JHARKHAND Rai University
UGC RECOGNISED UNIVERSITY
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Lesson Plan & Tracking

Programe : MCA	**Session : 2022-2024**	**Year : Ist**	**Sem: Ist**
Course: Operating System			
Name of the Faculty: Kumar Amrendra	**Commencement Date: 29.08.2022**		**Date of Closure: 30.12.2022**

Lecture No.	Week	Unit	Topics to be Covered	Blended Mode			Date	Duration	Tracking of Lectures	Related Course Outcome	Signature of Faculty	Signature of HoD	Remarks (if any)
				ICT Tool/Platform/ LMS	Resources	Activity							
1	1	I	Introduction: Concept of Operating Systems										
2		I	Generations of Operating systems										
3		I	Generations of Operating systems										
4	2	I	Types of Operating Systems										
5		I	Types of Operating Systems										
6		I	OS Services, System Calls, Structure of an OS-Layered										
7	3	I	OS Services, System Calls, Structure of an OS-Layered										
8		I	Monolithic, Microkernel Operating Systems, Concept of Virtual Machine. Case study on UNIX and WINDOWS Operating System										
9		I	Processes: Definition, Process Relationship, Different states of a Process										
10		I	Process State transitions										

11	4	I	Process Control Block (PCB), Context switching										
12		II	Thread: Definition, Various states, Benefits of threads										
13	5	II	Types of threads, Concept of multithreads										
14		II	Process Scheduling: Foundation and Scheduling objectives, Types of Schedulers										
15		II	Scheduling criteria: CPU utilization, Throughput, Turnaround Time, Waiting Time, Response Time										
16	6	II	Scheduling algorithms: Pre-emptive and Non pre-emptive, FCFS, SJF, RR										
17		II	Scheduling algorithms: Pre-emptive and Non pre-emptive, FCFS, SJF, RR										
18		II	Scheduling algorithms: Pre-emptive and Non pre-emptive, FCFS, SJF, RR										
19	7	II	Multiprocessor scheduling: Real Time scheduling: RM and EDF										
20		II	Inter-process Communication: Critical Section, Race Conditions, Mutual Exclusion										
21		II	Hardware Solution, Strict Alternation, Peterson's Solution, The Producer\ Consumer Problem, Semaphores										
22		II	Event Counters, Monitors, Message Passing, Classical IPC Problems: Reader's & Writer Problem,Dinning Philosopher Problem etc.										

23	8	II	Event Counters, Monitors, Message Passing, Classical IPC Problems: Reader's & Writer Problem, Dinning Philosopher Problem etc.										
24		III	Deadlocks: Definition, Necessary and sufficient conditions for Deadlock, Deadlock Prevention										
25	9	III	Deadlock Avoidance: Banker's algorithm, Deadlock detection and Recovery										
26		III	Memory Management: Basic concept, Logical and Physical address map										
27		III	Memory allocation: Contiguous Memory allocation – Fixed and variable partition–										
28	10	III	Internal and External fragmentation and Compaction; Paging: Principle of operation										
29		III	Page allocation – Hardware support for paging										
30		III	Protection and sharing, Disadvantages of paging										
31	11	III	Virtual Memory: Basics of Virtual Memory – Hardware and control structures – Locality of reference, Page fault										
32		III	Working Set , Dirty page/Dirty bit – Demand paging, Page Replacement algorithms: Optimal, First in First Out (FIFO),										

33		III	Second Chance (SC), Not recently used (NRU) and Least Recently used (LRU).										
34	12	IV	I/O Hardware: I/O devices, Device controllers, Direct memory access Principles of I/OSoftware										
35		IV	Goals of Interrupt handlers, Device drivers, Device independent I/O software,Secondary										
36		IV	Storage Structure: Disk structure, Disk scheduling algorithms										
37	13	IV	File Management: Concept of File, Access methods, File types, File operation, Directory structure,										
38		IV	File System structure, Allocation methods (contiguous, linked, indexed),										
39		IV	Free- space management (bit vector, linked list, grouping)										
40	14	IV	directory implementation (linear list, hash table), efficiency and performance.										
41		IV	Disk Management: Disk structure, Disk scheduling - FCFS, SSTF, SCAN, C-SCAN										
42		IV	Disk reliability, Disk formatting, Boot-block, Bad blocks										
43	15		Revision										
44			Revision										
45			Revision										

46	16		Revision										
47			Revision										