



C. U. SHAH UNIVERSITY – WADHWAN CITY

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

SUBJECT NAME: Mobile Ad-hoc Network (MAN)

SUBJECT CODE: 5TE03MAN1

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		
5TE03MAN1	Mobile Ad-hoc Network	4	0	2	6	5	30	1.5	70	3.0	-	20	30	150	

Objectives:

- To understand Concepts of Ad-Hoc network/Infrastructure less networks.

Prerequisites:

- Fundamental knowledge of Computer Networks, Wired, wireless network architecture and layered protocols.

Course outline:

Sr. No.	Course Contents
1	Introduction to Wireless Networks Evolution of Mobile Cellular Networks. Global System for Mobile Communications (GSM). General Packet Radio Service (GPRS). Personal Communications Services (PCSs). Wireless LANs (WLANS). Universal Mobile Telecommunications System (UMTS). IMT2000. IS-95, cdma One and cdma2000 Evolution.
2	Origins Of Ad Hoc: Packet Radio Networks Architecture of PRNETs. Components of Packet Radios. Routing in PRNETs. Route Calculation. Pacing Techniques. Media Access in PRNETs. Flow Acknowledgments in PRNETs.
3	Ad Hoc Wireless Networks What Is an Ad Hoc Network? Heterogeneity in Mobile Devices. Wireless Sensor Networks. Traffic Profiles. Types of Ad Hoc Mobile Communications. Types of Mobile Host Movements. Challenges Facing Ad Hoc Mobile Networks.
4	Overview of Ad Hoc Routing Protocols Table-Driven Approaches. Destination Sequenced Distance Vector (DSDV). Wireless Routing Protocol (WRP). Cluster Switch Gateway Routing (CSGR). Source-Initiated On-Demand Approaches. Ad Hoc On-Demand Distance Vector Routing (AODV). Dynamic Source Routing (DSR). Temporally Ordered Routing Algorithm (TORA). Signal Stability Routing (SSR). Location-

	Aided Routing (LAR). Power-Aware Routing (PAR). Zone Routing Protocol (ZRP). Source Tree Adaptive Routing (STAR). Relative Distance Microdiversity Routing (RDMAR). Conclusions.
5	Communication Performance of Ad Hoc Networks Introduction. Performance Parameters of Interest. Route Discovery (RD) Time. End-to-End Delay (EED) Performance. Communication Throughput Performance. Packet Loss Performance. Route Reconfiguration/Repair Time. Power Management. Advances in Protocol Power Management.
6	TCP Over Ad Hoc Introduction to TCP. Versions of TCP. Problems Facing TCP in Wireless Last-Hop. Problems Facing TCP in Wireless Ad Hoc. Approaches to TCP over Ad Hoc.
7	Internet & Ad Hoc Service Discovery Resource Discovery in the Internet. Service Location Protocol (SLP) Architecture. Simple Service Discovery Protocol (SSDP). Service Discovery for Ad Hoc. Ad Hoc Service Location Architectures.

Learning Outcomes:

At the end of this module the student should be well familiar with:

- Mobile adhoc network design, its performance relevant issues and currents trends of MANET
- Routing Protocols concepts.

Books Recommended:

1. Ad hoc mobile wireless networks protocols and systems, by **C. K. Toh**, Prentice Hall (2002).
2. Ad Hoc Mobile Wireless Networks: Principles, Protocols, and Applications, Second Edition, by **Subir Kumar Sarkar, T.G. Basavaraju, C. Puttamadappa**, CRC Press (2013).
3. Handbook of Wireless Networks and Mobile Computing, by **Ivan Stijmenovic** (ed), John Wiley, (2002).