCESS MANAGEMENT	10
3	MEMORY MANAGEMENT	10
4	DEVICE MANAGEMENT	10
5	DEAD LOCKS	10
6	FILE MANAGEMENT	10
7	SYSTEM PROGRAMMING	07
	TOTAL	**60**

B. Rationale:
The course provides the students with an understanding of Human computer interface existing in computer system and the basic concepts of Operating System and its working. The students will gather knowledge about efficient utilization of the resources to obtain optimization processing.

C. Objective:
After completion of this course the student will be able to**:**

- Understand the concept and function of operating system.

- Understand notion of a process and all computation.

- To introduce the critical – section problem whose solutions can be used to ensure the consistency of the shared data.

- Understand the concept of deadlock, its avoidance prevention and recovery.

- To provide a detailed description of various memory management techniques.

- To describe the benefits of a virtual memory system.

- To explain the function of file system.

- To describe the details of implementing local file systems and directory structures.

- Understand the brief idea of Systems Programming.

D. DETAIL CONTENTS:

1.   INTRODUCTION
1.1   Objectives and Explain functions of operating system.
1.2   Evolution   of Operating system
1.3   Structure of operating system.

2.   PROCESS MANAGEMENT
2.1   Process concept, process control, interacting processes, inter process messages.
2.2   Implementation issues of Processes.
2.3   Process scheduling, job scheduling.
2.4   Process synchronization, semaphore.
2.5   Principle of concurrency, types of scheduling.

3.   MEMORY MANAGEMENT
3.1   Memory allocation Techniques
- Contiguous memory allocation
- non contiguous memory allocation

3.2   Swapping
3.3   Paging
Segmentation, virtual memory using paging,

3.4 Demand paging, page fault handling.

4.   DEVICE MANAGEMENT
4.1   Techniques for Device Management
- Dedicated,
- shared and
- virtual.

4.2   Device allocation considerations I/O traffic control & I/O Schedule, I/O Device handlers.
4.3   SPOOLING.
5.   DEAD LOCKS
5.1   Concept of deadlock.
5.2   System Model
5.3   Dead Lock Detection
5.4   Resources allocation Graph
5.5   Methods of Deadlock handling
5.6   Recovery &Prevention, Explain Bankers Algorithm & Safety Algorithm
6.   FILE MANAGEMENT
6.1   File organization, Directory & file structure, sharing of files
6.2   File access methods, file systems, reliability
6.3   Allocation of disk space
6.4   File protection, secondary storage management.

7.0 SYSTEM PROGRAMMING   7.1
Concept of system programming and show difference from Application Complier:
7.2 Compiler , functions of compiler.
7.3 Compare compiler and interpreter.
7.4 Seven phases of compiler, brief description of each phase.

Coverage of Syllabus upto Internal Exams (I.A.)
Chapter 1,2,3,4
Books recommended:-

SI.No	Name of Authors	Title of the Book	Name of the publisher
1	Donovan	Operating System	TMH
2	Silverschz& Galvin,	Operating System	PHI
3	Er.Rajiv Chopra	Operating System	S.CHAND