EC316: Wireless Sensor Networks

Details of course:-

Course Title	Course Structure			Pre-Requisite
	L	T	P	
Wireless Sensor Networks	3	1	0	Basics of Communication and Networking

Course Objective:To introduce basic concepts of Wireless Sensor Networkswith the knowledge of designing, deploying, and optimizing sensor-based communication systems which is reliable and power efficient for monitoring and control applications.

Course Outcomes:

CO1: Explain basic working of Sensor Networks and various protocols related to the same
CO2: Illustrate and analyse architecture and placement strategies of Sensors
CO3: Analyze routing and congestion algorithms
CO4: Design, develop, and carry out performance analysis of sensors on specific applications
CO5**:** Describe and implement solutions to real world problems using sensor devices, enumerating itsprinciples of working

S. No.	Content	Contact Hours
Unit 1	**Adhoc Networks:** Introduction. Routing protocols: proactive and reactive methods, backbone and position based, and power efficient routing.	8
Unit 2	**Sensor Networks:** Introduction and applications. Design issues and architecture.	8
Unit 3	**Sensor deployment:** Issues and challenges, Self organization, Localization.	10
Unit 4	**Data Fusion:** Tree construction algorithms and analysis, Asymptotic capacity, - Lifetime optimization formulations.	8
Unit 5	**Routing protocols:** data centric, hierarchical, location based, energy efficient routing etc.	4
Unit 6	Querying, data collection and processing.	4
	Total	42

Books:-

S. No	Name of Books/Authors/Publisher
1	Handbook of Algorithms for Wireless Networking and Mobile Computing/AzzedineBoukerche/ Chapman & Hall, CRC, 2006.
2	Handbook of Sensor Networks: Compact Wireless and Wired sensing systems/ Mohammad Ilyas and ImadMahgoub/ CRC Press, 2005.
3	Wireless Sensor Network Designs/ Anna Hac/ John Wiley & Sons Ltd, 2003.
4	Wireless Sensor Networks: A systems perspective/ NirupamaBulusu and Sanjay Jha/ Artech House, 2005.
5	Wireless Sensor Networks: Architecture and Protocols/ Jr., Edgar H. Callaway/ Auerbach, 2003.
6	Wireless Sensor Networks/ C.S. Raghavendra, Krishna M. Sivalingam and TaiebZnati/ Springer, 2005.