JEPPIAAR INSTITUTE OF TECHNOLOGY

"Self-Belief | Self Discipline | Self Respect"

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CS8601 - MOBILE COMPUTING - SYLLABUS

L T P C 3 0 0 3

OBJECTIVES:

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

UNIT I INTRODUCTION **9**

Introduction to Mobile Computing – Applications of Mobile Computing- Generations of Mobile Communication Technologies- Multiplexing – Spread spectrum -MAC Protocols – SDMA- TDMA- FDMA- CDMA

UNIT II MOBILE TELECOMMUNICATION SYSTEM **9**

Introduction to Cellular Systems - GSM – Services & Architecture – Protocols – Connection Establishment – Frequency Allocation – Routing – Mobility Management – Security – GPRSUMTS – Architecture – Handover - Security

UNIT III MOBILE NETWORK LAYER **9**

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.

UNIT IV MOBILE TRANSPORT AND APPLICATION LAYER **9**

Mobile TCP– WAP – Architecture – WDP – WTLS – WTP –WSP – WAE – WTA Architecture – WML

UNIT V MOBILE PLATFORMS AND APPLICATIONS **9**

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

TOTAL 45 PERIODS

OUTCOMES:

At the end of the course, the students should be able to:

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

TEXT BOOKS:

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

REFERENCES

1. Dharma Prakash Agarval, 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