



INSTITUTE OF AERONAUTICAL ENGINEERING

Dundigal, Hyderabad -500 043

INFORMATION TECHNOLOGY

COURSE DESCRIPTION

Course Title	OPERATING SYSTEMS LAB			
Course Code	A50510			
Regulation	R13 - JNTUH			
Course Structure	Lectures	Tutorials	Practical	Credits
	-	-	3	2
Course Coordinator	Ms. L Teja, Assistant Professor			
Branch	Information Technology			

I. COURSE OVERVIEW

This lab provides the understanding of the concept of Operating Systems. It gives the demonstration about various Process Scheduling algorithms, File management Techniques, the techniques to handle Deadlock situations in the Operating Systems. Students practice on various methods in Linux Operating System.

II. PREREQUISITE(S)

Level	Credits	Periods/ Week	Prerequisites
UG	2	3	Computer Programming

III. MARKS DISTRIBUTION

Sessional Marks	University End Exam marks	Total marks
There shall be a continuous evaluation during the semester for 25 marks. Day-to-day work in the laboratory shall be evaluated for 15 marks and internal practical examination conducted by the concerned teacher shall be evaluated for 10 marks.	50	75

IV. EVALUATION SCHEME

S. No	Component	Duration	Marks
1.	Day – to – day Evaluation	-	15
2.	Internal Practical Examination	2.5 hours	10
3.	End Semester Examination	2.5 hours	50

V. COURSE OBJECTIVES

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

1. Identify main components of Operating System and their working
2. Interpret the operations performed by Operating System as a resource manager
3. Illustrate the scheduling policies of Operating System
4. Determine different memory management techniques
5. Determine process concurrency & synchronization
6. Interpret the concepts of input/output, storage & file management
7. Survey different Operating Systems & compare their features

VI. COURSE OUTCOMES

After completing this course the student must demonstrate the knowledge and ability to:

1. **Apply** different techniques for the improvement of system performance.
2. **Identify** the synchronous and asynchronous communication mechanisms in their respective Operating System.
3. **Compare** performance of process scheduling algorithms.
4. **Identify** the techniques for minimization of turnaround time, waiting time & response time and also maximization of throughput with keeping CPU as busy as possible.
5. **Build** algorithmic solutions to process synchronization problems.
6. **Utilize** modern operating system calls such as Linux process and synchronization libraries.
7. **Explain** the value and dangers of in-memory caching of file system disk blocks and to describe the algorithms for checking block and file consistency
8. **Explain** how memory is allocated among multiple resources.
9. **Understand** and **Analyze** theory and implementation of: processes, resource control (concurrency etc.), physical and virtual memory, scheduling, I/O and files AND deadlocks.
10. **Explain** the principles of OS security, basic types of attacks, and common countermeasures
11. **Compare** different Operating Systems.

VII. HOW PROGRAM OUTCOMES ARE ASSESSED

Division of Experiments	Week	List of Experiments
Operating System Lab	Week - 1	Simulate the following CPU scheduling algorithms 1. Round Robin 2. SJF 3. Priority 4. Round Robin
	Week - 2	Simulate all file allocation strategies

		1.Sequential 2.Indexed 3.Linked
	Week - 3	Simulate MVT and MFT
	Week - 4	Simulate all File Organization Techniques 1.Single Level 2.Two Level 3.Hierarchical 4.DAG
	Week - 5	Simulate Bankers Algorithm for Dead Lock Avoidance
	Week - 6	Simulate Bankers Algorithm for Dead Lock Prevention
	Week - 7	Simulate all page replacement algorithms 1.FIFO 2.LRU 3.LFU
	Week - 8	Simulate Paging technique of memory management.

N - None S - Supportive H - Highly Related

Prepared by: Ms. L Teja, Assistant Professor

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