CS 2210- OPERATING SYSTEM

Module Code	ModuleName	L	S/T	AS	IS	P	Credits
CS 2210	Operating System	60	-	15	15		9

CREDIT RATING : 9

COURSE CONTENT:

Unit I operating System Introduction:

What Operating Systems Do - Computer System Organization - Computer System Architecture - Operating System Structure - Operating System Operations - Process Management - Memory Management - Protection and Security – Distributed Systems - Special Purpose System - Computing Environment - Operating System Services - User Operating System Interface - System Calls - Types of System Calls - System Program Operating System Deign and Implementations - Operating System Structure - Virtual Machine-Operating System Generations-SystemBoot

Unit II Process Management:

Processes - Process Concept, Process Scheduling, Operations on Processes, Interprocess Communication - Multithreaded Programming, Multithreading Models - Thread Libraries - Threading Issues - Process Scheduling - Basic Concepts - Scheduling Criteria – Scheduling Algorithms – Multiple - Processor Scheduling - Thread Scheduling

Unit III Synchronization and Memory Management:

The Critical - Section Problem – Peterson's Solution - Synchronization Hardware – Semaphores – Classic Problems of Synchronization – Monitors - Atomic Transactions. Deadlock: System Model – Deadlock Characterization – Methods for Handling Deadlocks – Deadlock Prevention – Deadlock Avoidance – Deadlock Detection – Recovery From Deadlock - Memory Management Strategies-Swapping - Contiguous Memory Allocation- Paging - Structure of The Page Table – Segmentation

Unit IV Virtual Memory Management and File Management:

Demand Paging, Copyon – Write - Page Replacement - Allocation of Frames – Thrashing - Memory Mapped Files - Allocating Kernel Memory - Other Considerations – Storage Management- File Concepts – Access Methods - Directory Structure File System Mounting - File Sharing – Protection - Implementing File System - File System Structure- File System

Implementation - Directory Implementation - Allocation Methods - Free Space Management – Efficiency And Performance -Recovery.

Unit V Secondary Storage Management and I/ O System:

Structure - Overview of Mass Storage Structure - Disk Structure - Disk Attachments - Disk Scheduling - Disk Management – Swap - Space Management - RAID Structure – Table - Storage Implementation - Tertiary Storage – Structure - I/O Systems - I/O Hardware - Application I/O Interface - Kernel I/O Subsystem - Transforming I/O Requests to Hardware Operations.