

Branch Name:	Computer Engineering / Information Technology
Semester/Year:	Semester VIII / Final Year
Subject Title:	Wireless Communication and Mobile Computing
Subject Code:	1ET1030803
Pre-Requisite:	None

Course Objective:

- To impart fundamental concepts in the area of mobile computing.
- To provide a computer systems perspective on the converging areas of wireless networking, embedded systems and software.

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
04	-	02	05	70	30	30	20	150

Subject Contents				
Sr. No	Topic	Total Hours	Weight (%)	
1	Introduction: History, Fundamentals of Wireless Communication Technology, Types of wireless communications, Wireless network architecture, Applications, Security concerns and Standards, Introduction to mobile computing, Future evolution of mobile computing, What mobile users need, Mobile computing OS, Architecture for mobile computing, Three tier architecture, Communications Networks- LAN – MAN-WAN, Switching Techniques- Circuit Switching & Packet Switching, OSI & TCP/IP Protocol Suite: Need & Architecture	10	18%	
2	Antennas Propagation Modes, Line-of-Sight Transmission, Fading in the Mobile Environment Mobile Technologies Bluetooth, Radio frequency identification(RFID),Wireless Broadband, Mobile IP: Introduction, Advertisement, Registration, TCP connections, two level addressing, Ad hoc Wireless Networks Mobile transport layer: Indirect TCP, Snooping TCP, Mobile TCP, Time out freezing, Selective retransmission, transaction oriented TCP, IPv6	8	16%	
3	Global System for Mobile Communication (GSM): GSM architecture, GSM entities, Call routing in GSM, PLMN interface, GSM addresses and identifiers, Network aspects in GSM, GSM frequency allocation, Authentication and security, Protocols, Localization and calling, Handover, Security, CDMA v/s. GSM.	8	16%	
4	General Packet Radio Service (GPRS): Main Features, GPRS Architecture: Roles of GGSN, SGSN, HLR, VLR. GPRS Mobile Station (MS). GPRS transmission plane, GPRS signaling plane, Data transfer between MS and SGSN. GPRS Protocols. GPRS Channels. Mobility management, Location Management. GPRS Routing, GPRS QoS. GPRS Security.	6	15%	

5	Wireless Application Protocol: Architecture, Wireless Datagram Protocol, Wireless Transport Layer Security, Wireless Transaction Protocol, Wireless Session Protocol, Wireless Application Development, Wireless Markup Language, WML Scripts, Wireless Telephony Application, push architecture, Push/pull services	6	15%
6	Multiple access in Wireless System – Multiple access scheme, frequency division multiple access, Time division multiple access, code division multiple access, space division multiple access,	5	10%
7	Wi-Fi and the IEEE 802.11 Wireless LAN Standards IEEE 802 architecture, IEEE 802.11 architecture and services, IEEE 802.11 Medium access control, IEEE 802.11 physical layer, Wi-Fi protected access.	5	10%

Course Outcome:

After learning this subject, students will be able to;

1. Understand various wireless standards along with types of wireless communications.
2. Understand and implement various mobile applications.

List of Text Books:

1. Mobile Computing, Asoke K Telukder, Roopa R Yavagal, TMH 2.
2. Mobile Communications, Jochen Schiller, Pearson

List of Reference Books:

1. William Stallings, "Wireless Communications and Networks", Pearson Education 2002.
2. C. Siva Ram Murthy and B. S. Manoj, "Ad Hoc Wireless Networks", Prentice Hall, PTR, 2004.

List of Suggested titles of Experiments:

1. To study about Time Division Multiplexing (TDM)
2. To study of wireless ad hoc network and it's working
3. To study about different types of antenna in wireless communication
4. To study about various multiple access scheme
5. To study about Wi-Fi and the IEEE 802.11 Wireless LAN Standard
6. To study about call routing in GSM
7. To study about Mobile IP
8. To study about Wireless Application Protocol
9. To study about RFID & prepare case study on one of the application
10. To study about Wireless sensors network application and its working