FACULTY OF: Computer Science
DEPARTMENT OF: Bachelor of Science (Information Technology)
SEMESTER : V
CODE:4CS05IOS1
NAME: Operating System

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Teaching and Evaluation Scheme W. E. F. : June – 2018

Sr. No	Subject Code	Subject Name	Teaching Hours/Week				Credits	Evaluation Scheme/Semester							Total Marks
								Theory				Practical			
			Th	Tu	Pr	Total		Sessional Exam		University Exam		Internal		Uni.	
								Marks	Hrs	Marks	Hrs	Pr	TW	Pr	
3	4CS05IOS1	Operating System	4	-	-	4	4	30	1.5	70	3	-	-	-	**100**

Teaching and Evaluation Scheme:-

Objectives:-

- Help students become familiar with the fundamental concepts of operating system.
- Help students become competent in recognizing operating systems features and issues.
    - Provide students with sufficient understanding of operating system design and how it impacts application systems design and performance.

Prerequisite:-

- Basics of Computer System Architecture.

Course Outline:-

Sr. No.	Chapter Name	Course Content	Hours
1	Introduction	Definitions, functions and types of operating system, Operating system, Services, System Calls, System programs, System structure.	06
2	Processes	Process Concepts, process state & process control block, Process Scheduling, Types of Scheduling, Scheduling Criteria, Scheduling Algorithms, Multiple-Processor Scheduling, Real-Time Scheduling, Threads, Critical Section Problem, and Semaphores.	12
3	Deadlock	Deadlock Characterizations, Method for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock.	06

4	Memory Management	Logical versus physical address space, Swapping, Contiguous Allocating, Paging, Segmentation, Virtual Memory, Demand Paging, Performance of Demand Paging, Page Replacement, Page Replacement Algorithms.	12
5	File System	File Attributes, File operations, File types, File & Directory Structure, File System Implementation, and Protection.	05
6	Starting With Unix and File System	Unix Architecture, Unix Features, Types Of Shell (C, Bourn, Korn), Unix File System Overview, Types Of Files: 1) Ordinary Files 2) Directory Files 3) Device Files Unix File & Directory Permissions Related Commands: ls, cat, cd, pwd, mv, cp, ln, rm, rmdir, mkdir, chgrp, find, more, less, head, tail, wc, touch Login Commands: passwd, logout, who, who am i, clear	08
7	Text Editing With vi Editor	Introduction of vi editor, Switching mode in vi,Cursor movement, Entering text, cut, copy, paste in vi editor	06
			55

Learning Outcomes:

- He/She should be able to understand the concepts of Operating System.

- He/She should be aware of operating system failure of know error.

- He/She should be able to solve problems of application errors due to Operation of function and define base architecture in terms of OS fundamentals.

Teaching & Learning Methodology:

- The module will be delivered via lectures (by teaching aids i.e. Projectors PPT and PDF's) and assignments. Students are also expected to undertake self-study during this course.

Books Recommended:

1. Operating System Principles, **A. Silberschats, Peter Galvin, Greg Gagne,** WILEY-India 7th Edition.
2. Operating Systems, **William Stallings,** Pearson 6th Edition.
3. Operating Systems, **Achyut Godbole,** Tata McGraw- Hill.
4. Unix Systems Programming : Communication, Concurrency and Threads, **Kay Robbins,** 2-Edition, Pearson Education
5. Unix concepts and applications, **Sumitabha Das**, TMH Publications.
6. Unix programming, **Stevens,** Pearson Education.