

**SARDAR RAJA COLLEGE OF ENGINEERING,  
ALANGULAM**

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION  
ENGINEERING**

**MICRO LESSON PLAN**



**SUBJECT : WIRELESS NETWORKS**

**CODE : EC 808**

**CLASS : IV Year / VIII SEM**

**STAFF: Mr. A.S.MAHESH ANAND, Asst. Prof,**

**DEPT. OF ECE**

### 1. MULTIPLE RADIO ACCESS 9

Medium Access Alternatives: Fixed-Assignment for Voice Oriented Networks Random Access for Data Oriented Networks, Handoff and Roaming Support, Security and Privacy.

### 2. WIRELESS WANS 9

First Generation Analog, Second Generation TDMA – GSM, Short Messaging Service in GSM, Second Generation CDMA – IS-95, GPRS - Third Generation Systems (WCDMA/CDMA 2000)

### 3. WIRELESS LANS 9

Introduction to wireless LANs - IEEE 802.11 WLAN – Architecture and Services, Physical Layer - MAC sub layer - MAC Management Sub layer, Other IEEE 802.11 standards, HIPERLAN, WiMax standard.

### 4. ADHOC AND SENSOR NETWORKS 9

Characteristics of MANETs, Table-driven and Source-initiated On Demand routing protocols, Hybrid protocols, Wireless Sensor networks- Classification, MAC and Routing protocols.

### 5. WIRELESS MANS AND PANS 9

Wireless MANs – Physical and MAC layer details, Wireless PANs – Architecture of Bluetooth Systems, Physical and MAC layer details, Standards.

**TOTAL: 45**

#### TEXT BOOKS:

1. William Stallings, "Wireless Communications and networks" Pearson / Prentice Hall of India, 2nd Ed., 2007.
2. Dharma Prakash Agrawal & Qing-An Zeng, "Introduction to Wireless and Mobile Systems", Thomson India Edition, 2nd Ed., 2007.

#### REFERENCES:

1. Vijay. K. Garg, "Wireless Communication and Networking", Morgan Kaufmann Publishers, 2007.
2. Kaveth Pahlavan, Prashant Krishnamurthy, "Principles of Wireless Networks", Pearson Education Asia, 2002.
3. Gary. S. Rogers & John Edwards, "An Introduction to Wireless Technology", Pearson Education, 2007.
4. Clint Smith, P.E. & Daniel Collins, "3G Wireless Networks", Tata McGraw Hill, 2nd Ed., 2007.

## SUBJECT DESCRIPTION AND OBJECTIVES

### AIM

To study some fundamental concepts in wireless networks.

### OBJECTIVES

- To understand physical as wireless MAC layer alternatives techniques.
- To learn planning and operation of wireless networks.
- To study various wireless LAN and WAN concepts.
- To understand WPAN and geo-location systems.

### DESCRIPTION

**Wireless network** refers to any type of computer network that is not connected by cables of any kind. It is a method by which homes, telecommunications networks and enterprise (business) installations avoid the costly process of introducing cables into a building, or as a connection between various equipment locations. Wireless telecommunications networks are generally implemented and administered using radio communication. This implementation takes place at the physical level (layer) of the OSI model network structure.

**Wireless personal area networks (WPANs)** interconnect devices within a relatively small area that is generally within a person's reach. For example, both Bluetooth radio and invisible infrared light provides a WPAN for interconnecting a headset to a laptop. ZigBee also supports WPAN applications. Wi-Fi PANs are becoming commonplace (2010) as equipment designers start to integrate Wi-Fi into a variety of consumer electronic devices. Intel "My WiFi" and Windows 7 "virtual Wi-Fi" capabilities have made Wi-Fi PANs simpler and easier to set up and configure.

**Wireless local area network (WLAN)** links two or more devices over a short distance using a wireless distribution method, usually providing a connection through an access point for Internet access. The use of spread-spectrum or OFDM technologies may allow users to move around within a local coverage area, and still remain connected to the network.

**Wireless wide area networks (WWAN)** are wireless networks that typically cover large areas, such as between neighboring towns and cities, or city and suburb. These networks can be used to connect branch offices of business or as a public internet access system. The wireless connections between access points are usually point to point microwave links using parabolic dishes on the 2.4 GHz band, rather than omnidirectional antennas used with smaller networks. A typical system contains base station gateways, access points and wireless bridging relays.

## MICRO LESSON PLAN

Hours	LECTURE TOPICS	READING
<b>UNIT - I MULTIPLE RADIO ACCESS</b>		
1	Medium Access Alternatives	R2
2	Fixed-Assignment for Voice Oriented Network	
3		
4		
5	Random Access for Data Oriented Networks	
6		
7		
8	Handoff (A V Class)	T2
9	Roaming Support (A V Class)	
10	Security and Privacy	
<b>UNIT - II WIRELESS WANS</b>		
11	First Generation Analog	T1
12	Second Generation TDMA	
13	GSM (A V Class)	
14	Short Messaging Service in GSM	
15	Second Generation CDMA	
16	IS-95	
17	GPRS (A V Class)	
18	Third Generation Systems (WCDMA)	
19		
20	Third Generation Systems (CDMA 2000) (A V Class)	
<b>UNIT - III WIRELESS LANS</b>		
21	Introduction to wireless LANs	T1
22	IEEE 802.11 WLAN	
23	Architecture and Services	
24	Physical Layer	
25	MAC sub layer	
26	MAC Management Sub layer	
27	Other IEEE 802.11 standards	
28		
29	HIPERLAN	
30	WiMax standard (A V Class)	

<b>UNIT - IV ADHOC AND SENSOR NETWORKS</b>		
31	Characteristics of MANETs	T2
32	Table-driven and Source	
33	Initiated On Demand routing protocols	
34		
35		
36	Hybrid protocols	
37	Wireless Sensor networks (A V Class)	
38		
39	Classification	
40	MAC and Routing protocols.	
<b>UNIT - V WIRELESS MANS AND PANS</b>		
41	Wireless MANs	T2
42	WMAN - Physical layer details	
43	WMAN - MAC layer details	
44	Wireless PANs (A V Class)	
45	Architecture of Bluetooth Systems	
46		
47	WPAN - Physical layer details	
48	WPAN - MAC layer details	
49	Standards.	

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