MAHENDRA ENGINEERING COLLEGE
(Autonomous)

Syllabus

Department	Information Technology	Programme Code	2071

VI Semester

Course code	Course Name	Periods/week			Credit	Maximum marks
		L	T	P	C	
15IT14604	MOBILE COMPUTING	3	0	0	3	100

Objective(s)	• Understand the basic concepts of mobile computing. • Be familiar with the network protocol stack. • Learn the basics of mobile telecommunication system. • Be exposed to Ad-Hoc networks. • Gain knowledge about different mobile platforms and application development
Outcome(s)	Upon completion of this course, students will be able to • The ability to develop applications that are mobile-device specific and demonstrate current practice in mobile computing contexts. • A working understanding of the characteristics and limitations of mobile hardware devices including their user-interface modalities • A comprehension and appreciation of the design and development of context-aware solutions for mobile devices. • An awareness of professional and ethical issues, in particular those relating to security and privacy of user data and user behavior.

UNIT-I	INTRODUCTION TO MOBILE COMPUTING AND WIRELESS NETWORKING	9

Introduction: Mobile Computing – Wireless Networking - Mobile Computing Applications – Characteristics of Mobile Computing – Structure of Mobile Computing Application. MAC Protocols – Wireless MAC Issues – Fixed Assignment Schemes: FDMA, TDMA and CDMA – Random Assignment Schemes: ALOHA and the CSMA – Reservation Based Schemes: MACA.

UNIT-II	MOBILE INTERNET PROTOCOL AND MOBILE TRANSPORT LAYER	9

Overview of Mobile IP: Introduction – Desirable Features of Mobile IP – Key Mechanism in Mobile IP – Route Optimization. Overview of TCP/IP – Terminologies of TCP / IP - Architecture of TCP/IP- Adaptation of TCP Window – Improvement in TCP Performance.

UNIT-III	MOBILE TELECOMMUNICATION SYSTEM	9

Basics of Communication Terminologies – Cellular Mobile Communication - Structure of Mobile Computing Application – General Packet Radio Service (GPRS) – Universal Mobile Telecommunication System (UMTS) – Mobile Phone and Human Body- 4G - Wimax .

UNIT-IV	MOBILE AD-HOC NETWORKS AND ITS SECURITY	9

Basic Concepts of Ad- Hoc – Characteristics – Applications – Design Issues – Routing – Essential of Traditional Routing Protocols –Popular Routing Protocols – Vehicular Ad Hoc Networks (VANET) – MANET Vs VANET – Security Issues in a MANET – Attacks on Ad-Hoc Networks – Security Attacks Countermeasures.

UNIT-V	MOBILE PLATFORMS AND APPLICATIONS	9
Mobile Device Operating Systems – Special Constrains & Requirements – A survey of Commercial Mobile Operating Systems – Android Software Development Kit (SDK) - M-Commerce – Structure – Pros & Cons – Mobile Payment System – Security Issues.		
	TOTAL PERIODS	**45**

TEXT BOOK :	
1	Prasant Kumar Pattnaik, Rajib Mall, "Fundamentals of Mobile Computing", PHI Learning Pvt. Ltd, New Delhi – 2012
REFERENCES:	
1	Jochen H. Schller, "Mobile Communications", Second Edition, Pearson Education, New Delhi, 2007
2	Dharma Prakash Agarval, Qing and An Zeng, "Introduction to Wireless and Mobile systems", Thomson Asia Pvt Ltd, 2005
3	Uwe Hansmann, Lothar Merk, Martin S. Nicklons and Thomas Stober, "Principles of Mobile Computing", Springer, 2003
4	William.C.Y.Lee,"Mobile Cellular Telecommunications-Analog and Digital Systems", Second Edition,Tata Mc Graw Hill Edition ,2006
5	C.K.Toh, "AdHoc Mobile Wireless Networks", First Edition, Pearson Education, 2002
6	Android Developers : http://developer.android.com/index.html
7	Apple Developer : https://developer.apple.com/
8	Windows Phone Dev Center : http://developer.windowsphone.com
9	BlackBerry Developer : http://developer.blackberry.com/

AU Nominee
Dr. R. Gunasekaran

BoS Chairman
Prof. S. Raju