Subject Code : RSPJ2:5

COMMUNICATION ELECTRONICS.

UNIT – I : Modulation (AM & FM).

Need for modulation – Amplitude modulation (AM) – Power relations – Different AM systems – Frequency modulation (FM) – Frequency spectrum of the FM wave – Comparison of AM and FM – Phase modulation (PM) – Generation of FM.

UNIT – II : Pulse Modulation.

Pulse Modulation – sampling theorem – Types of Pulse modulation: PAM, PPM & PCM – Quantizing noise – application of PCM – Principles of Multiplexing , TDM and FDM.

UNIT – III : Noise.

Different types of noise – Noise calculations – Noise in reactive circuits – partition shot noise – Noise figures – Calculation and measurements – Noise temperature – Noise in communication system (AM, FM and PCM).

ANTENNA: Principles of radiation – Isotropic radiator – The elementary doublet –Half wave dipole – Power gain of an antenna – Receiving antennas.

UNIT – IV : Transmission Lines.

Primary constants of line – Characteristic impedance – Propagation constant – Line equations and its applications – Distortion and Reflection in Transmission lines.

WAVE GUIDES: Basic concepts – Rectangular wave guides – Properties of $TE_{1.0}$ mode – standing waves, wave guide Terminators – Attenuators.

Radio wave propagation in free space – The sky wave propagation.

UNIT – V

Fibre Optic Communication: Principles of Light Transmission in a Fiber – Propagation within a Fiber – Propagation within a fiber – Effect of Index profile on propagation – Number of modes a fiber will support – Single mode propagation –Losses in Fibers – The effect of Dispersion on pulse Transmission.
Light sources of fiber optics – Semi conductor laser.
Photo detectors – Avalanche photodiode – An optical receiver circuit.

Books for Study:

A Text Book of Communication Engineering–A.Kumar, Ummesh Publication, Delhi – 6.
Electronic Communications – Dennis Roddy, John Coolen, Prentice Hall Private Limited.
Electronic Communication Systems, George Kennedy, Tata McGraw Hill, 3rd Edition.