

## **Telecommunication System**

**EC-603**

**Contracts: 3L**

**Credits- 3**

Module 1

**Introduction to Telephone Systems:** Evolution of Telecommunication; Components and Examples of Telecommunication systems; Pulse dialing & Tone dialing; Telephone Instruments -rotary dial and push button types. [3]

Module 2

**Telecommunication Transmission Lines:-** Copper, Co-axial, and Fiber optic cables; Transmission Bridge - Hybrid circuit for 2-wire to 4-wire conversion and vice versa. PCM Carriers; American and European standards of carrier channels. [6]

Module 3

**Subscriber Loop Systems:** BORSCHT Functions; Switching hierarchy & routing, signaling techniques-in channel & common channel signaling, SS7. [4]

Module 4

**Switching System:** Electro-mechanical switching-Strowger & Crossbar; Circuit Switching & Packet Switching, Digital Switching systems - Time division Time switch, Time multiplexed Space switch, Time multiplexed Time switch, Hybrid switching, ; TS, ST, STS, TST systems; Architecture of 5ESS systems; [6]

Module 5

**Stored Program Control:** Software architecture, Application software; Electronic Exchanges, Introduction to cordless telephones and Digital PABX [4]

Module 6

**Traffic Engineering:** Blocking network, blocking probability, grade of service, traffic load, Erlang-B and C- congestion formulas-case studies [4]

Module 7

**Modems and Their Standards:** RS 232C; DTE and DCE, Facsimile Transmission, Broad band transmission-ISDN, DSL and ADSL, ISDN and B-ISDN [4]

Module 8

**IP Telephony:** Voice over IP, Session initiation protocol, H.323 signaling, IP multimedia service [4]

### **Text Books:**

- b) T. Viswanathan, " Telecommunications Switching Systems & Networks", PHI
- c) J.C.Bellamy "Digital Telephony"- Wiley-India

### **Reference Books:**

1. O Hersent, D Gurle, J P Petit "IP Telephony" Pearson
2. J.E.Flood "Telecommunications Switching, Traffic and Networks" Pearson
3. R L Freeman "Telecommunication System Engineering"- Wiley-India
4. A Gokhale "Introduction to Telecommunication"- Cengage Learning