SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc – Information Technology (Integrated)
Semester: IX
Syllabus with Effect from: June-2016

Paper Code: PS09EIIT01	Total Credit: 4
Title Of Paper: Distributed Computing	

Unit	Description in Detail	Weightage (%)
I	**Fundamentals:** Distributed computing, system model, distributed operating system, designing operating system, Introduction to DCE **Message Passing :** Desirable features message passing system, Issues in message passing, synchronization, buffering, multidatagram messages , Encoding and decoding of message data, Process addressing, Failure handling, Group communication.	25%
II	**Remote procedure call:** RPC model, Transparency of RPC, implementing RPC mechanism, Stub generation, Marshaling arguments and Results, Server Management, Parameter-passing Semantics , call Semantics, Communication protocols for RPCs, Complicated RPC Client server binding, Exception Handling , Security, special types of RPCs, RPCs in Heterogeneous Environments, Lightweight RPC, Optimizations for better performance.	25%
III	**Distributed Shared Memory:** General architecture of DSM systems, Design and implementation of DSM, Granularity, structure of shared memory space, consistency models, Replacement Strategy, Thrashing, other approaches to DSM, Heterogeneous DSM, and Advantages of DSM clock synchronization, event ordering, mutual exclusion, Deadlock, Election Algorithm	25%
IV	**Resource and Process Management:** Desirable Features of global Scheduling algorithm, Task assignment approach, Load balancing approach, load sharing approach, Introduction to process management, process migration, Threads. **Distributed File Systems:** Introduction, good features of DFS, File models, File Accessing models, File sharing Semantics, File-Caching Schemes, File Replication, Fault Tolerance,Atomic Transactions and design principles.	25%

Basic Text & Reference Books:-

- Pradeep K Sinha : Distributed Operating Systems : Concepts and design, IEEE computer society press,1997.
- Tanuenbaum : Distributed Operating System, Pearson Edition,2009.
- PUDER, ROMER : Distributed Systems Architecture: Middleware approach,ELSEVIER publication,2006.
- G. Coulouris, J. Dollimore and T. Kindberg : Distributed Systems : Concepts and design , Fifth Edition,2011.
- M. Singhal, N. Shivaratri : Advanced Concepts in Operating Systems, Tata McGraw Hill,2008.