

# 17ES024 WIRELESS COMMUNICATIONS AND NETWORKS

Hours Per Week :

L	T	P	C
3	1	-	4

Total Hours :

L	T	P	WA/RA	SSH/SHS	CS	SA	S	BS
45	15	-	15	30	-	5	5	-

### Course Objectives:

- Aim of this course is to offer the knowledge in wireless communication technologies and networking of wireless devices.
- It provides students a thorough knowledge on various wireless networks

### Course Outcomes:

- To be able to appreciate the need and importance of wireless networks
- Familiarity with protocols used for wireless environment in comparison with wired networks.
- Application of this knowledge to incorporate wireless network technologies into embedded devices..

### SKILLS:

- Good understanding of various wireless communication technologies for long range and short range communications

**ACTIVITIES:**

- Creation of WLAN and other Network Topologies
- Implementation of WLL

**Unit – I****Fundamentals of Wireless Communications**

The concept of spread spectrum, Frequency hopping spread spectrum, Direct sequence spread spectrum, Multiple access Techniques for Wireless Communications, Generation of spreading sequences.

**Unit – II****Cellular Networks**

Principles of Cellular Networks, First Generation Analog, Second Generation TDMA, Second Generation CDMA, 2.5 G Wireless Networks, Third Generation Systems, LTE

**Unit – III****Cordless, WLL and Broadband Systems**

Cordless systems, Paging system, Cellular Telephone system, The Cellular Concept-System Design fundamentals, Wireless local loop, IEEE 802.16 fixed broadband wireless access standard, Mobile IP, Wireless application protocol.

**Unit – IV****Wireless LANs**

Infrared LANs, Spread spectrum LANs, Narrowband microwave LANs, IEEE 802 Protocol architecture, IEEE 802.11 Architecture and services, IEEE 802.11 Medium access control, IEEE 802.11 Physical layer

**Unit – V****Bluetooth**

Bluetooth overview, Radio specification, Baseband specification, Link manager specification, Logical link control and adaptation protocol.

**TEXTBOOKS:**

1. William Stallings, "Wireless communications and Networking", Prentice Hall, India 2001
2. T S Rappaport, "Wireless Communications: Principles and Practice", 2nd Edition, Prentice Hall, India 2001

**REFERENCEBOOKS:**

1. Kamilo Feher, "Wireless Digital Communications", Prentice Hall, India 2001
2. Dharma Prakash Agarwal, Qing- An Zeng, "Introduction to Wireless and Mobile Systems", Thomson , 2006
3. Garry J .Mullet, "Introduction to Wireless Telecommunication systems and Networks", cenage learning 2001
4. Simon Haykin, Michael Moher, "Modern wireless Communications", Pearson, 2005