



C. U. SHAH UNIVERSITY – WADHWAN CITY

FACULTY OF TECHNOLOGY AND ENGINEERING DEPARTMENT OF COMPUTER ENGINEERING M. TECH. SEMESTER: - I

SUBJECT NAME: Distributed System and Application (DSA)

SUBJECT CODE: 5TE01DSA1

Teaching & Evaluation Scheme: -

Subject Code	Subject Name	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
		Th	Tu	Pr	Total		Theory				Practical (Marks)			Total
							Sessional Exam		University Exam		Internal		University	
							Marks	Hours	Marks	Hours	Pr/Viva	TW	Pr	
5TE01DSA1	Distributed System and Application	3	0	2	5	4	30	1.5	70	3.0	-	20	30	150

Objectives:

- To understand basics of distributed Systems.
- To understand Processes and processors in distributed systems

Prerequisites:

- Basic Knowledge of Operating System and Computer Network.

Course outline:

Sr. No.	Course Contents
1	Introduction to distributed Systems: Definition and goals, Hardware and Software concepts, Design issues
2	Communication in Distributed System: Computer Network and Layered protocols, Message passing and related issues, synchronization, Client Server model & its implementation, remote procedure call and implementation issues, Case Studies: SUN RPC, DEC RPC
3	Synchronization in distributed systems: Clock synchronization and related algorithms, mutual exclusion, Deadlock in distributed systems
4	Processes and processors in distributed systems: Threads, system model, processor allocation, scheduling in distributed systems: Load balancing and sharing approach, fault tolerance, Real time distributed systems, Process migration and related issues

5	Distributed File Systems: Introduction, features & goal of distributed file system, file models, file accessing models, file sharing semantics, and file caching scheme, and file replication, fault tolerance, trends in distributed file system, case study.
6	Distributed Shared Memory: Introduction, general architecture of DSM systems, design and implementation issues of DSM, granularity, structure of shared memory space, consistency models, replacement strategy, thrashing
7	Case Study: Amoeba, Mach, Chorus, DCE

Learning Outcomes: -

At the end of the semester the student should be well familiar with:

- Distributed Shared Memory Concepts, Different types of kernel level architectures
- Distributed File Systems
- Processes and processors in distributed systems
- Communication, Etc.

Books Recommended:

1. Distributed Computing, **Sunita Mahajan and Seema Shah**, Oxford University Press
2. Distributed Operating Systems Concepts and Design, **Pradeep K. Sinha**; PHI
3. Distributed Operating Systems, **Andrew S Tannebaum**; PHI
4. Distributed Computing, Fundamentals, Simulations and Advanced topics, 2nd Edition, **Hagit Attiya and Jennifer Welch**, Wiley India
5. Distributed Systems: Concepts and Design, **G. Coulouris, J. Dollimore, and T. Kindberg**, Pearson Education