

SYLLABUS :-

Pre-requisites: EC31001 and EC31002 Basic elements of telecommunication networks: Terminals, transmission and switching; Evolution of telecommunication networks: Telegraph and telephone, Telephone network hierarchies and postdivestiture scenarios, Arrival of digital telephony, Data networks, Arrival of Internet, Integration of voice and data-centric services â data as overlay on voice, voice-over-IP etc.; Telecommunication standards organizations; Different switching techniques: circuit switching, message switching, packet switching/broadcasting, virtual circuit-switching, traffic considerations; Queuing models for packet and circuit switching networks: Brief introduction to Markov process, M/M/1 M/M/1/K, M/M/c/c and M/M/c, Evaluation of delay, throughput and blocking probabilities, Erlang formulas; Evolution of circuit switching: Electro-mechanical - Strowger (step-by-step) and crossbar, Electronic switching using stored-program control; Electronic switching systems: space-division switching, multi-stage space switching and non-blocking architectures, blocking probability modeling for multi-stage space switches, time-division switching, two-dimensional switching â STS, TST, TSSST, Evaluation of switch complexities, No. 4 ESS; Basic telephone sets and local loops; Signaling in telephone networks: Local loop signaling, Inter-exchange signaling, Intra-exchange signaling, Signaling techniques: In-channel signaling, Common-channel signaling (channel associated and nonassociated), DTMF signaling, SS7 signaling; Virtual circuit switching: Basic concepts, X.25, Frame relay, ATM; Transmission of ATM over SONET/SDH-based fibre backbones; Digital subscriber access: ISDN, ADSL, HFC, Passive optical networks; An overview of data networks: 7(5)-layer architecture, LANs, WANs, Enterprise networks; Convergent switching: Evolving scenario.