

## SECOND YEAR

<b>Analog Communication Systems</b>	<b>COE209</b>
<b>Prerequisite : COE202</b>	<b>(4-3-0-2)</b>

Linear modulation: Amplitude Modulation, Modulation Index, Spectrum of AM Signal, Modulators and Demodulators (Diode detector), DSB-SC Signal and its Spectrum, Balanced Modulator, Synchronous Detectors, SSB Signal, SSB Generation Methods, Power Calculations in AM Systems, Application of AM Systems. Angle Modulation: Phase and Frequency Modulation and their Relationship, Phase and Frequency Deviation, Spectrum of an FM Signal, Bandwidth of Sinusoidally Modulated FM Signal, Effect of the Modulation Index on Bandwidth, Spectrum of Constant Bandwidth FM, Phasor Diagram for FM Signals. FM Generation: Parameter variation method, indirect method of frequency modulation (Armstrong method), frequency multiplication, PLL FM Demodulator, pre-emphasis and de-emphasis. Noise In AM & FM Systems: Sources of noise, resistor noise, shot noise, calculation of noise in a linear system, Noise in AM Systems, Noise in Angle Modulation Systems, Comparison between AM and FM with respect to Noise, Threshold Improvement in Discriminators. Radio transmitters. Radio receivers. Extensions of the super-heterodyne principles, additional circuits.

**Practical part:** *Linear Modulation methods. Angle modulation methods. Noise. Noise in analog modulations (Linear and angle).*