21CSE17	SENSOR NETWORKS	L	T	P	C
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Course Objectives

- To understand the fundamentals of wireless sensor networks and its application to critical real time scenarios.
- To study the various protocols at various layers and its differences with traditional protocols.
- To understand the issues pertaining to sensor networks and the challenges involved in managing a sensor network.

UNIT I	INTRODUCTION	9 Hours

Fundamentals of wireless communication technology - the electromagnetic spectrum radio propagation - characteristics of wireless channels - modulation techniques - multiple access techniques - wireless LANs, PANs, WANs, and MANs, Wireless Internet.

UNIT II	INTRODUCTION TO ADHOC/SENSOR NETWORKS	9 Hours

Key definitions of adhoc/sensor networks - unique constraints and challenges - advantages of ad-hoc/sensor network - driving applications, issues in adhoc wireless networks - issues in design of sensor network - sensor network architecture - data dissemination and gathering.

UNIT III	MAC PROTOCOLS	9 Hours

Issues in designing MAC protocols for adhoc wireless networks - design goals - classification of MAC protocols - MAC protocols for sensor network-location discovery, quality, other issues, S-MAC, IEEE 802.15.4

UNIT IV	ROUTING PROTOCOLS	9 Hours

Issues in designing a routing protocol - classification of routing protocols - table-driven, on-demand, hybrid, hierarchical, and power aware routing protocols.

UNIT V	QOS AND ENERGY MANAGEMENT	9 Hours

Issues and Challenges in providing QoS - QoS frameworks - need for energy management - battery, transmission power, and system power management schemes.

UNIT VI	CASE STUDY	

Case Study on Latest real time applications

TOTAL PERIODS: 45

Course Outcome:

- Technical knowhow in building a WSN network.
- Analysis of various critical parameters in deploying a WSN

Text Books:

1. C. Siva Ram Murthy, and B. S. Manoj, "AdHoc Wireless networks ", Pearson Education - 2008.

Reference Books

1. Feng Zhao and Leonides Guibas, "Wireless sensor networks ", Elsevier publication - 2004.
2. Jochen Schiller, "Mobile Communications", Pearson Education, 2nd Edition, 2003.
3. William Stallings, "Wireless Communications and Networks ", Pearson Education - 2004