

# GUJARAT TECHNOLOGICAL UNIVERSITY

## INFORMATION & COMMUNICATION TECHNOLOGY

### B. E. SEMESTER: VII

Subject Name: **TELECOMMUNICATION ENGINEERING**

Subject Code: **173204**

Teaching Scheme				Evaluation Scheme		
Theory	Tutorial	Practical	Total	University Exam Theory (E)	Mid sem Exam (Theory) (M)	Practical (I)
3	0	0	3	70	30	50

#### 1. Electronic switching systems:

Basics of a switching system ,electronic space division switching - stored program control , Centralised SPC ,Distributed SPC, Enhanced Services, Time division switching - Time division Space and Time division Time Switching, time multiplexed space switching , time multiplexed time switching - two stage, three stage and N-stage combination switching

#### 2. Digital circuit switching networks:

Two-stage network , three-stage network ,n-stage network , non- blocking switches , blocking probability analysis of multistage switches – lee approximation, examples of digital switching systems - AT & T 5ESS and NTI - DMS 100 switching systems

#### 3. Elements of traffic engineering:

Network traffic load and parameters, grade of service and blocking probability, incoming traffic and service time characterization, blocking models and loss estimates, delay systems

#### 4. Telephone Networks:

Subscriber Loop System, Switching Hierarchy and Routing, Transmission Plan, Numbering Plan, Charging Plan

#### 5. Signalling:

Customer line signalling – out band signalling – in band signalling - PCM signalling -inter register signalling - common channel signalling principles - CCITT signalling system No.7(SS7)

#### 6. Speech Digitization and Transmission:

Sampling, Quantization and Binary Coding, Companding , Differential Coding, Vocoders, Pulse Transmission, Line Coding

**Text books**

1. Viswanathan T., *Telecommunication Switching Systems and Networks*, Prentice Hall of India Pvt. Ltd.
2. Schwartz M., *Telecommunication Networks - Protocols, Modeling and Analysis*, Addison Wesley Publishing Company

**Reference books**

1. Flood J.E., *Telecommunications Switching Traffic and Networks*, Pearson Education Pvt. Ltd.
2. Freeman R.L., *Telecommunication System Engineering*, Wiley Inter Science Publications
3. Das J., *Review of Digital Communication*, New Age Internal (P) Ltd., Publishers

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