PEEC5415 ADVANCED COMMUNICATION SYSTEMS

MODULE – I: (10 hrs)

Data-Link Protocol and Data Communications Networks: Data-link Protocol Function, Character and bit Oriented Data Link Protocols. Asynchronous Data Link Protocols, Synchronous Data-Link Protocols, Synchronous Data –Link Control, High-Level Data Link Control, Public Switched Data Networks, CCITTX. 25, User-to-Network Interface Protocol. Integrated Services Digital Network (ISDN) (Chapter 23)

MODULE – II: (15 hrs)

Digital T-Carriers and Multiplexing :Time-Division Multiplexing (TDM); T1 Digital Carrier. North American Digital Hierarchy. Digital Carrier Line Encoding. T Carrier Systems, Digital Carrier Frame Synchronization. Bit Vrs Word Interleaving. Statistical TDM. Codecs and Combo Chips. FDM. AT & T's FDM Hierarchy. Composite Base band Signal . Formation of Master group. Wavelength Division Multiplexing (WDM) (Chapter 11)

MODULE – III: (8 hrs)

Cellular Telephone Concepts: Mobile telephone service, Cellular Telephone, Frequency Reuse, Interefernce, Cell Splitting, Sectoring, Segmentation, and dualization, Cellular System Topology, Roaming and Hand ofs, Cellular Telephone Network Components, Cellular Telephone call Processing (Chapter 19)

Data Communication and Networking: Data Communication Network Architecture, Protocols, and standards, Layered Network Architecture, Introduction to GSM, GPRS, CDMA (Chapter 20)

MODULE – IV: (7 hrs)

Satellite Communication: Introduction, Keepler's Law, Satellite Orbir\ts, geosynchronous satellites, Antenna Look Angles, Satellite Classifications, spacing and frequency allocation, Satellite Antenna Radiation patterns, Satellite System Link Models, Satellite System Parameters, Satellite System Link Equations, Link Budget (Chapter 25)

Satellite Multiple Accessing Arrangements: Introduction, FDM/FM Satellite Systems, Multiple Access Techniques, Frequency Division Multiple Access (FDMA), TDMA, CDMA, Channel Capacity, Satellite Radio NavigationEstimating Channel Requirements, Practical Demand Access Systems, Random Access, Multiple Access With On Board Processing. VSAT (Chapter 26)

Text Book:

1. Electronic Communications Systems Fundamentals through Advanced by Wayne Tomasi; Pearson.

References:

1. Satellite Communication - by Timothy Pratt; Addison Wesley.