



III Year-I Semester		T	P	C
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OPERATING SYSTEMS (RT31055)				

Prerequisite Course:

Computer Organization

Course Description and Objectives:

To gain knowledge about the Operating Systems concepts such as process, main memory management, secondary memory management, CPU and disk scheduling etc.

Course Outcomes:

Upon completion of the course, the student will be able to achieve the following outcomes.

COs	Course Outcomes	POs
1	Describe the general architecture of computers.	4
2	Examine the process management using scheduling algorithm, IPC multithreading	4
3	Analyze the process synchronization methods	5
4	Evaluate memory management strategies such as paging and segmentation, virtual memory, swapping and page replacement algorithms	8
5	Deadlock handling approaches employed in operating systems.	4
6	Analyze the implementation strategies of file systems regarding directory, allocation, free-space management and file recovery	1

Syllabus:

UNIT-I:

Computer System and Operating System Overview: Overview of computer operating systems, operating systems functions, protection and security, distributed systems, special purpose systems, operating systems structures and systems calls, operating systems generation.

UNIT-II:

Process Management – Process concept- process scheduling, operations, Inter process communication. Multi Thread programming models. Process scheduling criteria and algorithms, and their evaluation.

UNIT-III:

Concurrency: Process synchronization, the critical- section problem, Peterson’s Solution, synchronization Hardware, semaphores, classic problems of synchronization, monitors, Synchronization examples

UNIT-IV:

Memory Management: Swapping, contiguous memory allocation, paging, structure of the page table, segmentation Virtual Memory Management: virtual memory, demand paging, page- Replacement, algorithms, Allocation of Frames, Thrashing

UNIT-V:

Principles of deadlock – system model, deadlock characterization, deadlock prevention, detection and avoidance, recovery form deadlock,

UNIT-VI:

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R-13 Syllabus for IT JNTUK

File system Interface- the concept of a file, Access Methods, Directory structure, File system mounting, file sharing, protection. File System implementation- File system structure, allocation methods, free-space management

Mass-storage structure overview of Mass-storage structure, Disk structure, disk attachment, disk scheduling

TEXT BOOKS:

1. Operating System Concepts- Abraham Silberchatz, Peter B. Galvin, Greg Gagne 7th Edition, John Wiley.

2. Operating Systems' – Internal and Design Principles Stallings, Sixth Edition–2005, Pearson education

REFERENCE BOOKS:

1. http://nptel.iitm.ac.in/courses/Webcourse-contents/IISc-BANG/Operating%20Systems/New_index1.html

2. Operating systems- A Concept based Approach- D.M.Dhamdhere, 2nd Edition, TMH

3. Operating System A Design Approach-Crowley, TMH.

4. Modern Operating Systems, Andrew S Tanenbaum 3rd edition PHI.