**Post Graduate Govt. College for Girls, Sector-42, Chandigarh**

**Teaching Plan for Post Graduate (First Semester)**

**Session (2020-2021)**

**Class: M.Sc 1st Sem**   **Name of the Teacher: Dr.Monika Gogna**

**Subject: Operating System Concepts Paper: MS-42**

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| **S. No** | **Dates** | **Topics to be Covered** |
| Week 1 | 03/11/2020 – 07/11/2020 | History, Structure of OS, Functions/ Operations of OS, Types: Single User, Multi-user, Simple Batch Processing, |
| Week 2 | 09/11/2020 – 12/11/2020 | Multiprogramming, Multitasking, Parallel systems, Distributed system, Real time system |
| Week 3 | 16/11/2020 – 21/11/2020 | Process, Process state, Process Control Block; Process scheduling: Scheduling queues, Schedulers, Context switch; Operation on process: Process creation and termination; interrupt mechanism, threads, |
| Week 4 | 23/11/2020 – 28/11/2020 | Scheduling Algorithms: Pre-emptive and non pre-emptive scheduling, FCFS, SJFS, RRS, priority scheduling, Multilevel queue scheduling, Multilevel feedback queue scheduling, |
| Week 5 | 01/12/2020 – 05/12/2020 | Inter process communication: Shared memory systems, Message passing systems.Concurrent Processes, Race condition, Shared data; Critical section problem: Mutual exclusion, Progress, Bounded waiting; |
| Week 6 | 07/12/2020 – 12/12/2020 | Software solution: Busy form of waiting, lock and unlock primitives, Peterson's solution; Synchronization: Semaphores, Monitors, |
| Week 7 | 14/12/2020 – 18/12/2020 | Reader Writer Problem, Producer Consumer Problem, Dinning Philosopher Problem |
| Week 8 | 21/12/2020 – 26/12/2020 | System Model; Deadlock Characterization: Necessary conditions, Resource Allocation graph; Deadlock prevention: Mutual Exclusion, Hold and Wait, No Preemption, Circular wait; |
| Week 9 | 28/12/2020 – 02/01/2021 | Deadlock Avoidance: Safe state, unsafe state, Resource Allocation graph Algorithm, Banker's Algorithm; Deadlock Detection & Recovery from deadlock: Wait-for-graph |
| Week 10 | 04/01/2021 – 09/01/2021 | Hierarchy of memory types, Cache memory: Types: Associative memory, direct mapped, set associative. |
| Week 11 | 11/01/2021 – 16/01/2021 | Address binding, Address Space, Memory Protection, Contiguous and Non- Contiguous allocation, |
| Week 12 | 18/01/2021 – 23/01/2021 | Swapping, Fragmentation; Paging: Protection, Shared pages, Techniques for structuring of page table; |
| Week 13 | 25/01/2021 – 30/01/2021 | Segmentation: Segmentation with paging; Virtual Memory: Demand paging; Page replacement Algorithms: FIFO, Optimal, LRU, LFU, MFU, Working set, Thrashing; |
| Week 14 | 01/02/2021 – 06/02/2021 | File(s): Attributes, Operations, Types, Structure; Access Methods: Sequential, Direct access, Index; |
| Week 15 | 08/02/2021 – 13/02/2021 | Directory Structure: Single level, Two level, Tree Structured, Acyclic Graph; File System mounting; File sharing; Protection: |
| Week 16 | 15/02/2021 – 20/02/2021 | Types of access, access control. 8.File system structure, File system implementation, Directory implementation, Allocation methods |
| Week 17 | 22/02/2021 – 27/02/2021 | Contiguous Allocation, Linked Allocation, Indexed Allocation; Disk scheduling: FCFS, SSTF, SCAN, C-SCAN, LOOK; Disk management; Swap space management; RAID. |