EOPC2207 PRINCIPLES OF COMMUNICATION SYSTEMS LAB. (0-0-3)

Course Objective

- To provide hands-on experience in the principles and practices of analog and digital communication systems.
- To enable students to analyze, design, and simulate communication processes using hardware and software tools.

(At least 10 experiments should be conducted)

1. Analyse and plot the spectrum of following signals with aid of spectrum analyzer: Sine wave, square wave, triangle wave, saw-tooth wave of frequencies 1 KHz, 10 KHz, 50 KHz, 100KKz and 1 MHz.
2. Analyze the process of frequency division multiplexing and frequency division demultiplexing.
3. Study and design of AM modulator and demodulator. (Full AM, SSB, DSBSC, SSBSC).
4. Study of FM modulation and Demodulation Techniques.
5. Observer the process of PAM, quantization and determination of quantization noise.
6. Multiplex 2-4 PAM/ PPM and PWM signals.
7. Verification of Sampling Theorem.
8. Study the functioning of PCM and Delta modulator; Demonstrate the process ofPCM modulation and Delta modulation.
9. Study of PLL as FM demodulator.
10. Using MATLAB/ LABVIEW generate a carrier and a modulating signal. Modulate the carrier using AM. Show the waveform in time domain and analyze its frequency spectrum. Repeat the simulation for modulating signal being square, triangular and other forms waveform.
11. Using MATLAB/ LABVIEW generate a carrier and a modulating signal. Modulate the carrier using FM. Show the waveform in time domain and analyze its frequency spectrum. Repeat the simulation for modulating signal being square, triangular and other forms waveform.
12. Using Lab-View software simulates AM/FM modulation and demodulation system.
13. Using MATLAB/LABVIEW study the pre-emphasis and de-emphasis.
14. Using MATLAB.LABVIEW study the Spectrum Analysis of Modulated Signal Using Spectrum Analyzer.

Course Outcome

- Understanding and application of modulation and demodulation techniques.
- Proficiency in signal processing and spectrum analysis.
- Practical skills in implementing communication systems using MATLAB/LabVIEW.
- Ability to validate theoretical concepts through simulation and experimentation.