# 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: | 4060100 |
| 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 &ReferencesBooks | **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.
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| E-Resources | 1. <https://nptel.ac.in/courses>
2. <https://freevideolectures.com/university/iitm>
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