Faculty of: **Computer Science**
Course: **Master of Computer Applications**
Semester**: III**
Subject Code**: 5CS03COP1 (Elective – II)**
Subject Name: **Operating Systems**

Sr. No	Subject Code	Subject Name	Teaching hours/ Week			Credit hours	Credit Points	Evaluation Scheme/ Semester								Total
								Theory				Practical				
								Internal Assessment		End Semester Exams		Internal Assessment		End Semester Exams		
			Th	Tu	Pr			Marks	Duration	Marks	Duration	Marks	Duration	Marks	Duration	
3	5CS03COP1	Operating Systems	2	--	2	4	3	10	½	70	2½	20	1	--	--	100

Objectives:
- The purpose of this subject is that student can use/learn different Operating System such as windows/Unix/Linux etc.The students would be able to handle operating system features and familiar with the environment of OS.

Prerequisite:
- Basic knowledge of computer fundamentals and computer operating is required.

Course Outline:

Sr. No.	Course Content	Hrs.
1	**Introduction** Introduction to OS, Evolution of OS, OS Services, Types of OS, Different Views of OS. Operating System structure, System Programs, System calls.	4
2	**Process Management** Process Concept, Process scheduling, Inter Process Communication. Thread in OS, Multithreading models, threading issues. CPU Scheduling, Scheduling algorithms, Critical section problem, Semaphores, Deadlock, Deadlock prevention, deadlock avoidance, deadlock detection. Recovery from deadlock.	7
3	**Memory Management** Main memory, swapping, paging, contiguous memory allocation Structure of page table, Segmentation, Virtual memory, Demand paging. Page replacement algorithm (FIFO, LRU, Optimal page replacement), Thrashing.	7

4	**Shell Script** Introduction to vi editor, Various vi modes, text editing in vi. Different Shell features. Shell variables. Writing and running shell scripts. Branching and looping in shell script. grep command Unix/Linux	6
	TOTAL	24

REFERENCE BOOKS:

- Operating System ConceptsBy **Abraham Silberschatz, Peter Baer Galvin, Greg Gagne**, John Wiley &Sons, 8th edition, 2010.
- Modern Operating Systems By**Andrew S. Tanenbaum**, Pearson Education, 4th edition, 2014.
- Operating System – Internals & Design Principles -By **William Stallings,** Pearson Prentice hall, 5th Edition, 2009.
- Operating Systems **By D.M.Dhamdhare**, Tata McGraw Hill, 1st edition, 2009.
- Unix System Concepts & Applications By **Sumitabha Das**, Tata McGraw Hill, 4th edition, 2008.
- Unix Shell Programming By **YashwantKanitkar,** BPB Publications, 2002.

NPTEL COURSE (https://nptel.ac.in/):
- Operating system fundamentals, IIT Kharagpur, Prof. Shantnu Chattopadhyay
- https://nptel.ac.in/courses/106105214