GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA IN INFORMATION TECHNOLOGY
SEMESTER : V

Subject Name: **Wireless Communication**

Sr. No.	Course content

1.	**Digital Communication :**
	1.1 Information capacity, bits, bit rate and baud.(Shannon's and Hartley's law)
	1.2 Introduction to digital modulation techniques
	      1.2.1 Amplitude Shift keying
	      1.2.2 Frequency Shift Keying
	      1.2.3 Phase shift keying
	      1.2.4 QPSK
	      1.2.5 Quadrature Amplitude Modulation
	1.3 Bandwidth efficiency
	1.4 Advantages and disadvantages of digital transmission
	1.5 Pulse code modulation
	1.6 Coding methods
	1.7 Multiple access systems

2.	**Global System for Mobile Communications (GSM):**
	2.1 History of mobile communication
	2.2 Cell, cluster and coverage area
	2.3 Frequency Reuse Concept
	2.4 GSM Architecture
	2.5 Frequency allocation
	2.6 GSM Identifiers
	     IMEI, IMSI, MSISDN, LAI, MSRN, TMSI, LMSI
	2.7 GSM Entities
	    • Mobile Stations
	    • Base Station Subsystem
	    • Network and Switching Subsystem
	    • Operation and Support Subsystem

3.	**GSM Call Processing:**
	3.1 Roaming
	3.2 Call routing
	3.3 Radio wave to speech and speech to radio wave conversion
	3.4 Handover
	3.5 Mobile originated call
	3.6 Mobile terminated call
	3.7 SMS
	      3.7.1 Features
	      3.7.2 Architecture
	      3.7.3 Operator centric pull, operator independent push and Operator independent pull

4.	**GPRS:**
	    4.1 Emergence of GPRS
	    4.2 GPRS network architecture
	    4.3 GPRS network operations
	    4.4 Mobility management
	    4.5 Data Services(Application and tunnelling mode)
	    4.6 GPRS handsets
	    4.7 Applications

5.	**Recent trends:**
	    5.1 Radio Frequency Identification(RFID)
	        5.1.1 Specifications
	        5.1.2 Categories(On frequency, On application, power based and
	    5.2 Bluetooth
	        5.2.1 Specifications
	        5.2.2 Protocols
	        5.2.3 Security
	        5.2.4 Applications
	    5.3 Wireless Broadband
	        5.3.1 Specifications
	        5.3.2 Layers
	        5.3.3 Mobile Broadband
	        5.3.4 Applications
	     5.4 Wireless in Local Loop
	        5.4.1 Architecture
	        5.4.2 Application

Laboratory Experiences:

1. To study and perform ASK.
2. To study and perform FSK.
3. To study and Perform Pulse Coded Modulation.
4. To Study the architecture of GSM.
5. To study and perform data transfer using GPRS using Mobile Handset.
6. To study and perform data transfer using Bluetooth Technology.
7. To study and perform data transfer using RFID.
8. To study wireless broadband technology.
9. To study the WLL technology.

Reference Books:

1. A.K.Talukder and R.R. Yavgal ,Mobile computing,TMH.
2. Dasbit and Sikdar, Mobile Computing PHI.
3. Wayne Tomasi, Electronics communications systems fifth edition Pearson.
4. Mobile & Cellular Communication-3e- Lee- MGH.