Subject Code : P8CS4

Core Course – IV - Distributed Operating Systems

Unit I

Fundamentals: What is Distributed Operating System – Evolution of Distributed Computing System – Distributed Computing System Models – Why are Distributed Computing Systems gaining popularity – What is a Distributed Computing System – Issues in Designing Distributed Computing System – Introduction to Distributed Computing Environment.
Introduction to Computer Networks – Network types – LAN –WAN – Communication protocols – Internetworking – ATM Technology**.**

Unit II

Message Passing: Introduction – Desirable features – Issues in PC Message Passing – Synchronization – Buffering – Multidatagram Messages – Encoding and Decoding – Process Addressing – Failure Handling – Group Communication.

Unit III

Distributed Shard Memory: Introduction – General Architecture of DSM system – Design and Implementation Issues of DSM – Granularity – Structure of Shared Memory – Consistency Models – Replacement Strategy – Thrasing – Other Approaches to DSM – Heterogeneous DSM – Advantages.

Synchronization: Introduction – Clock Synchronization – Event Ordering – Mutual Exclusion – Deadlock – Election Algorithm.

Unit IV

Distributed File System: Introduction – Desirable features – File Models – File Accessing Models – File Sharing Semantics – File Caching Schemes – File Replication – Fault Tolerance – Atomic Transactions – Design Principles.

Unit V

Security: Introduction – Potential Attacks to Computer System – Cryptography – Authentication – Access Control – Digital Signatures – Design Principles.

Text Book

Distributed Operating Systems – Concepts and Design, Pradeep K Sinha, PHI, 2003.

References:

Distributed Operating Systems 1e, Andrew S Tanenbaum, PHI.