DISTRIBUTED OPERATING SYSTEMS
(Professional Elective-V)

Course Code: 15CS1110   **L   T   P   C**
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Pre-requisites:

Operating Systems

Course Outcomes :

At the end of the Course, the Student will be able to:

CO 1 Discuss on hardware and software concepts of distributed systems.

CO 2 Analyze client server communication in Distributed Operating Systems.

CO 3 Summarize the various approaches to solving the problem of mutual exclusion in distributed   Operating system.

CO 4 Outline file models and file caching schemes.

CO 5 Compare and analyze various case studies.

UNIT-I   (10 Lectures)

INTRODUCTION TO DISTRIBUTED SYSTEM:

What is a Distributed computing system? Evolution of distributed computing systems, distributed computing system models, What Distributed operating system? , Goals of Distributed system, Hardware and Software concepts, Design issues, Introduction to Distributed computing environment (DCE) .(Text Book – 1 &2)

UNIT-II   (10 Lectures)

COMMUNICATION IN DISTRIBUTED SYSTEMS:

Layered protocols, Asynchronous Transfer Mode networks, Client– Server model, Remote Procedure Calls and Group Communication.(Text Book – 1)

UNIT-III   (10 Lectures)

SYNCHRONIZATION IN DISTRIBUTED SYSTEM:
(TEXT BOOK – 1)

CLOCK SYNCHRONIZATION :

Logical & Physical clocks , Clocks Synchronization Algorithms, Use of Synchronized clocks ; Mutual Exclusion, Election algorithm :the Bully algorithm, a Ring algorithm; Atomic Transactions,

DEADLOCK IN DISTRIBUTED SYSTEMS :

Distributed Deadlock Detection, Distributed Deadlock Prevention.

UNIT-IV   (10 Lectures)

PROCESSES AND PROCESSORS IN DISTRIBUTED SYSTEMS:

Introduction to Threads, thread usage, design issues of thread packages, scheduling in distributed systems. (Text Book – 1)

DISTRIBUTED FILE SYSTEMS :

Introduction , Desirable features of a good Distributed file system, file models , file accessing models , file sharing semantics , file caching schemes , file replication , fault tolerance.
(Text Book – 2)

UNIT-V   (10 Lectures)

CASE STUDIES: Amoeba, V-system, Mach (Text Book – 2)

TEXT BOOKS:

1.   Distributed Operating System – Andrew S. Tanenbaum, Pearson , 2011

2.   Distributed Operating Systems concepts and Design – Pradeep K. Sinha , PHI learning private limited , New Dehi -110001, 2012

WEB REFERENCE :

    http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-172-performance-engineering-of-software-systems-fall-2010/video-lectures/lecture-20-distributed-systems/