

6th Semester		Communication Engineering	L-T-P 3-0-0	3 CREDITS
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Module I: (9Hours)

Introduction: Elements of an Electrical Communication System, Communication Channels and their Characteristics, Mathematical Models for Communication Channels Frequency domain analysis of signals and systems: Fourier series, Fourier Transforms, Power and Energy, Sampling and Band limited signals, Band pass signals.

Module II: (9 Hours)

Analog signal transmission and reception: Introduction to modulation, Amplitude Modulation (AM), Angle Modulation, Radio and Television broadcasting.

Module III: (9 Hours)

Pulse modulation systems: Pulse amplitude modulation, Pulse Time Modulation
Pulse code modulation: PCM system, Intersymbol interference, Eye patterns, Equalization, Companding, Time Division Multiplexing of PCM signals, Line codes, Bandwidth of PCM system, Noise in PCM systems.

Module IV: (9 Hours)

Delta Modulation (DM), Limitations of DM, Adaptive Delta Modulation, Noise in Delta Modulation, Comparison between PCM and DM, Delta or Differential PCM (DPCM), S-Ary System.

Books:

- [1] John G. Proakis, M. Salehi, Communication Systems Engineering, 2nd ed. New Delhi, India. PHI Learning Private Limited, 2009.
- [2] R.P Singh and S.D Sapre, Communication Systems Analog & Digital, 2nd ed. New Delhi, India. Tata McGraw Hill Education Private Limited, 2009.

Digital Learning Resources:

Course Name: Analog Communication
Course Link: <https://npte1.ac.in/courses/117/105/117105143/>
Course Instructor: Prof. Goutam Das, IIT Kharagpur