**M – SCHEME DETAILED SYLLABUS**

# 34083 - MOBILE COMMUNICATION

## UNIT I INTRODUCTION TO MOBILE COMMUNICATION

Evolution of Mobile Radio Communication, Mobile Radio Telephony in India and around the world, Examples of Wireless Communication Systems: Paging system, Cordless telephones systems, Cellular telephone Systems, Trends in Cellular Radio and personal Communications.

**THE CELLULAR CONCEPT:** Frequency reuse, Channel Assignment strategies, Hand off Strategies, Prioritizing Handoffs, Interference and system capacity, Improving coverage and capacity in cellular systems, Cell splitting, Sectoring, Repeaters for range extension.

## UNIT II BROADCAST SYSTEMS

Introduction – Cyclical repetition of data – Digital audio broadcasting – multimedia object transfer protocol – Digital video broadcasting – DVB data broadcasting, DVB for high speed internet access – Convergence of broadcasting and mobile communications.

## UNIT III WIRELESS TRANSMISSION (2G)

Global system for mobile (GSM) - services and features - Radio subsystem - channel types - Example of a GSM call - Frame structure for GSM – DECT system architecture, protocol architecture – TETRA – UMTS and IMT-2000 - radio interface, UTRAN, core network, handover - CDMA digital cellular standard (IS – 95): Frequency and channel specifications -Forward CDMA channel and Reverse CDMA channel.

## UNIT IV WIRELESS NETWORKING (3G)

**Mobile Services (2.5G) GPRS:** GPRS Functional groups – architecture - network nodes – procedures –billing.

**WAP:** WAP Model - WAP Gateway- WAP Protocols - WAP UA prof and caching, wireless bearers for WAP, WAP developer tool kits - Mobile station application execution environment.

**Mobile Services (3G):**

Paradigm Shifts in 3G Systems - W-CDMA and CDMA 2000 - Improvements on core network - Quality of service in 3G - Wireless OS for 3G handset - 3G systems and field trials - Other trail systems - Impact on manufacture and operator technologies.

**UNIT V MOBILE NETWORK LAYER & TRANSPORT LAYER**

Mobile IP – Goals, assumptions and requirements, Entities and terminology, IP Packet delivery, Agent discovery, Registration, tunneling and encapsulation , Optimization, Reverse tunnelling, IPv6, IP micro- mobility support - Dynamic host configuration protocol – mobile ad-hoc network – routing – destination sequence distance vector – Dynamic source routing – alternative metrics TCP – Congestion control – slow start – fast retransmit/ fast recovery – implications of mobility – Classical TCP improvements – indirect – snooping – Mobile–Transmission timeout freezing – selective retransmission- Transaction oriented – TCP over 2.5/3G wireless networks.

**REFERENCE BOOKS:**

1. Wireless Communications Principles and Practice Theodore S. Rappaport Pearson Education, 2003.

2. Mobile Communications Jochen Schiller Pearson Education, 2009, Secondedition.

3. Wireless and Mobile Network Architectures Yi-BingLin, Imrich Chlamtac Wiley, 2001.

4. Mobile Cellular Communication Gottapu Sasibhushana Rao Pearson Education, 2012.

5. Wireless Digital Communications Kamilo Feher PHI, 2003.