| COURSE CODE | COURSE TITLE | L | T | P | C |
|---|---|---|---|---|---|
| UCS1702 | MOBILE COMPUTING | 3 | 0 | 0 | 3 |

**OBJECTIVES**

- Understand the basic concepts of mobile computing
- Be familiar with the protocol stack
- Be exposed to Ad-Hoc networks
- Learn the basics of mobile telecommunication system
- Gain knowledge about different mobile platforms and application development environments.

**UNIT I INTRODUCTION 9**

Introduction to Mobile Computing; MediaAccess Control (MAC): Motivation for a specialized MAC– SDMA – FDMA – TDMA – CDMA– Comparison of S/T/F/CDMA; Wireless LAN: Infrastructure based and adhoc networks – IEEE802.11 – Bluetooth.

**UNIT II NETWORK LAYER 9**

MobileIP: Goals, assumptions andrequirements – Entitiesandterminology – IP packetdelivery – Agentdiscovery – Registration –Tunneling andencapsulation– Optimizations; DHCP;Adhoc:Routing – Proactive routing protocol- DSDV – Reactive routing protocol - DSR, AODV – Hybrid routing –ZRP – Multicast Routing- ODMRP; VANET.

**UNIT III TRANSPORT AND APPLICATION LAYER 9**

Mobile Transport Layer: Traditional TCP – ClassicalTCP improvements; Wireless Application Protocol(WAP): Architecture – WDP – WTLS – WTP –WSP – WAE – WML –WTA.

**UNIT IV MOBILE TELECOMMUNICATION SYSTEM 9**

Introduction; GlobalSystemforMobileCommunication (GSM): Mobileservices– Systemarchitecture – Radiointerface – Protocols– Localization and calling– Handover – Security;GeneralPacketRadioService (GPRS); Universal MobileTelecommunication System(UMTS): UMTS system architecture – UTRAN – Core network – Handover.

**UNIT V MOBILE PLATFORMS AND APPLICATION ENVIRONMENTS 9**

iOS: iOS Architecture Layers – iOS Simulator; Android: Platform architecture – Developing android applications – Anatomy of android applications – Android SDK; Mobile Web.

**TOTAL PERIODS: 45**

**OUTCOMES**

**On successful completion of this course, the student will be able to**

- Identify the functionalities of various MAC protocols (K3)
- Explain the functionalities of mobile network layer and routing in Ad hoc networks (K3)
- Analyze the transport and application layer protocols (K3)
- Explain the basics of mobile telecommunication system (K2)
- Develop a mobile application (K3).

**TEXTBOOKS**


1. JochenH Schller, “Mobile Communications”, Pearson Education, New Delhi, 2nd Edition,2007 (Unit I–IV).
2. Helal, Sumi, Raja Bose, Wendong Li, “Mobile Platforms and DevelopmentEnvironments.” Synthesis Lectures on Mobile and Pervasive Computing,2012 (Unit V).


**REFERENCE BOOKS**


1. Helal,Abdelsalam A, et al.“ Any Time, Anywhere Computing: Mobile Computing Concepts and Technology”, Vol 522, Springer Science & Business Media, 1st Edition,1999.
2. Dharma Prakash Agarval, QingandAn Zeng, “Introduction to Wireless and Mobile systems”, Thomson Asia, 3rd Edition, 2005.
3. Uwe Hansmann, LotharMerk, MartinS Nicklons and Thomas Stober, “Principles of Mobile Computing”, Springer, 2003.
4. William C Y Lee, “Mobile Cellular Telecommunications–Analog and Digital Systems”, 2nd Edition, Tata Mc Graw Hill Edition,2006.
5. C K Toh, “AdHoc Mobile Wireless Networks”, Pearson Education, 1st Edition,2002.