

PEL6I101 COMMUNICATION ENGINEERING

MODULE-I

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

ANALOG SIGNAL TRANSMISSION AND RECEPTION: Introduction to modulation, Amplitude Modulation (AM), Angle Modulation, Radio and Television broadcasting

MODULE-III

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

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

Text Book:

1. John G.Proakis,M. Salehi, COMMUNICATION SYSTEMS ENGINEERING, 2nd ed. New Delhi,India: PHI Learning Private Limited, 2009.; Selected portion from Chapter 1,2 and 3 for module MODULE-I and MODULE-II of the course.
2. R.P Singh and S.D Sapre, COMMUNICATION SYSTEMS Analog & Digital, 2nd ed. New Delhi, India: Tata McGraw Hill Education Private Limited, 2009; Selected portions from Chapter 7 and 8 of the book for MODULE-III.

COMMUNICATION ENGINEERING LAB

List of Experiment

Any 10 experiment have to perform in the lab of around 40 hours.

1. Radiation pattern of Dipole, Yagi, Helical and Slot Antenna (3 hours)
2. Velocity Measurement using Doppler RADAR. (3 hours)
3. Study of different blocks of colour TV receiver such as RF amplifier, IF amplifier, sync separator, vertical oscillator, colour picture tube etc and measurement of various voltage signal waveform. (6 hours)
4. Polarization Detection of Dipole, Yagi, Helical and Slot Antenna (3 hours)
5. Measurement of Refractive Index profile, Numerical Aperture, attenuation and bending loss/dispersion in a multimode optical fiber. (6 hours)
6. Study the laser diode and determination of its characteristics (3 hours)
7. Measurement of Gain of a fiber communication link using (a) optical fiber, (b) free space (3 hours)

8. Establishing and testing an optical Fiber Communication Link (6 hours)
9. Simulation of a pn sequence generator using MATLAB. (3 hours)
10. Simulation of direct sequence spread spectrum technique using MATLAB. (3 hours)
11. Simulation of TDM and WDM using MATLAB (3 hours)