

Branch Name:	Computer Engineering / Information Technology
Program Code:	ET404 / ET407
Course Title:	Operating system
Course Code:	2ET4040301
Pre-requisite Course:	Basic Programming knowledge

Course Objectives:

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:

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	0	2	5	60	40	20	30	150

Course Contents:

Unit No	Topic	Total Hours	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 Noncontiguous 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: 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

Text Books:

Operating System By Atul Prakashan

Reference Books:

S. No.	Title of Books	Author	Publication
1	Operating systems	Dhamdhare	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 Haldar	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

List of Open-Source Software/learning website:

- a) <https://boonsuen.com/process-scheduling-solver>
- b) <http://cpuburst.com/ganttcharts.html>
- c) <https://codepen.io/faso/pen/zqWGQW>
- d) <https://www.tutorialspoint.com>

Course Learning Outcomes (CLO):

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 program able to make programs in open-source software

SUGGESTED LIST OF EXERCISES/PRACTICAL/EXPERIMENTS:

S. No.	Unit No.	Practical/Exercise	Approx. 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 e.g., if the no. is 57429 then answer is 92475).	2
	Total		28

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	H	H	L											H		
CLO2	H	M	H											M		
CLO3	H	M	H											M		
CLO4																
CLO5																
CLO6																

H: High, M: Medium, L: Low