

Unit-1**(P-08)**

Introduction: Block diagram of an electronic communication system, electromagnetic spectrum-band designations and applications, need for modulation, concept of channels and base-band signals.

Concept of Noise: Types of Noise, signal to noise ratio, noise figure, noise temperature, Friss formula.

Unit-2**(P-15)**

Amplitude Modulation, modulation index and frequency spectrum. Generation of AM, Amplitude Demodulation (diode detector), Concept of Double side band suppressed carrier, Single side band suppressed carrier, other forms of AM (Pilot Carrier Modulation, Vestigial Side Band modulation, Independent Side Band Modulation)

Angle modulation: Frequency and Phase modulation, modulation index and frequency spectrum, equivalence between FM and PM, Generation of FM (direct and indirect methods), FM detector (PLL). Comparison between AM, FM and PM.

Unit-3**(P-12)**

Pulse Analog Modulation: Sampling theorem, PAM, PDM, PPM modulation and detection techniques, Time Division Multiplexing.

Pulse Code Modulation: Need for digital transmission, Quantizing, Uniform and Non-uniform Quantization, Quantization Noise, Companding, Coding, Decoding, Regeneration.

Unit-4**(P-13)**

Digital Carrier Modulation Techniques: Block diagram of digital transmission and reception, Information capacity, Bit Rate, Baud Rate and M-ary coding. Amplitude Shift Keying (ASK), Frequency Shift Keying (FSK), Phase Shift Keying (PSK), Binary Phase Shift Keying (BPSK) and Quadrature Phase Shift Keying (QPSK)

Essential Texts:

Unit-1 Chapter 1 and 2, Electronic communication systems- Kennedy, 3rd edition, McGraw international Publications

Unit-2

1. Chapter 3, 4, and 5, Electronic communication systems- Kennedy, 3rd edition, McGraw international publications
2. Chapter 3, 4, 5 and 6., Principles of Electronic communication systems – Frenzel, 3rd edition, McGraw Hill

Unit-3

1. Chapter 7, Principles of Electronic communication systems – Frenzel, 3rd edition, McGraw Hill.
2. Chapter 7, 8, Communication Systems, S. Haykin, Wiley India (2006)

Unit-4

1. Chapter 2, Advanced electronic communications systems – Tomasi, 6th edition, PHI.
2. Chapter 9, 10, Communication Systems, S. Haykin, Wiley India (2006)

Suggested Books:

1. W. Tomasi, Electronic Communication Systems: Fundamentals through Advanced, Pearson Education (2007)
2. H. Taub and D. Schilling, Principles of Communication Systems, Tata McGraw Hill (1999)
3. R. P. Singh and S. D. Sapre, Communication Systems: Analog and Digital, Tata McGraw Hill (2007)
4. Roddy and Coolen, Electronic Communications PHI
5. L. W. Couch II, Digital and Analog Communication Systems, Pearson Education (2005)

PRACTICALS- Communication Electronics

(Any five practical to be done)

1. Study of Amplitude Modulation
2. Study of Amplitude Demodulation
3. Study of Frequency Modulation
4. Study of Frequency Demodulation
5. Study of Pulse Amplitude Modulation
6. Study of Pulse Width Modulation
7. Study of Pulse Position Modulation
8. Study of Pulse Code Modulation
9. Study of Amplitude Shift Keying
10. Study of Phase Shift Keying,
11. Study of Frequency Shift Keying.