

Course Code: ICE 3231

Course Title: Telecommunication Engineering

Credit: 3.00, 75 Marks, 3 Hours/week, Lectures: 42, Exam time: 3 hours

Course Contents

Section – A

Introduction: Simple telephone communication, Basic switching system, Transmission bridge, Subscriber line circuit, CB cord circuit, Junction working.

Strowger Switching Systems: Relay dial telephone, Signaling tones, Strowger switching component, Step-by-step switching, Design parameters, 100-line switching system, 1000-line blocking exchange, 10,000-line exchange.

Crossbar Switching: Principle of common control, Touch tone dial telephone, Principles of crossbar switching, Crossbar switching configuration, Cross point terminology, Crossbar exchange organization.

Telephone Networks: Subscriber loop systems, Switching hierarchy and routing, Transmission plan, Transmission systems, Numbering plan, Charging plan, Signaling techniques, In-channel signaling, Common channel signaling.

Section – B

Electronic Space Division Switching: Stored program control, Centralized SPC, Distributed SPC, Software architecture, Application software, Two-stage network, Three-stage network.

Electronic Time Division Switching: Concept of TDM, Basic time division space switching, Basic time division time switching, Time multiplexed space switching.

Computer Controlled Switching System: Introduction, Call processing, Basic steps to process a call, State transition diagram, Switching system organization, Popular digital switching systems.

Traffic Engineering: Network traffic load and parameters, Grade of services and blocking probability, Modeling switching systems, Incoming traffic and service time characterization, Blocking models and loss estimates.

Text Books:

1. **Thiagrajan Viswanathan:** *Telecommunication Switching Systems and Networks*
2. **P. Gnanasivam:** *Telecommunication Switching and Networks*

Reference Books:

1. **M. T. Hills:** *Telecommunication Switching Principle*
2. **J.C. Bellamy:** *Digital Telephony*