



## Study Guide

Student should know

### **Linear Modulation: Amplitude modulation**

- Elements of Communication system
- Classification of Electronic communication systems
- Need of modulation
- Different types of modulation.
- Concept of amplitude modulation
- Modulation index of AM
- Modulation index evaluation by Envelope method and Trapezoidal method
- Mathematical analysis of AM wave
- Frequency spectrum of AM wave
- Power of Single tone AM signal
- Power of Multi tone Amplitude modulation.
- Low level modulation and High level modulation
- Limitation of DSB-FC
- Design of Balanced modulator
  - Diode Ring modulator
  - Balanced modulator using FETs
- SSB- SC generation methods (Filter method, Phasing method, Third method) block diagram, explanation, Advantages, Limitations.
- SSB-RC system
- Application of VSB

### **Angle modulation**

- Introduction to FM
- Mathematical analysis of FM
- Equivalence between FM and PM
- FM bandwidth by Carson's rule
- Examples of Power and bandwidth findings for FM
- Direct method to generate FM
- Generation of WBFM by Armstrong method (Indirect method)
- Comparison of NBFM and WBFM
- FM Transmitter.
- Basics of Receiver.