GUJARAT TECHNOLOGICAL UNIVERSITY

SUBJECT NAME: Wireless Communication and Mobile Computing (Major Elective – I)
SUBJECT CODE: 3715303
Semester I

Type of course:

Prerequisite:
1. Wireless Network concept
2. IEEE 802.11

Rationale:

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE(E)	PA (M)	ESE	PA(I)	
3	2	0	4	70	30	30	20	150

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment;

Content:

Sr. No.	**Content**	**Total Hrs**	**% Weightage**
		7	15
1	Mobility Support in IEEE 802.11 WLAN: Issues and Enhancement, QoS support for IEEE 802.11 wireless LAN Performance Limitations of IEEE 802.11 Networks and Potential Enhancements, Saturation Performance Analysis of IEEE 802.11 Distributed Coordination Function, Dynamic Random Access for Wireless LAN with Multipacket Reception, Wireless LAN MAC Protocols Using Busy Tones and Jamming Signals		
		7	15
2	MAC and Routing Protocols for IEEE 802.11 Wireless Mesh Networks, Throughput Analysis of the IEEE 802.11e Enhanced Distributed Channel Access, Piconet and Scatternet management in Bluetooth Networks		
		8	20
3	TCP performance in Bluetooth piconets, Scheduling in Bluetooth Networks, Scatternet Formation and Self- Routing in Bluetooth Networks, High Capacity Bluetooth Access Point Design for Interface Elimination		
		8	20
4	Wireless Communication: Cellular Architecture, Large scale and Small scale fading channel models, diversity recivers, DS-CDMA transmitter and receiver design, Multi-user Detection, multi–carrier CDMS and OFD< performance analysis.		

Text Books:

1. Mobile and Wireless Design Essentials by Martyn Mallick, John Wiley & Sons
2. J. Schiller, Mobile Communications, Addison –Wesley, 2003
3. Introduction to Wireless and Mobile Systems by Cengage Learning (Thompson)
4. T. S. Rapport, Wireless Communications, Principle and Practices Forouzan, Data Communications and Networking, TMH

Course Outcome:

After learning the course the students should be able to:

1. Demonstrate Sensor Network
2. Study of sensor Network
3. Study of GSM Architecture

List of Experiments: (with Open Ended Problems)

1. Study the effect of RTS/CTS in multihop wireless network with help of a simulation
2. Transmit video data over wireless network and measure the quality of reception
3. Simulate the behavior of IEEE 802.11e and compare it with IEEE 802.11
4. Study the effect of mobility (Simulate Mobile IP) of nodes by means of simulation on packet delivery ratio.

Major Equipment's:

WSN Motes

List of Open Source Software/learning website:

Ns2.28, ns2.35

Ubuntu 102 onwards