

Semester 1

Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Internal	Final Exam	Total
MCA-101	Operating Systems	PCC	4	4	0	0	40	60	100

Course Outcomes

At the end of the course the student will be able to	
CO1	Demonstrate understanding of the concepts, structure, and design of operating systems.
CO2	Articulate the general architecture of modern computer operating systems including its impact on application design and performance.
CO3	Develop understanding of inter process communication and synchronization mechanisms
CO4	Analyze the interplay and conflicts in resource usage in a multi-user, multi-tasking environment with an understanding of the trade-offs involved.
CO5	Implement the basic concepts of Unix & Linux and programs using shell programming.

Detailed Syllabus

Section-A

UNIT-I :Introduction to Operating Systems: Evolution of operating systems, Operating systems concepts, Types of operating systems, Different views of the operating system, Operating system services, System calls, Types of system calls, Operating system Structure, Layered Approach, Micro kernels, Virtual machines.

(10 Hrs)

UNIT-2: Process Management: Process concept, Operation on processes, Inter-process communication, Mutual exclusion, Introduction to Process scheduling, Scheduling algorithms, Process Synchronization, Inter process Synchronization, Critical section problem, Semaphores, Monitors, Message passing, Deadlocks, System Model, Deadlock characterization, Deadlock prevention, Deadlock avoidance.

(10 Hrs)

UNIT-3: Memory Management: Memory management, Swapping, Contiguous memory allocation, Relocation & protection, Memory management, Paging, Segmentation, Intel Pentium Segmentation, Intel Pentium Paging, Virtual memory, Demand paging, Performance of demand paging, Page replacement algorithms: FIFO, Optimal, LRU, Counting based page replacement.

(10 Hrs)

Section-B

UNIT-4: File & I/O Management: File & I/O Management Files system structure, File system implementation, Directory Implementation. Allocation Methods, contiguous allocation, linked allocation, Indexed allocation Disk organization, Disk space management, Disk scheduling, Disk Management, RAID Structure.

(10 Hrs)

UNIT -5: Introduction to LINUX/UNIX: Files and Directories: pathname; Directory Tree; current working directory; Relative pathname; Referring to home directories; Device files; File permissions; Pipes; Trees; mount, init, Files, Directories, Processes, Commands: pwd, mkdir, rmdir, ls, cat, more, mv, cp, rm, diff, wc, pwd, wc, who write, who am i, passwd, ps, kill, date, cal,man, gzip, df, chmod, mkdir, cd. Filters: pr, head, tail, cut, paste, sort, uniq, nl, tr. Regular Expression: grep; egrep; fgrep, Vi-Editor, adding and replacing text, commands in Command mode, Deletion,Navigation, pattern search, repeating commands, Shell Programming, Logical Operators, If else Statement, Case structure, Looping.

(10 Hrs)