BHAI GURDAS INSTITUTE OF ENGINEERING & TECHNOLOGY

Department of Computer Science and Engineering

LESSON PLAN

Subject Name: - Operating System　　　　　　　　**Subject Code: - BTCS402-18**

Year: - 2nd　　　　　　　　　　　　　　　　　　**Semester: - 4th**

Lecture No.	Module	Date/ Week	Topic	Teaching Aids	Reference
L-1	**Module 1**	6 Days	Operating System and its Types	Projector, Green board, Chalk, Duster, Text book,	Operating System by Charanjeet Singh, www. Google.com, wikipedia
L-2			OS Services/Characteristics		
L-3			OS Structure		
L-4			Case Studies of UNIX and Windows		
L-5			Generations of OS		
L-6			Monolithic, Microkernel OS		
L-7	**Module 2**	11 Days	Definition, Process Relationship		
L-8			Process and Its Stages		
L-9			Process State transitions		
L-10			PCB(Process Control Block), Context Switching		
L-11			Threads, Benefits of Threading, Types of Threads, Multithreads		
L-12			Foundation and Scheduling objectives, Types of Schedulers		
L-13			Scheduling criteria		
L-14			Scheduling Algorithms: Pre-emptive and Non-pre-emptive FCFS, SJF, RR,		
L-15					
L-16					
L-17			Multiprocessor Scheduling		
L-18 to 20	**Module 3**	8 Days	Critical Section, Race Conditions, Mutual Exclusion, Hardware Solution, Strict		

			Alternation, Peterson's Solution		
L-21,22			The Producer\Consumer Problem, Semaphores, Event Counters, Monitors		
L-23 to 25			Message Passing, Classical IPC Problems Reader's & Writer Problem, Dinning Philosopher Problem etc.		
L-26 to 29	**Module 4**	8 Days	Deadlocks Definition, Necessary and sufficient conditions for Deadlock		
L- 30,31			Deadlock Prevention, Deadlock Avoidance		
L- 32,33			Banker's algorithm, Deadlock detection and Recovery		
L-34	**Module 5**	9 Days	Basic concept, Logical and Physical address map		
L-35			Memory allocation: Contiguous Memory allocation –Fixed and variable partition– Internal and External fragmentation and Compaction		
L-36			Paging: Principle of operation – Page allocation–Hardware support for paging		
L-37			Protection and sharing, Disadvantages of paging.		
L-38			Virtual Memory: Basics of Virtual Memory – Hardware and control structures		
L-39			Locality of reference, Page fault, Working Set, Dirty page/Dirty bit Demand paging		
L- 40 to 42			Page Replacement		

			algorithms: Optimal, First in First Out (FIFO), Second Chance (SC), Not recently used (NRU) and Least Recently used (LRU).		
L-43	**Module 6**		Disk Management: Disk structure, Disk scheduling - FCFS, SSTF, SCAN		
L-44			C-SCAN Disk reliability, Disk formatting, Boot-block, Bad blocks.		
L-45			File Management: Concept of File, Access methods, File types, File operation		
L-46			Directory structure,		
L-47			File System structure, Allocation methods (contiguous, linked, indexed)		
L-48			Free Space Management (bit vector, linked list, grouping)		
L-49			Directory implementation (linear list, hash table) efficiency and performance		
L-50			I/O devices, Device controllers,		
L-51			Direct memory access Principles of I/O Software: Goals of Interrupt handlers		