

Branch Name:	Information and Communication Technology
Semester/Year:	Semester VII/ Fourth Year
Subject Title:	Mobile Computing
Subject Code:	1ET1070702
Pre-requisite:	Analog and Digital Communication

Course Objective:

1. To understand the basic concepts of mobile computing.
2. To learn the basics of mobile telecommunication system .
3. To be familiar with the network layer protocols and Ad-Hoc networks.
4. To know the basis of transport and application layer protocols.
5. To gain knowledge about different mobile platforms and application development.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)		
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	
03	-	-	03	70	30	100

Content:

Sr. No.	Topic	Total Hrs.	Weightage %
1	Introduction: Introduction to Mobile Computing, Applications of Mobile Computing- Generations of Mobile Communication Technologies- Multiplexing , Spread spectrum -MAC Protocols – SDMA, TDMA, FDMA, CDMA	9	20
2	Mobile Telecommunication System: Introduction to Cellular Systems, GSM Services & Architecture , Protocols, Connection Establishment, Frequency Allocation, Routing, Mobility Management, Security, GPRS/UMTS Architecture, Handover Security	9	25
3	Mobile Network Layer: Mobile IP, DHCP, AdHoc, Proactive protocol-DSDV, Reactive Routing Protocols, DSR, AODV , Hybrid routing, ZRP, Multicast Routing- ODMRP, Vehicular Ad Hoc networks (VANET),MANET Vs VANET – Security.	9	25
4	Mobile Transport And Application Layer: Mobile TCP,WAP – Architecture, WDP , WTLS , WTP, WSP , WAE , WTA Architecture – WML	8	15
5	Mobile Platforms And Applications: Mobile Device Operating Systems – Special Constraints & Requirements , Commercial Mobile Operating Systems,Software Development Kit: iOS, Android, BlackBerry, Windows Phone, MCommerce – Structure – Pros & Cons, Mobile Payment System, Security Issues	8	15

Course Outcome:

After learning the course the students should be able to:

1. Explain the basics of mobile telecommunication systems
2. Illustrate the generations of telecommunication systems in wireless networks
3. Determine the functionality of MAC, network layer and Identify a routing protocol for a given Ad hoc network
4. Explain the functionality of Transport and Application layers
5. Develop a mobile application using android/blackberry/ios/Windows SDK

Text Book:

1. Jochen Schiller, —Mobile Communications, PHI, Second Edition, 2003.
2. Prasant Kumar Pattnaik, Rajib Mall, —Fundamentals of Mobile Computing, PHI Learning Pvt.Ltd, New Delhi – 2012.

List of Reference Books:

1. Dharma Prakash Agarwal, Qing and An Zeng, "Introduction to Wireless and Mobile systems", Thomson Asia Pvt Ltd, 2005.
2. Uwe Hansmann, Lothar Merk, Martin S. Nicklons and Thomas Stober, —Principles of Mobile Computing, Springer, 2003.
3. William.C.Y.Lee,—Mobile Cellular Telecommunications-Analog and Digital Systems, Second Edition, TataMcGraw Hill Edition ,2006.
4. C.K.Toh, —AdHoc Mobile Wireless Networks, First Edition, Pearson Education, 2002.
5. Android Developers : <http://developer.android.com/index.html>
6. Apple Developer : <https://developer.apple.com/>
7. Windows Phone DevCenter : <http://developer.windowsphone.com>
8. BlackBerry Developer : <http://developer.blackberry.com>

e-Resources (If any):

1. <http://developer.android.com/index.html>
2. <http://developer.blackberry.com>