# 17CS42E1 - WIRELESS NETWORKS

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| Course Category: | Professional Elective | Credits: | 3 |
| Course Type: | Theory | Lecture-Tutorial-Practical: | 3-0-0 |
| Prerequisite: | Need to have basics of computer networks | Sessional Evaluation:  Univ. Exam Evaluation:  Total Marks: | 40  60  100 |
| Objectives: | * To make the student understand the concepts of Wireless networks * To understand the platforms and protocols used in Wireless networks * To make the student take up further research as part of his higher studies | | |

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| Course Outcomes | Upon successful completion of the course, the students will be able to: | |
| CO1 | Understand the basics of wireless networks |
| CO2 | Learn various types of wireless network |
| CO3 | Explore MAC protocols of ad hoc wireless networks |
| CO4 | Design interactive routing protocols |
| CO5 | Study the Quality of service standards in wireless network |
| CO6 | Deal with energy management issues wireless network |
| Course Content | UNIT-I  **Introduction:** Fundamentals, Characteristics, Modulation techniques, Multiple access techniques, voice coding, error control, computer networks, Computer network architecture, IEEE 802 standard, wireless network.  UNIT-II  **Wireless WANs and MANs:** Introduction, The Cellular Concept, Cellular Architecture, The First-Generation Cellular Systems, The Second-Generation Cellular Systems, The Third-Generation Cellular Systems, Wireless in Local Loop IEEE 802.16 Standard, Hiper access.  UNIT-III  **Ad Hoc Wireless Networks:** Introduction, Issues, Ad hoc wireless internet.  **MAC Protocols:** Issues in Designing a MAC protocol, Design goals of a MAC Protocol, Classifications of MAC Protocols.  UNIT-IV  **Routing Protocols:** Introduction, Issues in Designing a Routing Protocol for Ad Hoc Wireless Networks, Classification of Routing Protocols, Table –Driven Routing Protocols, On – Demand Routing Protocols, Hybrid Routing Protocols, Routing Protocols with Efficient Flooding Mechanisms, Hierarchical Routing Protocols, Power – Aware Routing Protocols.  UNIT-V  **Quality of Service in Ad Hoc Wireless Networks:** Introduction, Issues and Challenges in Providing QoS in Ad Hoc Wireless Networks, Classifications of QoS Solutions, MAC layer Solutions, Network Layer Solutions, QoS Frameworks for Ad Hoc Wireless Networks.  UNIT-VI  **Energy Management in Ad Hoc Wireless Networks:** Introduction, Need for Energy Management in Ad Hoc Wireless Networks, Classification of Energy Management Schemes, Battery Management Schemes, Transmission Power Management Schemes, System Power Management Schemes. | |
| Text Books &  References  Books | **TEXT BOOKS:**   1. Ad Hoc Wireless Networks: Architectures and Protocols – C. Siva Ram Murthy and B.S.Manoj, 2004, PHI.   **REFERENCE BOOKS:**   1. Wireless Ad- hoc and Sensor Networks: Protocols, Performance and Control – Jagannathan Sarangapani, CRC Press 2. Holger Karl & Andreas Willig, “Protocols And Architectures for Wireless Sensor Networks”, John Wiley, 2005. | |
| E-Resources | 1. <https://nptel.ac.in/courses> 2. <https://freevideolectures.com/university/iitm> | |