



SANATAN DHARMA COLLEGE, AMBALA CANTT

College with Potential for Excellence, UGC, New Delhi
NAAC Accredited Grade "A+" with CGPA 3.51 in 3rd cycle
ISO 9001:2015 & ISO 14001:2015 Certified



Department of Computer Science Lesson Plan (Session 2022-2023)

Class: BCA

Sem: VI

Course Code: BCA- 362

Nomenclature: Operating System II

Dates: 2 Feb, 2023- 14 May, 2023

SYLLABUS

BCA-362: Operating System-II

Maximum Marks: 100

Minimum Pass Marks: 35

Time: 3 hours

External: 80

Internal: 20

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit. All questions will carry equal marks.

UNIT – I

Process Synchronization: The Critical Section Problem – Single Process/Two Process Solutions; Semaphores – Types, Implementation, Deadlocks and Starvation; Classical Problems of Synchronization – The Bounded Buffer Problem, The Readers and Writers Problem, The Dining-Philosophers Problem, Critical Regions, Monitors

Directory Structure: Single Level, Two Level, Tree Structures, Acyclic Graph, General Graph; Directory Implementation, Recovery

UNIT – II

Secondary Storage Structure: Disk Structure, Disk Scheduling: FCFS, SSTF, SCAN, C-SCAN, LOOK; Selection of Disk Scheduling Algorithm; Disk Management; Swap Space Management Network Operating Systems: Remote Login, Remote File Transfer;

Distributed Operating System: Data Migration, Computation Migration, Process Migration

UNIT – III

Linux: Introduction, Features, Architecture, Distributions, Accessing Linux System, Login/Logout/Shutting Down, Comparison of Linux with other Operating Systems, Commands in Linux: General-Purpose Commands, File Oriented Commands, Directory Oriented Commands, Communication Oriented Commands, Process Oriented Commands, Redirection of Input and Output, Pipes

UNIT – IV

Linux File System: Types of Files in Linux, File Attributes, Structure of File System, inode, File Permission, File System Components, Standard File System, File System Types, Disk Related Commands

Processes in Linux: Introduction, Job Control in Linux using at, batch, corn & time commands

The vi editor: Introduction, Modes of vi Editor, Command in vi Editor

Shell Programming: Introduction, Shell Variables, Shell Keywords, Operators, Assigning Values to the Variables, I/O in Shell, Control Structures, Creating & Executing Shell Programs in Linux.

TEXT BOOKS:

Silberschatz A., Galvin P.B., and Gagne G., "Operating System Concepts", John Wiley & Sons, Inc., New York.

Godbole, A.S., "Operating Systems", Tata McGraw-Hill Publishing Company, New Delhi.

Richard Petersen, The Complete Reference – Linux, McGraw-Hill.

Yashwant Kanetkar, UNIX & Shell programming – BPB.

REFERENCE BOOKS:

Deitel, H.M., "Operating Systems", Addison- Wesley Publishing Company, New York.

Tanenbaum, A.S., "Operating System- Design and Implementation", Prentice Hall of India, New Delhi.

Sumitabha Das, Your UNIX The Ultimate Guide, Tata McGraw-Hill.

Course Outcomes

After the completion of this course, prospective Computer professionals will have the ability to

CO-1	To study the process management and scheduling.
CO-2	To understand various issues in Inter Process Communication (IPC) and the role of OS in IPC.
CO-3	To understand the concepts and implementation Memory management policies and virtual memory.
CO-4	To understand the working of an OS as a resource manager, file system manager, process manager, memory manager and I/O manager and methods used to implement the different parts of OS
CO-5	To study the need for special purpose operating system with the advent of new emerging technologies
CO-6	Study different disk scheduling algorithms
CO-7	Study network and distributed operating systems.

S.No	Instructional Technique	Assessment Methods (AM)
1	Chalk & Talk	Assignments
2	ICT tools	Quiz
3	Group discussions	Group Discussions
4	Industrial visit	Oral Tests
5	Case studies	Sessional
6	Small Projects	Presentations
7	Workshop	Seminar
8	Spoken Tutorials	University Exams
9	Flipped Class	
10.	E-Resources	

Date	Topics to be covered	Instructional Technique	Assessment Method
02.02.2023	Process Synchronization: Critical Section Problem	1	1,2,3,4
03.02.2023	Single Process, Two Process Solutions	1	1,2,3,4
04.02.2023	Semaphores	1	1
05.02.2023	SUNDAY		
09.02.2023	Semaphores	2-(PPT/Projector)	1,2,3,4
10.02.2023	Classical Problems of Synchronization	2-(PPT/Projector)	1,2,3,4
11.02.2023	Classical Problems of Synchronization	2-(PPT/Projector)	1,2,3,4
12.02.2023	SUNDAY		
16.02.2023	Directory Structure: Single Level, Two Level Tree Structures	2-(PPT/Projector)	1,2,3,4
17.02.2023	Directory Structure: Acyclic graph, General Graph		
18.02.2023	Directory Structure: Single Level, Two Level Tree Structures	1	1,2,3,4
19.02.2023	SUNDAY		
23.02.2023	Directory Implementation and Recovery	2-(PPT/Projector)	1,2,3,4
24.02.2023	Secondary Storage Structure	2-(PPT/Projector)	1,2,3,4
25.02.2023	Secondary Storage Structure		
26.02.2023	SUNDAY		
02.03.2023	Assignment		
03.03.2023	Network Operating System	8,10,2	1,2,3,4,
04.03.2023	Distributed Operating System	8,10,2	1,2,3,4,
05.03.2023	SUNDAY		
16.03.2023	Sessional	6	1,2,3,4
17.03.2023	Introduction to Linux: Features	1	6
18.03.2023	Architecture of Linux, Distribution of Linux		
19.03.2023	SUNDAY		
23.03.2023	HOLIDAY		

24.03.2023	Accessing Linux system, Login/Logout, Shutting Down	2-(PPT/Projector)	1,2,3,4
25.03.2023	Commands in Linux	2-(PPT/Projector)	1,2,3,4
26.03.2023	SUNDAY		
30.03.2023	HOLIDAY		
31.03.2023	Commands in Linux		
01.04.2023	Commands in Linux	6	1,2,3,4
02.04.2023	SUNDAY		
06.04.2023	Redirection of Input and output, Pipes	2-(PPT/Projector)	1,2,3,4
07.04.2023	Linux File System	2-(PPT/Projector)	1,2,3,4
08.04.2023	Linux File System	2-(PPT/Projector)	1,2,3,4
09.04.2023	SUNDAY		
13.04.2023	Linux File System		
14.04.2023	HOLIDAY		
15.04.2023	Revision	9,10	1,2,3,4
16.04.2023	SUNDAY		
20.04.2023	Processes in Linux		
21.04.2023	The vi Editor	2-(PPT/Projector)	1,2,3,4
22.04.2023	Holiday		
23.04.2023	SUNDAY		
27.04.2023	Shell Programming	2-(PPT/Projector)	1,2,3,4
28.04.2023	Revision		
29.04.2023	Opening and Closing Files	2-(PPT/Projector)	1,2,3,4
30.04.2023	SUNDAY		
04.05.2023	Discussion over Previous year papers	2-(PPT/Projector)	1,2,3,4
05.05.2023	Discussion over Previous year papers	2-(PPT/Projector)	1,2,3,4

06.05.2023	Revision		
07.05.2023	SUNDAY		
11.05.2023	Revision		
12.05.2023	Revision of Previous Years Question Papers		
13.05.2023	Revision of Previous Years Question Papers		
14.05.2023	SUNDAY		
		Teacher Incharge	Head of the Department
Name		Tanvi Dua	Dr. Girdhar Gopal
Sign with Date			