



C-DAC & Gujarat Technological University
M.E. Electronics & Communication Engineering
(VLSI & Embedded Systems Design)
Gandhinagar

Semester – II

2725207: Wireless Technology for Embedded Systems (Elective II & III)

UNIT I:

Review of C Programming, Data Structures , Introduction to UML , Software Life Cycle Models , Embedded Systems Design, Implementation and Testing , Overview of Networking and Packet Switching Concepts, OSI Reference Model and TCP/IP Protocol Suite, LAN Protocol Suite

UNIT II:

Evolution of Wireless Communication - Radio architectures: TRF, single conversion, and dual conversion, and IQ; Modulation - AM, FM, SSB, TDMA, CDMA, OFDM, QPSK; PLL – phase lock loops, Wireless Standards – IS136, IS95, 802.11(a-g), GSM, 3G, WiMax, Antennas and Propagation with an introduction to the Smith Chart

UNIT III:

Embedded Systems – Hardware, Software, Internet Access; Development and Debugging Tools - Simulators, ICE, C Compiler; RTOS – System Services, Interrupt Handling, Real Time, Scheduling; Socket Programming – Internet Architecture, UDP, TCP, client/server; Internet Application Protocols – HTTP, FTP, SNMP, Audio/Video Applications

UNIT IV:

Embedded systems hardware and software interfaces; Protocol Debugging & Testing Tools – PING, Sniffers, Load Generators; Development tools – SDK, simulators, debuggers; TCP/IP – architecture, socket programming and debugging

UNIT V:

Wireless Technologies and Mobile Programming - Wireless LAN : 802.11 & WiMAX, RFID & Bluetooth, GSM & GPRS, Mobile Development Platforms (Android, Symbian, OpenMoko, J2ME), Bluetooth – architecture, protocols, implementation, and programming API; WiFi – architecture, protocols, implementation, and API; ZigBee – architecture, protocols, implementation, and API