



**PARVATHANENI BRAHMAYYA
SIDDHARTHA COLLEGE OF ARTS & SCIENCE**

Autonomous

Siddhartha Nagar, Vijayawada-520010

Re-accredited at 'A+' by the NAAC

23CGMAL122 : OPERATING SYSTEMS

Offered to : B. Sc. Honours (Computer Science with Cognitive Systems)

Course Type: Theory-Major 4

Year of Introduction: 2023 – 2024

Year of Offering: 2023 – 2024

Semester: II

Hours : 60

Credits: 3

Course Objective:

1. Learn about Overview of Computer hardware and Operating Systems.
2. Learn basics about Process management.
3. Learn about Memory management
4. Learn about Storage management
5. Learn about Linux, Windows Client and Windows Server OS Operations.

Course Outcomes (based on BTL):

Course Outcome No.	Outcome	Mapping to
CO1	Understand the Computer hardware and operating systems basics	PO5,PO7
CO2	Understand the concept of Process management	PO5,PO7
CO3	Understand the concepts of Memory management	PO5,PO7
CO4	Understand the concepts of Storage management	PO5,PO7
CO5	Understand and know about Linux, Windows Client and Windows Server OS	PO5,PO7

Mapping of Course Outcomes (COs) with Programme Outcomes (POs)&Pso

	CO	BTL	PO1	PO2	PO3	PO4	PO5	PO6	PO7
23CGMAL122	CO1						M	M	H
	CO2						M	M	H

	CO3						M	M	H
	CO4						M	M	H
	CO5						M	M	H

Syllabus Content

Unit 1: Introduction to Operating Systems: 12 hours

- **Computer Basics:** Definition of a Computer - Characteristics and Applications of Computers – Block Diagram of a Digital Computer .
- **Hardware Basics:** Central Processing Unit – I/O Devices-Memory Devices- Secondary storage devices.
- **Operating System Basics:** OS Definition, Functions, OS as a Resource Manager, Types of OS, Evolution of OS, Operating System Services, User Operating System Interface.

Unit 2: Process Management 12 hours

Basic Concepts, Process Scheduling, Operations on Processes, Inter-process Communication, Scheduling Criteria, Scheduling Algorithms

Unit 3: Memory Management 12 hours

Memory Management Strategies, Swapping, Contiguous Memory Allocation, Paging, Segmentation, Virtual Memory Management, Demand Paging, Page Replacement Techniques and Algorithms

Unit 4: Storage Management 12 hours

File Concept, Access Methods, Directory Structure, Protection, Implementing File Systems, File System Structure, Directory Implementation, Allocation Methods.

Unit 5: Operating Systems 12 hours

- **Introduction to Linux:** Versions, Components, Features; Installation of Linux OS, Managing Directories.
- **Introduction to Windows:** Versions, GUI Components, Features; Installation of Client OS and Server OS, Installation of Roles and Features, Storage Management, Managing and Monitoring of Server, Backup & Restoration

Textbook:

- Silberschatz Galvin Gange, 2008, *Operating System Concepts*, 6th edn, Wiley India (P) Ltd., New Delhi
- Abraham Silberschatz, Peter Baer Galvin and Greg Gagne (2009), *Operating System Concepts*, Seventh Edition [PDF]
- Woody Leonhard, Ciprian Rusen (2021), *Windows 10 All-in-One For Dummies* [PDF]

Reference Books:

- Operating Systems - Silberschatz, Galvin
- Operating System – Neso Academy

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MODEL QUESTION PAPER FOR SEM END EXAMINATION 2023-24**23CGMAL122 : Operating Systems**

Offered to : B. Sc. Honours (Computer Science with Cognitive Systems)

Course Type: Theory-Major 4

TIME: 3 Hrs

Semester: II

Max Marks: 70M

Section-A

Answer all Questions

5*4=20M

1. (a) Explain Block diagram of digital computer. (CO1,L2)
(OR)
(b) Explain types of Operating Systems. (CO1,L2)
2. (a) Define Process. Explain operations of process. (CO2,L1)
(OR)
(b) Write about scheduling criteria. (CO2,L1)
3. (a) Explain contiguous Memory Allocation. (CO3,L1)
(OR)
(b) Explain about Segmentation. (CO3,L1)
4. (a) Explain File system structure. (CO4,L2)
(OR)
(b) Define File. Explain the protection methods for file. (CO4,L2)

5. (a) Explain GUI components in windows. (CO5,L2)

(OR)

(b) Explain the process of creating and managing directories in Linux. (CO5,L2)

Section-B

Answer all Questions

5*10=50M

6. (a) Define Operating Systems. Explain functions of Operating Systems . (CO1,L2)

(OR)

(b) Explain characteristics and applications of computer. (CO1,L2)

7. (a) Explain CPU scheduling algorithms with examples. (CO2,L1)

(OR)

(b) Explain about Inter Process Communication. (CO2,L1)

8. (a) Explain Page replacement algorithms with examples . (CO3,L1)

(OR)

(b) Write about Demand paging. (CO3,L2)

9. (a) Explain about different file accessing methods. (CO4,L2)

(OR)

(b) Define Directory. Explain Directory structure. (CO4,L2)

10. (a) Explain components and features of Linux. (CO5,L2)

(OR)

(b) Explain steps for installation of client OS and server OS . (CO5,L2)

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