NIRMA UNIVERSITY
Institute of Technology
B. Tech. Computer Science and Engineering
Open Elective (open to all branches except Dept. of CSE)

L	T	P	C
2	0	2	3

Course Code	2CSOE53
Course Title	Operating Systems

Course Outcomes:
At the end of the course, students will be able to -
1. describe the various components of Operating Systems
2. analyze the different services provided by UNIX Operating System
3. design and implement concurrent processes requiring synchronization.

Syllabus:

Teaching Hours:

Unit I

02

Introduction to Operating System: Operating system objectives and functions, evolution of operating systems

Unit II

09

Process Description and Control: Process states, process description, process control, process management, Uni-processor scheduling, multiprocessor and real-time scheduling

Unit III

08

Threads and Concurrency: Processes And Threads, Symmetric Multiprocessing, Micro kernels, Mutual exclusion and synchronization, deadlock and starvation

Unit IV

08

Memory Management and Virtual Memory: Memory management requirements, partitioning, paging, segmentation, virtual memory

Unit V

03

I/O Management and Files: I/O devices, organization of I/O functions, OS design issues, I/O buffering, disk scheduling, disk cache , file management, security aspects in OS

Self-Study:
The self-study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents.

Laboratory Work:

Laboratory work will be based on applications of the above syllabus with minimum 10 experiments to be incorporated.

Suggested Readings^:

1. William Stallings, Operating Systems, PHI.
2. Silberschiltz, Galvin and Greg Gange, Operating System, Wiley India.
3. Sumitabha Das, Unix Concepts and Applications, TMH Publications.
4. Yashvant Kanetkar, Shell Programming, BPB.
5. A.S.Tanenbaum, Modern Operating Systems, TMH Publications.
6. Kernighan, the UNIX Programming Environment, Pearson
7. Maurice Bach, The Unix Operating System, Prentice Hall

L=Lecture, T=Tutorial, P=Practical, C=Credit

^this is not an exhaustive list

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