CS515: DISTRIBUTED COMPUTING (3-0-0: 3)

Introduction, Distributed Programming Model, Theoretical Foundations of Distributed Systems, Wave and Traversal Algorithms, Minimal Spanning Tree Algorithms.

Balanced Sliding Window Protocol, Routing Algorithms, Deadlock free packet switching, Logical Clocks and Causal Ordering, Communication Protocols, Agreement Protocols, Commit Protocols, Leader Election Algorithms.

Distributed Mutual Exclusion, Distributed Deadlock Detection Algorithms, Termination Detection Algorithms, Self-Stabilization Algorithms, Failure Recovery and Fault tolerance in distributed systems.

Distributed File System (DFS), Distributed Shared Memory.

Text Books and References

1. G. Tel, "Introduction to Distributed Algorithms", Cambridge University Press.
2. M. Singhal and N. G. Shivaratri, "Advanced Concepts in Operating Systems", Tata McGraw-Hill Publishing Company Limited.
3. H. Attiya and J. Welch, "Distributed Computing: Fundamentals, Simulations, and Advanced Topics", John Wiley and Sons, Inc.
4. N. Lynch, "Distributed Algorithms", Elsevier.
5. S. Ghosh, "Distributed Algorithms, An Algorithmic Approach", Chapman and Hall.
6. A.S. Tanenbaum, "Distributed Operating Systems", Prentice Hall.
7. P. K. Sinha, "Distributed Operating Systems – Concepts and Design", IEEE CS Press, PHI.