Course Number and Name
BCS008 - Distributed Operating Systems

Credits and Contact Hours
3 and 45

Course Coordinator's Name
Ms C.Anuradha

Text Books and References

TEXT BOOKS:

1. M. Beck et al," Linux Kernel Programming",3rd edition, 2002.
2. B.W. Kernighan and R Pide, "The Unix Programming Environment ", Prentice Hall of India-2000.

REFERENCES:

1. Silberschatz,P.B.Garvin,Gagne," Operating System Concepts", 2009.
2. https://www.cs.columbia.edu/~smb/classes/s06-4118/l26.pdf

Course Description

- To provide hardware and software issues in modern distributed systems.
- To get knowledge in distributed architecture, naming, synchronization, consistency and replication, fault tolerance, security, and distributed file systems.
- To analyze the current popular distributed systems such as peer-to-peer (P2P) systems will also be analyzed.

Prerequisites	Co-requisites
Nil	NIL

required, elective, or selected elective (as per Table 5-1)
selected elective

Course Outcomes (COs)

CO1:   To provide hardware and software issues in modern distributed systems.

CO2:   To get knowledge in distributed architecture, naming, synchronization, consistency and replication, fault tolerance, security, and distributed file systems.

CO3:   To analyze the current popular distributed systems such as peer-to-peer (P2P) systems will also be analyzed.

CO4:   To know about Shared Memory Techniques.

CO5:   Have Sufficient knowledge about file access.

CO6:   Have knowledge of Synchronization and Deadlock.

Student Outcomes (SOs) from Criterion 3 covered by this Course

COs/SOs	a	b	c	d	e	f	g	h	i	j	k
CO1	M		H								
CO2		H	H	M							
CO3	L	M	H								
CO4											
CO5		M	M	H							
CO6	M	M	H	M							

List of Topics Covered

UNIT- I   **9**

Modes of communication, System Process, Interrupt Handling, Handling Systems calls, Protection of resources &Resources Management Micro-Kernel Operating System.

UNIT- II   **9**

Review of Network Operating System and Distributed Operating System, Issue in the design of Distributed Operating System, Overview of Computer Networks. Inter process communication, Linux, IPC Mechanism, Remote Procedure calls, RPC exception handling, Security issues, RPC in Heterogeneous Environment (case study Linux RPC)

UNIT -III   **9**

Clock Synchronization, Logical clocks, Physical clocks, clock synchronization algorithms, Mutual Exclusion, Election Algorithms, Dead locks in Distributed Systems. Thrashing, Heterogeneous DSM, Resource Management (Load Balancing approach, Load Sharing approach), Process Management: process Migration, Thread.

UNIT- IV   **9**

Overview of shared memory, consistency model, Page based Distributed Shared Memory, Shared –variable Distributed Memory, Object -based Distributed Memory.

UNIT- V   **9**

File models, File access, File sharing, file-caching, File Replication, fault Tolerance, Network File System, (Case study, 8NFS on Linux Directory Services, Security in Distributed File system).