# 20IT3101 - WIRELESS AND AD HOC NETWORKS

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| Course Category: | Professional Core | 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 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 networks |
| CO3 | Study the basics of wireless internet & Ad Hoc wireless networks |
| CO4 | Expose to the Quality of service standards in wireless network |
| CO5 | Deal with energy management issues wireless network |
| CO6 | Have Awareness on Recent Advances in Wireless Networks |
| Course Content | UNIT-I**Introduction:** RadioPropagation Mechanisms, Characteristics of the Wireless Channel, Modulation Techniques, Multiple Access Techniques, Voice Coding, Computer Network Architecture, IEEE 802 Networking Standards, Wireless Network.UNIT-II**Wireless WANS and MANS:** 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, HIPERACCESS.UNIT-III**Wireless Internet**: What Is Wireless Internet?, Mobile IP, TCP In Wireless Domain, WAP, Optimizing Web Over Wireless.**Ad Hoc Wireless Networks:** Introduction, Issues in Ad Hoc Wireless Networks, Ad Hoc Wireless Internet.UNIT-IV**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-V**Energy Management In Ad Hoc Wireless Networks:** 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.UNIT-VI**Recent Advances in Wireless Networks**: Ultra-Wide-Band Radio Communication, Wireless Fidelity Systems, Optical Wireless Networks, The Multimode 802.11 – IEEE 802.11a/b/g, The Meghadoot Architecture. |
| Text Books &ReferenceBooks | **TEXT BOOKS:**1. Ad Hoc Wireless Networks: Architectures and Protocols – C. Siva Ram Murthy and B.S.Manoj, 2014, Pearson Education, Inc.

**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://www.tutorialspoint.com/Wireless-Networks>
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**CO-PO Mapping:** 3-High Mapping, 2-Moderate Mapping, 1-Low Mapping, - -Not Mapping

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|   | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| **CO1** | 2 |  1 | 1 | - | - | - | - | - | - | - | - | - |
| **CO2** | 2 | 1 | 1 | - | - | - | - | - | - | - | - | - |
| **CO3** | 2 | 1 | 1 | - | - | - | - | - | - | - | - | - |
| **CO4** | 2 | 1 | 1 | - | - | - | - | - | - | - | - | - |
| **CO5** | 2 | 1 | 1 | - | - | - | - | - | - | - | - | - |
| **CO6** | 2 | 1 | 1 | - | - | - | - | - | - | - | - | - |