

**H.N.G. University, Patan**  
**M.Sc.(C.A. & I.T.) SEMESTER - VII**  
**701 : Distributed Operating System**

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**Unit : 1**

**[25%]**

**Distributed Systems:** Introduction, Example, Resource, Challenges

**Networking and Internetworking:** Introduction, Types Of Network, Network Principles, Internet Protocols, Case Study: Ethernet, Wifi, Bluetooth And Atm

**Interprocess Communication:** Introduction, The Api For The Internet Protocols, External Data Representation And Marshalling, Client Server And Group Communication, Case S tudy: Interprocess Communication In Unix

**Unit : 2**

**[25%]**

**Distributed Objects And Remote Invocation :** Introduction, Communication Between Distributed Objects, Remote Procedure Call, Events And Notification, Case Study: Java Rmi

**Distributed File Systems:** Introduction, File Service Architecture, Case Study: Sun Network File System, The Andrew File System, Enhancements And Further Developments

**Name Services:** Introduction, Name Services And The Domain Name System, Directory Services, Case Study: The Global Name Service, The X.500 Directory Service

**Unit : 3**

**[25%]**

**Peer-To-Peer Systems:** Introduction, Napster And Its Legacy, Peer-To-Peer Middleware, Routing Overlays, Overlay Case Studies: Pastry, Tapestry, Application Case Studies: Squirrel, Ocean store, Ivy

**Transactions and Concurrency Control:** Introduction, Transactions, Nested Transactions, Locks, Optimistic Concurrency Control, Timestamp Ordering, Comparison of Methods For Concurrency Control

**Distributed Transactions:** Introduction, Flat And Nested Distributed Transactions, Atomic Commit Protocols, Concurrency Control In Distributed Transactions, Distributed Deadlocks, Transaction Recovery

**Unit : 4**

**[25%]**

**Mobile and Ubiquitous Computing:** Introduction, Association, Interoperatio n, Sensing and Context Awareness, Security And Privacy, Adaptation, Case Study: Cooltown

**Distributed Shared Memory:** Introduction, Design and Implementation Issues, Sequential Consistency and Ivy Case Study, Release Consistency and Munin Case Study, Other Consistency Models

**Web Services:** Introduction, Web Services, Service Descriptions and Idl for Web Services, A Directory Service For Use With Web Services, Xml Security, Coordination Of Web Services, Applications Of Web Services.

**Text Book:**

1. George Coulouris, Jean Dollimore, Tim Kindberg, "Distributed Systems: Concepts and Design", 4th Edition, Pearson Education

**Reference Books:**

1. A.tS. Tanenbaum and M. V. Steen, "Distributed Systems: Principles and Paradigms", Second Edition, Prentice Hall, 2006
2. M.L.Liu, "Distributed Computing Principles and Applications", Pearson Addison Wesley, 2004
3. Mukesh Singhal, "Advanced Concepts In Operating Systems", McGrawHill Series in Computer Science, 1994
4. Nancy A. Lynch, "Distributed Algorithms", The Morgan Kaufmann Series in D ata Management System, Morgan Kaufmann Publishers, 2000