



DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN ELECTRONICS AND COMMUNICATION ENGINEERING

III YEAR

M SCHEME

VI SEMESTER

2015-2016 onwards

MOBILE COMMUNICATION

CURRICULAM DEVELOPMENT CENTRE

M-SCHEME

(Implemented from the Academic year 2015-2016 onwards)

Course Name : Electronics and Communication Engineering

Subject Code : 34083

Semester : VI Semester

Subject Title : MOBILE COMMUNICATION

TEACHING AND SCHEME OF EXAMINATION:

Number of Weeks/ Semester : 15 weeks

Subject	Instruction		Examination			
			Marks			
	Hrs/ Week	Hrs/ Semester	Internal Assessment	Board Examination	Total	Duration
Mobile Communication	5	75	25	75	100	3 Hrs

TOPICS AND ALLOCATION:

UNIT	TOPIC	TIME(HRS)
I	Introduction to Mobile Communication	13
II	Broadcast Systems	13
III	Wireless Transmission (2G)	13
IV	Wireless Networking (3G)	12
V	Mobile Network Layer & Transport Layer	12
Revision – Test		12
TOTAL		75

RATIONALE

Communication is one of the integral parts of science that has always been a focus point for exchanging information among parties at locations physically apart. After its discovery, telephones have replaced the telegrams and letters. Similarly, the term 'mobile' has completely revolutionized the communication by opening up innovative applications that are limited to one's imagination. Today, mobile communication has become the backbone of the society. All the mobile system technologies have improved the way of living. Its main plus point is that it has privileged a common mass of society. In this subject, the evolution as well as the fundamental techniques of the mobile communication is discussed.

OBJECTIVES:

- To know the basics of Mobile Radio Communication
- To know about wireless communications systems
- To understand the Cellular concept
- To study broadcasting
- To learn the Digital audio and video broadcasting
- To learn the convergence of mobile communications
- To know wireless communications and the process of transmission
- To study about various architectures in wireless transmission
- To study the CDMA digital standards
- To understand Mobile Services (2G), (2.5G) and (3G)
- To know the GPRS and WAP
- To learn the manufacture and operator technologies
- To learn mobile network layer & transport layer
- To study the Dynamic host configuration protocol
- To know the TCP & its improvements

34083 - MOBILE COMMUNICATION

DETAILED SYLLABUS

UNIT	NAME OF THE TOPIC	HOURS
1	<u>INTRODUCTION TO MOBILE COMMUNICATION</u> 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	13
2	<u>BROADCAST SYSTEMS</u> 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	13
3	<u>WIRELESS TRANSMISSION (2G)</u> 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	13
4	<u>WIRELESS NETWORKING (3G)</u> 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.	12
5	<u>MOBILE NETWORK LAYER & TRANSPORT LAYER</u> Mobile IP – Goals, assumptions and requirements, Entities and terminology, IP Packet delivery, Agent discovery, Registration, tunneling and encapsulation , Optimization, Reverse tunneling, 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	12
	Revision & Test	12

REFERENCE BOOKS:

SL.No	Title	Author	Publisher with Edition
11.	Wireless Communications Principles and Practice	Theodore S. Rappaport	Pearson Education, 2003
12.	Mobile Communications	Jochen Schiller	Pearson Education, 2009, Second edition
13.	Wireless and Mobile Network Architectures	Yi-BingLin, Imrich Chlamtac	Wiley, 2001
14.	Mobile Cellular Communication	Gottapu Sasibhushana Rao	Pearson Education, 2012
15.	Wireless Digital Communications	Kamilo Feher	PHI, 2003
16.	Mobile Cellular Communications	W.C.Y. Lee	2nd Edition, MC Graw Hill, 1995
17.	Wireless Networks	P. Nicopolitidis	Wiley, 2003
18.	Wireless Communications and Networks	William Stallings	2nd Edition,Prentice Hall of India-2006