

Maharashtra State Board of Technical Education, Mumbai

TEACHING PLAN (TP)

Academic Year: 2026-27 (ODD)

Institute Code and Name: 0078- K K Wagh Polytechnic, Nashik

Programme and Code: Information Technology (IF)

Course and Code: Operating System (OSY)

Scheme: K Allocated Hrs. 75

Name of Faculty: Mr. T. G. Uphade

Semester: Fifth

Course Index: 501

Course Code: 315319

Class: TYIF (Cray)

COURSE LEVEL LEARNING OUTCOMES (COS)

- CO1 - Explain the services and components of an Operating System.
- CO2 - Describe the different aspects of Process Management in an Operating System.
- CO3 - Implement various CPU Scheduling algorithms and evaluate their effectiveness.
- CO4 - Analyze the Memory Management techniques used by an Operating System.
- CO5 - Apply techniques for effective File Management in an Operating System.

TEACHING-LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Abbr	Course Category	Learning Scheme						Credits	Paper Duration	Assessment Scheme										Total Marks
				Actual Contact Hrs/Week			SLH	NLH	Theory				Based on LL & TSL Practical				Based on SL					
				CL	TL	LL			FA - TH			SA - TH	Total		FA-PR		SA-PR		SLA			
													Max	Min	Max	Min	Max	Min	Max	Min	Max	
315319	OPERATING SYSTEM	OSY	DSC	5	-	2	2	9	3	3	30	70	100	40	25	10	25@	10	25	10	175	

Total IKS Hrs for Sem.: 0 Hrs

Abbreviations: CL- Classroom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @\$ Internal Online Examination

SUGGESTED COS - POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes (PSOs)	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO- 1	PSO- 2
CO1	2	-	-	2	-	-	1	2	1
CO2	1	-	-	2	1	-	-	2	1
CO3	1	1	1	2	1	-	-	2	1
CO4	2	2	2	2	1	-	2	2	1
CO5	2	2	2	2	1	-	2	2	2

Legends :- High:03, Medium:02,Low:01, No Mapping: -

*PSOs are formulated at institute level

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Unit No. (Allocated Hrs.)	CO	TLO aligned to CO's	Title/Details	Plan (No. of Lectures)		Actual Execution		Pedagogy Used	Remark
				From	To	From	To		
Unit - I Operating System services and components									
1 (10)	CO1	TLO 1.1	1.1 Operating System: concept, functions	02 Lectures				Chalk Board, PPT, Learn Live	
				10/08/26	11/08/26				
		TLO 1.2 TLO 1.3	1.2 Different types of Operating System 1.3 Command line based Operating System	03 Lectures					
				12/08/26	13/08/26 13/08/26				
		TLO 1.4	1.4 Different Services of Operating System, System Calls: Concept, types of system calls	03 Lectures					
				17/08/26	18/08/26				
		TLO 1.5	1.5 Operating System Components: Process Management, Main Memory Management, File Management, IO Management, Secondary Storage Management	02 Lectures					
				18/08/26	19/08/26/				
		Unit - II Process Management							
2 (10)	CO2	TLO 2.1 TLO 2.2	2.1 Processes: process state, process control block 2.2 Process Scheduling	02 Lectures				Chalk Board, PPT, Learn Live	
				20/08/26	20/08/26				
		TLO 2.3	2.3 Inter Process Communication: Shared memory system, Message passing system	03 Lectures					
				24/08/26	27/08/26				
		TLO 2.4	2.4 Threads: Benefits, User and Kernel level threads, Multithreading Models: One to One, Many to One, Many to Many	03 Lectures					
				27/08/26	31/08/26 01/09/26				
		TLO 2.5	2.5 Execute process commands like: top, ps, kill, wait, sleep, exit, nice	02 Lectures					
				01/09/26	02/09/26				

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				From	To	From	To		
Unit - III CPU Scheduling									
3 (10)	CO3	TLO 3.1	3.1 Scheduling: Basic concept, CPU and I/O burst cycle	02 Lectures				Chalk Board, PPT, Learn Live	
				03/09/26	03/09/26				
		TLO 3.2	3.2 Preemptive and Non- preemptive scheduling, scheduling criteria	03 Lectures					
				07/09/26	08/09/26 10/09/26				
		TLO 3.3	3.3 Types of Scheduling algorithms	03 Lectures					
				10/09/26	16/09/26				
		TLO 3.4	3.4 Deadlock: System Models, Necessary conditions Leading to Deadlock, Deadlock Handling	02 Lectures					
				17/09/26	17/09/26				
Unit - IV Memory Management									
4 (12)	CO4	TLO 4.1	4.1 Basic Memory Management: Partitioning - Fixed and Variable, Free Space Management Techniques: Bit map, Linked List	03 Lectures				Chalk Board, PPT, Learn Live	
				23/09/26	24/09/26				
		TLO 4.2 TLO 4.3	4.2 Swapping, Compaction, Fragmentation, Partitioning Algorithms: First fit, Best fit, Worst fit 4.3 Non-contiguous Memory Management Techniques: Paging, Segmentation	03 Lectures					
				28/09/26	29/09/26				
		TLO 4.4	4.4 Virtual Memory: Basics, Demand paging, Page Faultc	03 Lectures					
				30/09/26	01/10/26				
		TLO 4.5	4.5 Page Replacement Algorithm: First In First Out (FIFO), Least Recently Used (LRU), Optimal	03 Lectures					
				01/10/26	05/06/26				

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Unit No. (Allocated Hrs.)	CO	TLO aligned to CO's	Title/Details	Plan (No. of Lectures)		Actual Execution		Pedagogy Used	Remark
				From	To	From	To		
Unit - V File Management									
5 (8)	CO5	TLO 5.1	5.1 File Concepts: Attributes, Operations, File types and File system structure	02 Lectures				Chalk Board, PPT, Learn Live	
				05/10/26	06/10/26				
		TLO 5.2	5.2 Accessing Methods: Sequential, Direct	03 Lectures					
				07/10/26	08/10/26				
		TLO 5.3	5.3 File Allocation Methods: Contiguous allocation, Linked allocation, Indexed allocation	03 Lectures					
				08/10/26	15/10/26				
TLO 5.4	5.4 Directory Structure: Single level, Two level, Tree structured Directory								
Content Beyond syllabus (01)			Bootting Process of a Computer & Cybersecurity Features in Operating Systems	01 Lecture				Chalk Board, PPT.	

ASSESSMENT METHODOLOGIES/TOOLS

Formative assessment (Assessment for Learning)

- Continuous assessment based on process and product related performance indicators. Each practical will be assessed considering 1) 60% weightage is to process 2) 40% weightage to product

Summative Assessment (Assessment of Learning)

- End semester examination, Lab performance, Viva voce

SUGGESTED LEARNING MATERIALS / BOOKS

Sr. No	Author	Title	Publisher
1	Dhananjay M. Dhamdhare	Operating System: A Concept- Based Approach	McGraw Hill Education 3rd edition, ISBN: 978-1259005589
2	William Stallings	Operating Systems : Internals and Design Principles	Pearson Education 9th Edition, ISBN: 978-9352866717
3	Richard Petersen	Linux The Complete Reference	McGraw Hill, 6th edition, ISBN: 978-0071492478
4	Richard Blum	Linux command line and shell scripting	Wiley India, ISBN: 978-1118983843
5	Abraham Silberschatz and James Peterson	Operating System Concepts	Wiley India, ISBN: 9781119454083

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LEARNING WEBSITES & PORTALS

Sr. No	Link / Portal	Description
1	https://archive.nptel.ac.in/courses/106/105/106105214/	Introduction to Operating System
2	https://www.geeksforgeeks.org/processes-in-linuxunix/	Process Related commands
3	https://ubuntu.com/download/desktop	Installation of Ubuntu
4	https://developers.redhat.com/products/rhel/download	RedHat Linux download
5	https://www.digitalocean.com/community/tutorials/linux-commands	Basic Linux commands
6	https://www.geeksforgeeks.org/what-is-an-operating-system/	Operating System

Mr. T. G. Uphade s
 (Name & Signature of Staff)

Ms. M. S. Karande
 (Name & Signature of HOD)