

**H. N. G. University , Patan**  
**M.C.A(5 Years Integrated Programme) – Semester - IV**  
**404: Operating System & UNIX**

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**Unit: 1**

**[25%]**

**Operating System Overview:**

Introduction to Operating System, Types of Operating system, Operating System Services

**Process Management:**

Process, Process Control Block (PCB), Process States, Scheduling – Types of Schedulers, Scheduling & Performance Criteria, Scheduling Algorithms – FCFS, SJF, Priority & Round Robin (RR) Scheduling. Interprocess Synchronization: Mutual exclusion, Semaphore, Classical Problems in Synchronization, Intraprocess Synchronization: Critical Region, Deadlocks.

**Unit: 2**

**[25%]**

**Memory Management :**

Static Memory Allocation, Dynamic Memory Allocation, Segmentation, Virtual memory – Paging, Demand Paging , Page Replacement, Fragmentation & Defragmentation, Cache memory.

**Unit: 3**

**[25%]**

**I/O Management:**

Program Controlled I/O, Interrupt Driven I/O, USART, PIT File Management: File concept, Access method, Directory structure, Disk Space Management - Continuous allocation, Non continuous allocation, File related system services

**Unit: 4**

**[25%]**

**Distributed Systems:**

Protocol Architecture, TCP/IP Architecture, Client/Server Computing, Message Passing, Remote Procedure Calls.

**UNIX Overview:**

Features of Unix, Types of shell, Unix file system, Editors of Unix: (VI)

**Text Books:**

1. Silberschatz & Galvin: Operating System Concept, Wiley, Sixth Edition
2. Milan Milenkovi'c : Operating Systems, Tata McGraw – Hill, Second Edition.
3. William Stallings : Operating Systems, PHI, Fourth Edition
4. Yashavant Kanetkar : Unix Shell Programming, BPB.