AIT 519 ADVANCED MOBILE APPLICATION DEVELOPMENT 3(2+1)

Objectives:

Introduction of an advanced element of learning in the field of wireless communication, expose the students to the concepts of wireless devices and mobile computing

Theory:

UNIT I Mobile Computing Introduction

History of Wireless Communications, Types, propagation modes Wireless network architecture, Applications, Security, Concerns and Standards, Benefits, Future. Evolution of mobile computing, What mobile users need, SOC and AOC client, Mobile computing OS, Architecture for mobile computing, Three tier architecture, design considerations for mobile computing, mobile computing through internet, making existing applications Mobile-Enabled.

UNIT II Mobile Technologies

Bluetooth, Radio frequency identification(RFID),Wireless Broadband, Mobile IP: Introduction, Advertisement, Registration, TCP connections, two level addressing, abstract mobility management model, performance issue, routing in mobile host, Adhoc networks, Mobile transport layer: Indirect TCP, Snooping TCP, Mobile TCP, Time out freezing, Selective retransmission, transaction oriented TCP. ,IPv6 Global system for mobile communication, Global system for mobile communication, GSM architecture, GSM entities, call routing in GSM,PLMN interface, GSM addresses and identifiers, network aspects in GSM,GSM frequency allocation, authentication and security, Short message services, Mobile computing over SMS,SMS, value added services through SMS, accessing the SMS bearer

UNIT III General packet radio service(GPRS)

GPRS and packet data network, GPRS network architecture, GPRS network operation, data services in GPRS, Applications of GPRS, Billing and charging in GPRS

UNIT IV Wireless Application Protocol WAP,MMS,GPRS application CDMA and 3G

Spread-spectrum Technology, CDMA versus GSM, Wireless data, third generation networks, applications in 3G Wireless LAN, Wireless LAN advantages,IEEE802.11 standards ,Wireless LAN architecture, Mobility in Wireless LAN, Deploying Wireless LAN, Deploying Wireless LAN, Mobile ad hoc networks and sensor networks, wireless LAN security, WiFi v/s 3G Voice over Internet protocol and convergence, Voice over IP,H.323 framework for voice over IP,SIP, comparison between H.323 and SIP, Real time protocols, convergence technologies, call routing, call routing, voice over IP applications, IMS, Mobile VoIP, Security issues in mobile Information security, security techniques and algorithms, security framework for mobile environment

Practical:

1. Study of IEEE 802.11 network topology
2. Hello, Android
3. Creating Applications and Activities
4. Creating User Interfaces
5. Intents, Broadcast Receivers, Adapters, and the Internet
6. Data Storage, Retrieval, and Sharing
7. Maps, Geocoding, and Location-Based Services
8. Working in the Background
9. Peer-to-Peer Communication

Reference Books:

1. Mobile Computing , Asoke K Telukder, Roopa R Yavagal, TMH
2. The complete reference J2ME, TMH
3. Handbook of Wireless Networks and Mobile Computing, Ivan Stojmenovic ,Wiley

4. Principles of Mobile Computing, - Hansmann, Merk, Nicklous and Stober, Springer
5. Mobile Communications, Jochen Schiller, Pearson
6. Mobile Computing, Raj Kamal, Oxford
7. Android Wireless Application Development, Shane Conder, Lauren Darcey, Pearson
8. Professional Android 2 Application development, Reto Meier, Wrox, Wiley India