Wireless Networks

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LOVELY PROFESSIONAL UNIVERSITY

WIRELESS NETWORKS

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SYLLABUS

Wireless Networks

Objectives:

Sr. No.	Topics
1.	**Introduction to Wireless Networks**. IEEE Standards for Wireless Networks. Wireless Networks Applications. Types of Wireless Networks. Benefits of Wireless Networks.
2.	**Wireless System Architecture**: Wireless System Components, Network Architecture. Information Signals. **Radio Frequency and Light Signal Fundamentals**: Wireless Transceivers, understanding RF Signals, Working of Light Signals
3.	**Types of Wireless Networks**: WPAN, WLAN, WMAN **Wireless PAN:** Components: User Devices, Radio NIC, USB Adapters, Wireless Routers, Bluetooth Dongles etc. **Wireless PAN Systems:** SOHO Equipments, Printing, Accessing Internet, Accessing PDA's, Mobile Phones **Wireless PAN Technologies**: IEEE 802.15. Bluetooth Version 1 and Version 2.
4.	**Wireless LAN:** Meaning, Components: User Devices, Radio NIC's, Access Points, Routers, Repeaters, And Antennae. **SOHO Applications**: Internet Access, Printing, Remote Accessing. Public Wireless LAN's, and AdHoc Wireless LAN's
5.	**Wireless MAN:** Meaning and Components: Bridges, Bridges Vs. Access Points, Ethernet to Wireless Bridges, Workgroup Bridges
6.	**Wireless MAN Systems:** Point to Point Systems, Point to Multi Point, Packet Radio Systems.
7.	**Wireless WAN:** WAN User Devices, Base Stations, Antennae. **Wireless WAN Systems:** Cellular-Based Wireless WANs, First-Generation Cellular**,** Second-Generation Cellular, Third-Generation Cellular.
8.	**Space-Based Wireless WANs:** Satellites, Meteor Burst Communications
9.	**Wireless Networks Security:** Security Threats, Unauthorized Access, Middle Attacks, DoS Attack (Denial of Service).

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1.	**Introduction to Wireless Networks**. IEEE Standards for Wireless Networks. Wireless Networks Applications. Types of Wireless Networks. Benefits of Wireless Networks.
2.	**Wireless System Architecture**: Wireless System Components, Network Architecture. Information Signals.**Radio Frequency and Light Signal Fundamentals**: Wireless Transceivers, understanding RF Signals, Working of Light Signals, Modulation: Sending Data packets in the Air.
3.	**Types of Wireless Networks**: WPAN, WLAN, WMAN **Wireless PAN:** Components: User Devices, Radio NIC, USB Adapters, Wireless Routers, Bluetooth Dongles etc.**Wireless PAN Systems:** SOHO Equipments, Printing, Accessing Internet, Accessing PDA's, Mobile Phones **Wireless PAN Technologies**: IEEE 802.15. Bluetooth Version 1 and Version 2.
4.	**Wireless LAN:** Meaning, Components: User Devices, Radio NIC's, Access Points, Routers, Repeaters, And Antennae. **SOHO Applications**: Internet Access, Printing, Remote Accessing. Public Wireless LAN's, and AdHoc Wireless LAN's
5.	**Wireless MAN:** Meaning and Components: Bridges, Bridges Vs. Access Points, Ethernet to Wireless Bridges, Workgroup Bridges, Directional Antennae's, Semi-Directional, Polarization.
6.	**Wireless MAN Systems:** Point to Point Systems, Point to Multi Point, Packet Radio Systems. **Wireless MAN Technologies:** IEEE 802.11 and Wi-Fi and also purpose of IEEE 802.16 Standard
7.	**Wireless WAN:** WAN User Devices, Base Stations, Antennae. **Wireless WAN Systems:** Cellular-Based Wireless WANs, First-Generation Cellular**,** Second-Generation Cellular, Third-Generation Cellular, SMS Application.
8.	**Space-Based Wireless WANs:** Satellites, Meteor Burst Communications
9.	**Wireless Networks Security:** Security Threats, Traffic Monitoring, Unauthorized Access, Middle Attacks, DoS Attack (Denial of Service). Protective Actions: WEP, WEP issues, WPA, VPN.
10.	**Authentication.** 802.11 Authentication Vulnerabilities, MAC Filters, Authentication Using Public Key Cryptography, 802.1x , Security Policies.