SCHEME OF COURSE WORK

Course Details:

Course Title	**: AD-HOC NETWORKS**		
Course Code	**: 13IT1110**	**L T P C**	**: 4 0 0 3**
Program:	**: B.Tech.**		
Specialization:	**: Information Technology**		
Semester	**: VIII**		
Prerequisites	**: Computer networks, Mobile Communications**		
Courses to which it is a prerequisite	**:**		

Course Outcomes (COs):

At the end of the course the student will be able to

CO 1 Explain routing techniques for Ad-Hoc sensor networks.

CO 2 Describe Wireless LANS and Wireless PANS.

CO 3 Discuss Solutions for TCP Over Ad-Hoc Networks.

CO 4 Discuss deployment issues of sensors.

CO 5 Explain data retrieval in sensor networks.

Course Outcome Versus **Program Outcomes:**

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1												
CO-2												
CO-3												
CO-4												
CO-5												

S - Strongly correlated, *M* - *Moderately* correlated, *Blank* - *No correlation*

Assessment Methods: Assignment / Quiz / Seminar / Case Study / Mid-Test / End Exam

Teaching-Learning and Evaluation

Week	Topic/Contents	Course Outcomes	Sample Questions	Teaching Learning Strategy	Assessment Method & Schedule
1	**INTRODUCTION TO AD-HOC NETWORKS**: Introduction of subject and Books, Introduction, Applications of MANETs, Challenges., **ROUTING IN AD HOC NETWORKS:** Introduction, Topology-Based versus Position-Based Approaches, Topology-Based Routing Protocols,	CO-1	1. What is ad-hoc network? 2. Explain What are the challenges in MANETs? 3. Describe the classification of routing algorithms in Ad-hoc networks.	Lecture USING BOARD	Assignment-1, Test- 1 Quiz-1
2	Topology-Based Routing Protocols, Position-Based Routing protocols, Other Routing Protocols.	CO-1	**1.** Difference between Topology –based and position based routing algorithms.	Lecture USING BOARD	Assignment-1, Test- 1 Quiz-1
3	BROADCASTING, MULTICASTING AND GEOCASTING: Introduction, The Broadcast Storm, Multicasting, Geocasting	CO-1	1. Define BROADCASTING, MULTICASTING AND GEOCASTING.	Lecture USING BOARD	Assignment-1, Test- 1 Quiz-1
4	**WIRELESS LANS**: Introduction, Why Wireless LANs, Transmission Techniques, Medium Access Control Protocol Issues, The IEEE 802.11 Standard for Wireless LANs, Enhancement to IEEE 802.11 MAC	CO-2	**1.** What are the transmission techniques in Wireless LANs? **2.** How MAC layer supports Wireless LANs? Explain Briefly. **3.** Explain architecture of wireless LAN(IEEE 802.11)	Lecture USING BOARD	Assignment-1, Test- 1 Quiz-1
5	**WIRELESS PANS:** Introduction, Why Wireless PANs, The Bluetooth Technology, Enhancements to Bluetooth,	CO-2	**1.** How to enhance the blue tooth technology in wireless PAN? **2.** Explain Bluetooth interference Issues.	Lecture USING BOARD	Assignment-1, Test- 1 Quiz-1

6	The IEEE 802.15 Working Group for WPANs, Comparison between WPAN Systems, WLANs versus WPANs.	CO-2	1. What are the Difference between WPAN Systems, and WLANs.	Lecture USING BOARD	Assignment-1, Test- 1 Quiz-1
7	TCP OVER AD HOC NETWORKS: Introduction, TCP Protocol Overview,	CO-3	**1.** Explain Briefly TCP basics . **2.** Explain the all fields of header format of TCP. 3. Explain congestion control in TCP over ad Hoc networks.	Lecture USING BOARD	Assignment-1, Test- 1 Quiz-1
8	TCP and MANETs	CO-3	**1.** What are the drawbacks in TCP protocol when it is used in MANETs ?explain. **2.** Explain impact issues of lower layer on TCP.	Lecture USING BOARD	Assignment-2, Test- 1 Quiz-2
9	Solutions for TCP Over AdHoc	CO-3	1. Explain solutions for TCP over Ah-Hoc networks.	Lecture USING BOARD	Assignment-2 Test- 2 Quiz-2
10	**WIRELESS SENSOR NETWORKS**: Introduction, The Mica Mote, Sensing and Communication Range,	CO-4	1. Explain the block diagram of wireless sensor node. 2. How to measure the communication and sensing range in wireless sensor networks explain.	Lecture USING BOARD	Assignment-2 Test- 2 Quiz-2
11	Design Issues, Energy Consumption,	CO-4	3. What are the major design issues in wireless sensor networks? **4.** Explain What are the challenges in WSNs? **5.** What are the energy factors	Lecture USING BOARD	Assignment-2 Test- 2 Quiz-2

			effected to WSNs ? explain.		
12	Clustering of Sensors, Applications.	CO-4	Describe the formation of various clustering techniques in WSNs 2.Explain the applications of wireless sensor networks.	Lecture USING BOARD	Assignment-2 Test- 2 Quiz-2
13	**DATA RETRIEVAL IN SENSOR NETWORKS:** Introduction, Classifications of WSNs, MAC Layer, Routing Layer, High Level Application Layer Support	CO-5	1.What is data centric query in WSNs explain with example. 2. How to classified WSNs according to their mode of operations? explain.	Lecture USING BOARD	Assignment-2 Test- 2 Quiz-2
14	Adapting to the Inherent Dynamic Nature of WSNs, **SECURITY:** Introduction, Distributed Systems Security, Security in Ad Hoc Networks	CO-5	1.Write a short note on security in WSNs.	Lecture USING BOARD	Assignment-2 Test- 2 Quiz-2
15	Key Management, Secure Routing, Cooperation in MANETs, Wireless Sensor Networks, Intrusion Detection Systems	CO-5	1. Explain key management in Wireless sensor networks. 2. Explain the working principle of intrusion detection systems	Lecture USING BOARD	Assignment-2 Test- 2 Quiz-2
16			Mid-II		
17			END EXAM		