Ganpat University
॥ विद्यया समाजोत्कर्षः ॥

Faculty of Computer Applications

Programme	BCA Honors (Cyber Security)	**Branch**	Computer Applications
Semester	I	**Version**	1.0.0.0
Effective from Academic Year	2026-2027	**Effective for the batch Admitted in**	June 2026
Subject Code	U101E7OS	**Subject Name**	OPERATING SYSTEM

Teaching scheme						**Examination scheme (Marks)**			
(Per week)	**Lecture (DT)**		**Practical (Lab.)**		**Total**		**CE**	**SEE**	**Total**
	L	TU	P	TW					
Credit	2		-	-	2	Theory	25	25	50
Hours	2		-	-	2	Practical	-	-	-

Objective:

The course is designed to provide basic knowledge of computer operating system application and functioning. Compare several different approaches to memory management, process management and virtual memory

Pre-requisites:

Understanding operating system fundamentals

Course Outcomes :

Name of CO	Description
CO1	To make aware of application, characteristics and functionalities of operating systems
CO2	Identify process management concepts
CO3	To Know about scheduling algorithms and Deadlock concepts
CO4	Learn the concepts of memory management
CO5	To know virtual memory management concepts with page replacement algorithms

Mapping of CO and PO

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	1	1	1	0	0	0	1
CO2	3	3	2	1	0	0	0	1
CO3	3	3	2	1	0	0	0	1
CO4	3	3	2	1	0	0	0	1
CO5	3	3	3	2	0	0	0	1

Content:

Unit		Hrs

1	**Introduction** Overview of operating systems, functionality and characteristics of OS, Types of Operating Systems, buffering and spooling	06
2	**Process Management** The concept of a process, operations on processes, process states, concurrent processes, process control block & process context	06
3	**Process Scheduling and Deadlock** Process scheduling algorithms: FCFS, SJF, Round Robin, Deadlock: Concept, Deadlock detection, prevention	06
4	**Memory Management** Introduction, Logical versus Physical Address space, Partitioning, Fixed and Variable size partitioning, Swapping, Contiguous Allocation, Paging, Fragmentation, Segmentation	06
5	**Virtual Memory** Introduction, Demand Paging, Page Replacement, Page Replacement Algorithms: FIFO, LRU, OPTIMAL.	06

Practical Content:
Not Applicable

Text Books:	
1	Operating System Concepts by Silberchatz, Abraham, Galvin, Peter Baer, Wiley Publication

Reference Books:	
1	Operating System by William Stallings, PHI Publication
2	Modern Operating Systems, Tanenbaum, Fourth Edition. Pearson Publication

Web References / MOOC / Certification Course	
1	https://archive.nptel.ac.in/courses/106/105/106105214/ ,
2	https://nptel.ac.in/courses/106108101,
3	https://www.scaler.com
4	https://www.geeksforgeeks.org/what-is-an-operating-system/
5	https://www.javatpoint.com/operating-system
6	https://www.tutorialspoint.com/operating_system/os_overview.htm

Question Paper Scheme:	
	End Semester Examination Duration: (1 Hour Theory Examination) **Note for Examiner: -** Q-1 Any Five out of Seven (05 Marks) Q-2 Any Two out of Three (05 Marks) Q-3 Mandatory question (05 Marks) Q-4 Any Two out of Three (05 Marks) Q-5 Any Two out of Three (05 Marks) *The question paper must comprehensively address all Course Outcomes (COs), align Taxonomy levels, and ensure complete syllabus coverage.*