**IT6601 MOBILE COMPUTING L T P C**

**3 0 0 3**

**OBJECTIVES:**

**The student should be made to:**

* 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

**UNIT I INTRODUCTION 9**

Mobile Computing – Mobile Computing Vs wireless Networking – Mobile Computing Applications – Characteristics of Mobile computing – Structure of Mobile Computing Application. MAC Protocols – Wireless MAC Issues – Fixed Assignment Schemes – Random Assignment Schemes – Reservation Based Schemes.

**UNIT II MOBILE INTERNET PROTOCOL AND TRANSPORT LAYER 9**

Overview of Mobile IP – Features of Mobile IP – Key Mechanism in Mobile IP – route Optimization. Overview of TCP/IP – Architecture of TCP/IP- Adaptation of TCP Window – Improvement in TCP Performance.

**UNIT III MOBILE TELECOMMUNICATION SYSTEM 9**

Global System for Mobile Communication (GSM) – General Packet Radio Service (GPRS) – Universal Mobile Telecommunication System (UMTS).

**UNIT IV MOBILE AD-HOC NETWORKS 9**

Ad-Hoc Basic Concepts – Characteristics – Applications – Design Issues – Routing – Essential of Traditional Routing Protocols –Popular Routing Protocols – Vehicular Ad Hoc networks ( VANET) – MANET Vs VANET – Security.

**UNIT V MOBILE PLATFORMS AND APPLICATIONS 9**

Mobile Device Operating Systems – Special Constrains & Requirements – Commercial Mobile Operating Systems – Software Development Kit: iOS, Android, BlackBerry, Windows Phone – MCommerce – Structure – Pros & Cons – Mobile Payment System – Security Issues.

**TOTAL:45 PERIODS**

**OUTCOMES:**

**At the end of the course, the student should be able to:**

* Explain the basics of mobile telecommunication system
* Choose the required functionality at each layer for given application
* Identify solution for each functionality at each layer
* Use simulator tools and design Ad hoc networks
* Develop a mobile application.

**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/>

**CS6611 MOBILE APPLICATION DEVELOPMENT LABORATORY L T P C**

**0 0 3 2**

**OBJECTIVES:**

**The student should be made to:**

* Know the components and structure of mobile application development frameworks for Android and windows OS based mobiles.
* Understand how to work with various mobile application development frameworks.
* Learn the basic and important design concepts and issues of development of mobile applications.
* Understand the capabilities and limitations of mobile devices.

**LIST OF EXPERIMENTS:**

1. Develop an application that uses GUI components, Font and Colours
2. Develop an application that uses Layout Managers and event listeners.
3. Develop a native calculator application.
4. Write an application that draws basic graphical primitives on the screen.
5. Develop an application that makes use of database.
6. Develop an application that makes use of RSS Feed.
7. Implement an application that implements Multi threading
8. Develop a native application that uses GPS location information.
9. Implement an application that writes data to the SD card.
10. Implement an application that creates an alert upon receiving a message.
11. Write a mobile application that creates alarm clock

**TOTAL:45 PERIODS**

**OUTCOMES:**

**At the end of the course, the student should be able to:**

* Design and Implement various mobile applications using emulators.
* Deploy applications to hand-held devices