

Vidyalankar

T.E. Sem. VI [EXTC]

Digital Telephony

(Elective)

SYLLABUS

Time : 3 Hrs.

Theory : 100 Marks

Term Work : 25 Marks

Oral : 25 Marks

1. Telephony Background :

An overview of telephone networks, transmission system, switching system, Signaling, echo cancellation, working principles of telephone, DC (pulse) and DTMF (tone) signaling.

2. Traffic Analysis :

Traffic characterization, loss systems, network blocking probabilities, delay systems.

3. Digital Switching and Networks :

Space division switching, time division switching, time space time (TST) switch, space time space (STS) switch, comparison of TST and STS switches, network synchronization, control and management, timing, timing inaccuracies, network synchronization, network control, Network management.

4. Digital Subscriber Access :

Integrated service digital network (ISDN) : ISDN overview, ISDN interfaces and functions, user network interface, ISDN protocol architecture, ISDN physical layer: basic user -network interface, primary rate user- network interface, U interface, ISDN data link layer: LPAD protocol, terminal adaptation, bearer channel data link control, ISDN network layer: basic call control, control of supplementary services. *Broadband ISDN (B - ISDN)* : Architecture, Protocols. Digital subscriber loop (DSL): ADSL, HDSL, VDSL, Fiber in loop, wireless local loop (WLL). *Signaling System Number 7 (SS7)* : SS7 Architecture signaling data link level, signaling link level, network level, signaling connection control part.

5. Introduction to IP Telephony and Related Protocols :

Overview of TCP/IP protocol. Resource reservation protocol (RSVP), multi protocol label switching, real time protocol (RTP), session initiation protocol (SIP). H.323 standard, media gateway control protocol.

6. Voice Over Packet Networks :

Voice over ATM, ATM cell format, ATM protocol stack, ATM adaptation layer, IP over ATM, frame relay over ATM.

Reference :

1. Digital Telephony (*John Bellamy*) Wiley Series.
2. ISDN and Broadband ISDN with Frame Relay and ATM (*William Stallings*) Pearson Education Asia Publication (4th Edition).
3. Telecommunication Switching and Networks (*Thiagrajan Viswanathan*) PHI Publication.
4. Voice over Packet network (*David J Wright*) John Wiley and Sons Ltd.
5. Telecommunication Switching and networks (*Gnanasivam P.*) New Age International (2nd Edition).
6. IP Telephony (*Oliver Hersent, David Gurlle & Jean*) Pierre Petit Pearson Education Asia Publication.

