Analog and Digital Communication

(Code : 3151104)

Semester V – Electronics and Communication Engg. / Electronics Engg.

(Gujarat Technological University)

Strictly as per the New Revised Syllabus of

Gujarat Technological University w.e.f. academic year 2020-2021

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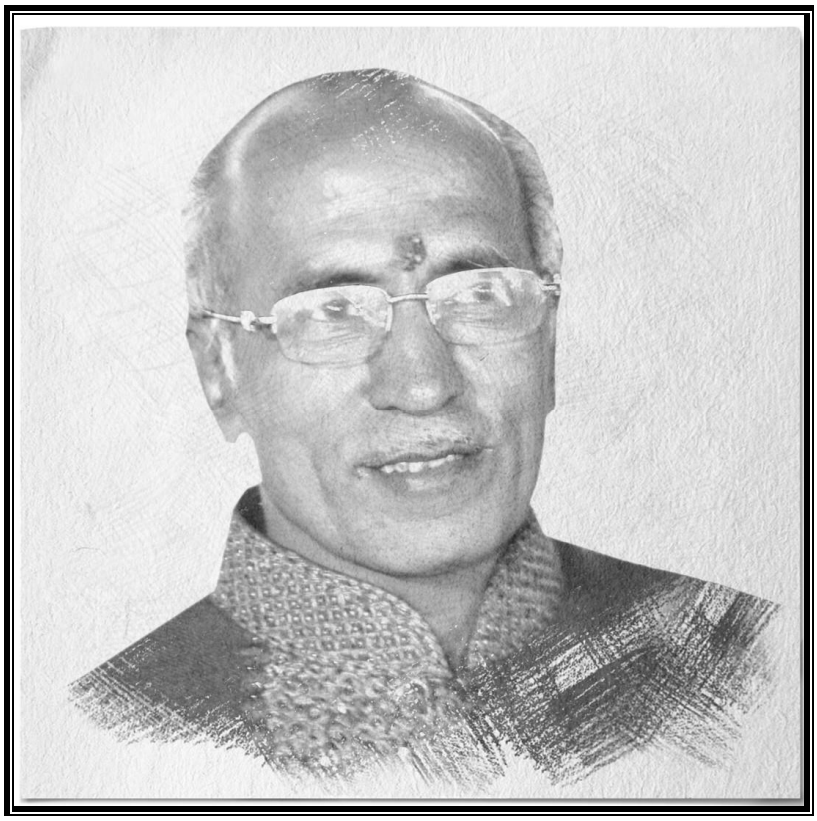
We dedicate this Publication soulfully and wholeheartedly,

in loving memory of our beloved founder director,

Late Shri. Pradeepji Lalchandji Lunawat,

who will always be an inspiration, a positive force and strong support behind us.



"My work is my prayer to God"

- Lt. Shri. Pradeepji L. Lunawat

Soulful Tribute and Gratitude for all Your Sacrifices, Hardwork and 40 years of Strong Vision…

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Syllabus…

Analog & Digital Communication : Sem. V, (ECE / Electronics Engg., (GTU))

1. Introduction To Communication System :

Analog and Digital Messages, Channel Effect, Signal-to Noise ratio and capacity, Modulation and Detection, History of Communications. (Revision of Signal Transmission through a linear system, Signal distortion over a communication channel, Signal Energy and Energy spectra density, Signal power and power density). **(Refer Chapter 1)**

2. Amplitude modulation and Demodulation :

Single and Double sideband Amplitude modulation, Amplitude modulation, Bandwidth-efficient Amplitude modulation, VSB, Local Carrier synchronization, FDM, PLL. **(Refer Chapter 2)**

3. Angle Modulation and demodulation :

Nonlinear Modulation, Bandwidth of Angle-modulated Waves,, Generating FM waves, Demodulation of FM signals, Nonlinear distortion and interference, Superheterodyne Receivers, FM broadcasting System. **(Refer Chapter 3)**

4. Sampling and Analog to digital Conversion :

Sampling theorem, Sampling and signal reconstruction, Aliasing, Types of sampling, Quantization, PCM, Companding, DPCM, ADPCM, Delta modulation, Adaptive delta modulation, T1 carrier system.

(Refer Chapters 4 and 5)

5. Digital Data Transmission :

Components of digital communication system, line coding, pulse shaping, Scrambling, Regenerative Repeater, Eye Diagram, Timing Extraction, Detection Error Probability, M-ary communication, Digital Carrier Systems. **(Refer Chapters 6 and 7)**

6. Introduction to Digital Modulation-Demodulation Techniques :

Modulation techniques for ASK,FSK, PSK, MSK, BPSK, QPSK, GMSK. **(Refer Chapter 7)**

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Chapter 1 : Introduction to Communication Systems 1-1 to 1-27

Syllabus : Analog and Digital Messages, Channel Effect, Signal-to Noise ratio and capacity, Modulation and Detection, History of Communications.

(Revision of Signal Transmission through a linear system, Signal distortion over a communication channel, Signal Energy and Energy spectral density, Signal power and power density).

Syllabus : Amplitude Modulation and Demodulation : Single and Double sideband Amplitude modulation, Amplitude modulation, Bandwidth-efficient Amplitude modulation, VSB, Local Carrier synchronization, FDM, PLL.

Syllabus : Digital carrier systems, Introduction to Digital Modulation-Demodulation Techniques: Modulation techniques for ASK,FSK, PSK, MSK, BPSK, QPSK, GMSK.

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