COURSE TITLE : MOBILE COMMUNICATION
COURSE CODE : 6134
COURSE CATEGORY : E/A
PERIODS/WEEK : 5
PERIODS/SEMESTER : 75
CREDITS : 5

TIME SCHEDULE

MODULE	TOPICS	PERIODS
1	Cellular Wireless Networks	**18**
2	Wireless Networking	**18**
3	Wireless LAN Technology	**19**
4	Bluetooth and IEEE 802.15	**20**

Course General Outcomes:

Sl.	G.O	On completion of this course the student will be able :
1	**1**	Understand Cellular Wireless Systems
	2	Understand Multiple Access in Wireless Networks
2	**1**	Understand satellite communication
	2	Study wireless systems operations and standards
	3	Understand Mobile IP and WAP
3	**1**	Understand Wireless LAN Technology
	2	Understand Wi-Fi and IEEE 802.11 standard
4	1	Understand Bluetooth Technology
	2	Understand IEEE 802.15 protocol

Specific Outcomes:

MODULE – I: Cellular Wireless Networks

1.1 To understand Cellular Wireless Networks
- 1.1.1. Discuss Frequency reuse, Increasing capacity, operation, Handoff in Cellular Networks.
- 1.1.2. Describe first generation analog cellular networks
- 1.1.3. Explain second generation cellular systems TDMA
- 1.1.4. Describe Second Generation CDMA Cellular Systems
- 1.1.5. Discuss Third Generation (3G) Cellular Systems
- 1.1.6. Explain CDMA Design considerations

1.2 To understand Multiple Access in Wireless Networks
- 1.2.1 Describe Frequency Division Multiple Access
- 1.2.2 Describe Time Division Multiple Access

1.2.3 Describe Code division multiple access
1.2.4 Describe space division multiple access
1.2.5 Describe Packet Radio access
1.2.6 Describe multiple access with collision avoidance

MODULE – II: Wireless Networking

2.1 To understand Satellite Communication
- 2.1.1 Describe satellite parameters
- 2.1.2 Describe satellite configurations
- 2.1.3 Explain capacity allocation frequency division
- 2.1.4 Explain capacity allocation time division

2.2 To Study Wireless System Operations and Standards
- 2.2.1 Explain cordless systems
- 2.2.2 Describe Wireless Local Loop
- 2.2.3 Explain IEEE 802.16 Broadband wireless access standards

2.3 To Understand Mobile IP and WAP
- 2.3.1 Explain operation of Mobile-IP
- 2.3.2 Explain the architectural overview of Wireless Application Protocol

Module III: Wireless LAN Technology

3.1 To Understand Wireless LAN Technology
- 3.1.1 Distinguish Single cell and multiple cell wireless LAN configurations
- 3.1.2 Discuss requirements of wireless LAN
- 3.1.3 Describe Infrared LAN
- 3.1.4 Describe Spread Spectrum LAN
- 3.1.5 Describe Narrowband Microwave LAN

3.2 To Understand Wi-Fi and IEEE 802.11 standard
- 3.2.1 Describe IEEE 802 Architecture
- 3.2.2 Explain IEEE 802.11 Architecture and services
- 3.2.3 Explain IEEE 802.11 Medium Access Control
- 3.2.4 Explain IEEE 802.11 Physical Layers
- 3.2.5 Describe Wi-Fi Protected Access

Module IV: Bluetooth and IEEE 802.15

4.1 To Understand Bluetooth Technology
- 4.1.1 Discuss blue tooth applications and architecture
- 4.1.2 Explain Scatternet and Piconet

4.2 To study about IEEE 802.15 protocol
- 4.2.1 Discuss IEEE 802.15 architecture for Wireless Personal Area Networks
- 4.2.2 Explain IEEE 802.15.3 protocol for WPAN
- 4.2.3 Describe Bluetooth low energy.
- 4.2.4 Discuss Wireless Sensor Network

CONTENT DETAILS

Module I Cellular Wireless Networks

Cellular Wireless Networks -Frequency reuse - Increasing capacity – operation – Handoff- First generation analog cellular networks - Second generation cellular systems TDMA - Second Generation CDMA Cellular Systems - Third Generation (3G) Cellular Systems - CDMA Design considerations.

Multiple Accesses in Wireless Networks - Frequency Division Multiple Access (FDMA) - Time Division Multiple Access (TDMA) - Code Division Multiple Access (CDMA) - Space Division Multiple Access - Packet Radio Access - Multiple accesses with collision avoidance

Module II Wireless Networking

Wireless Networking - Satellite Communication - satellite parameters - Satellite configurations - Capacity allocation frequency division - Capacity allocation time division

Wireless System Operations and Standards - cordless systems - Wireless Local Loop - IEEE 802.16 Broadband wireless access standards

Mobile IP and WAP - Operation of Mobile-IP - Architectural overview of Wireless Application Protocol

Module III Wireless LAN Technology

Wireless LAN Technology - Single cell Configuration - multiple cell configurations - Requirements - Infrared LAN - Describe Spread Spectrum LAN - Narrowband Microwave LAN

Wi-Fi and IEEE 802.11 standard - IEEE 802 Architecture - IEEE 802.11 Architecture and services - 802.11 Medium Access Control - IEEE 802.11 Physical Layers - Describe Wi-Fi Protected Access

Module IV Bluetooth and IEEE 802.15

Bluetooth Technology - Bluetooth applications - architecture – scatternet-piconet-**IEEE 802.15 protocol - A**rchitecture of WPAN - IEEE 802.15.3 protocol for WPAN-Bluetooth low energy-Wireless Sensor Network.

TEXT BOOK(S):

1. Wireless Communications & Networks : Author: William Stallings - Pearson –Second Edition

REFERENCE:

1. Wireless and Mobile Networks: Concepts and Protocols : Author: Dr.Sunilkumar S. Manvi & Mahabaleshwar -: Wiley – India-2010
2. Undamentals Of Wireless Communication Tse Cambridge University Press First Edtion