



# **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	<b>Introduction to distributed Systems:</b> Definition and goals, Hardware and Software concepts, Design issues
2	<b>Communication in Distributed System:</b> 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	<b>Synchronization in distributed systems:</b> Clock synchronization and related algorithms, mutual exclusion, Deadlock in distributed systems
4	<b>Processes and processors in distributed systems:</b> 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	<b>Distributed File Systems:</b> 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	<b>Distributed Shared Memory:</b> Introduction, general architecture of DSM systems, design and implementation issues of DSM, granularity, structure of shared memory space, consistency models, replacement strategy, thrashing
7	<b>Case Study:</b> 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