Course Outcomes

- Calculate and use Fourier Series and Transforms, Energy Spectral Density and Power Spectral Density of signals.

- Explain mathematically the basics of analog modulation, DSB-SC, AM, SSB, PM and FM; comparing these in terms of bandwidth and power requirements; using FDM to combine such signals; and the operation of a superhetrodyne receiver.

- Explain mathematically the basics of PAM, PCM, digital pulse transmission, including bandwidth requirements, and TDM.

- Explain mathematically the basics of digital modulation, ASK, FSK, PSK, QPSK, M-QAM, and OFDM; comparing these in terms of bandwidth requirements.

- Calculate noise and signal-to-noise ratios, link budgets, and comparing the noise performance of DSB-SC, AM, SSB, PM, and FM. Calculate bit error rate for digital modulation.

- Operate a spectrum analyzer and performing laboratory investigations of analog and digital communication systems.