15B11CI412 Operating System and Systems Programming
Lecture Plan

Week	From	To	Topic to be covered	No of Lectures
Week 1	28-Jul-23	05-Aug-23	Introduction, OS Components, OS structure and Architecture	1
Week 2	07-Aug	12-Aug	Process Concept, Process Scheduling, Operations on Processes, Inter Process, Communication, Communication in Client-Server Systems	4
Week 3	14-Aug	19-Aug	Scheduling Criteria, Scheduling Algorithms, First Come, First Served (FCFS), Shortest Job First (SJF), Priority, Round Robin (RR)	4
Week 4	21-Aug	26-Aug	Multi-level Queue Scheduling, Multi-level Feedback Queue Scheduling, Multiple-Processor Scheduling, Thread Scheduling, Algorithm Evaluation	2
Week 5	28-Aug	02-Sep	Threads: Processes vs. Threads, User vs. Kernel Threads, Multithreading Models, Threading Issues, Pthreads, Linux Threads, Windows XP Threads	3
Syllabus for T1 till week 5				
Week 6	04-Sep	Monday	Inter Process Communication: Background, The Critical-Section, Problem, Peterson's Solution Synchronization Hardware, Semaphores Classic Problems of Synchronization, Monitors Synchronization Examples, Atomic Transactions	4
Week 7	05-Sep	12-Sep	T1 Exam Scheduled (Marks 20)	
Week 8	13-Sep	16-Sep	Deadlocks: Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock	3
Week 9	18-Sep	23-Sep	Memory management: Background, Swapping, Contiguous memory allocation, Paging, Structure of Page Table, Types of Paging.	3
Week 10	25-Sep	30-Sep	Segmentation, Segmentation with Paging, Virtual Memory Concept.	3
Syllabus for T2 till week 10				
Week 11	02-Oct	07-Oct	Virtual Memory, Demanded Paging, Page replacement algorithms, Thrashing	3
Week 12	09-Oct	14-Oct	File concept, Access models, Directory structure, Protection, File system Structure, Allocation methods, Free space management. Overview, I/O hardware, Application I/O interface.	2
Week 13	16-Oct	21-Oct	T2 Exam Scheduled (Marks 20)	
Week 14	23-Oct	28-Oct	Disk structure, Disk scheduling, Disk management., Swap-space management	2
Week 15	30-Oct	04-Nov	Overview of system security, Security methods and devices, Protection, access, and authentication, Models of protection, Memory protection.	2
Week 16	06-Nov	11-Nov	Distributed Operating Sytem and related Concepts, Quiz 1/Assignment (5 Marks)	1
Week 17	13-Nov	18-Nov	System programming: Introduction, Components of a Programming System: Assemblers, Loaders, Macros, Compliers, Formal System	2
Week 18	20-Nov	25-Nov	Distributed O.S, Interrupts and Exceptions, Kernel Synchronization, System Calls and System Signals	2
Week 19	27-Nov	01-Dec	Case Studies: Windows, Linux, IBM, Tizen OS, Project Evaluation (Marks 10)	1
Week 20	04-Dec	12-Dec	End Term Examination Scheduled (Marks 35)	
			Total=	**42**