

Subject Code: 1ET4000301	Subject Title: Operating Systems
Pre-Requisite	--

RATIONALE:

An operating system is the core software of any computer system. This is the basic software or platform on which other software work. Every student of computer science and IT must therefore understand basic structure of an operating system. After learning this subject student will be able to discriminate between various types of operating systems, its processor, processes, and memory and file management. The subject also emphasis on Linux utilities and scripting.

COURSE OBJECTIVE:

The course content should be taught and implemented with the aim to develop different types of skills so that students are able to acquire following competency:

- **To install & configure various Operating Systems.**
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TEACHING AND EVALUATION SCHEME:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)			
Lecture	Tutorial	Practical	Credit	Theory		Practical	
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment
3	-	2	4	60	40	20	30

DETAILS OF COURSE CONTENTS:

S. NO.	Topic and Sub-Topics	Total Hrs.	WEIGHTAGE %
Unit – I Operating System Concepts	Need of operating system, Evolution of operating system, Operating System Services Types of Operating systems: i. Batch ii. Multi programming iii. Time Sharing iv. Real Time v. Multitasking vi. Multithreading Case study Linux Windows 7	08	20

Unit – II Processor & Process Management	Process and Process management: 1.Process model overview 2. Programmers view of process 3. Process states Process and Processor Scheduling: 1.Scheduling Criteria 2. Scheduling Algorithms (FCFS,SRTN,SJF,RR) Schedulers: Interprocess communication, Monitors, Race condition, Mutual Exclusion, Synchronization	10	25
Unit – III Memory Management	Describe memory management Contiguous allocation i Partitioned memory allocation ii Fixed & variable partitioning iii Swapping iv Relocation v Protection and Sharing Non contiguous allocation: Page Allocation, Segmentation, Virtual Memory	10	20
Unit – IV File Management	File management i. User view of file system ii. Attributes and operations iii. File system design, Disk Space Directory Structure Disk Organization i. Physical Structure ii. Logical Structure iii. Addressing Security and Protection Mechanism	06	15
Unit – V Linux Basics	Overview of Linux: Installation and upgrade Introduction to shell and commands: Commands: pwd, cd, mkdir, rmdir, ls, cat, cp, rm, mv, wc, split, cmp, comm, diff, head, tail, grep, sort, apt-get install, apt-get remove Editing files with “vi”, “vim”, “gedit”, “gcc” Linux Shell Basic shell scripts	08	20

COURSE OUTCOME:

At the end of the course the students are able to:

1. Understands the working of various operating systems
2. Understands the importance of operating system
3. Able to install various operating systems and other application programs
4. Able to make programs in open source software.

SUGGESTED LIST OF EXERCISES/PRACTICAL/EXPERIMENTS:

S. No.	Unit No.	Practical/Exercise	Apprx. Hrs. Required
1	I	Install & test different types of Operating System & compare its features.	2
2	II	Compare various process scheduling algorithm	2
3	V	Test and run basic unix commands.	2
4		Test and run Advanced unix commands.	2
5		Test commands related with File editing with Vi, Vim, gedit, gcc.	2
6		Create a shell script to print ”Hello”.	2
7		Create a Shell script to read and display content of a file.	2
8		Create a Shell script to read from command line.	2
9		Create a Shell script to append content of one file to another	2
10		Create a Shell script to accept a string in lower case letters from a user, & convert to upper case letters.	2
11		Create a Shell script to find numbers of characters, words & lines of a given input file.	2
12		Create a Script to reverse a string and display it.	2
13		Create a Shell script to add two numbers.	2
14		Create a shell script to reverse the digits of a given 5-digit number. (for eg. , if the no. is 57429 then answer is 92475).	2
	Total		28

LIST OF REFERENCES:

S. No.	Title of Books	Author	Publication
1	Operating systems	Dhamdhere	MGH
2	Unix Concepts And Application	Sumitabha Das	MGH
3	Modern Operating System 3 rd Edition, 2008	Andrew Tanenbaum	PHI
4	Operating System Concepts, 3 rd Edition	James Peterson Wesley Abraham Silberschatz	JOHN WILEY & SONS. INC
5	Operating Systems, 2010 Edition	Sibsankar Halder	Pearson Education
6	Operating System, 2005 Edition	Milan Milenkovic	MGH
7	Operating Systems concept based approach (3 rd Edition)	Dhananjay M.	MGH
8			
9	Linux –Application and administration, 2009 Edition	Ashok Kumar Harnal	TMH