COMMUNICATION SYSTEMS LABORATORY

Objective: The objective of this laboratory is to understand various Modulation and Demodulation techniques in time domain and frequency domain, to Comprehend Pulse analog Modulation and Demodulation techniques, to impart hands on experience and train the students to analyze various base band and pass band modulation and demodulation techniques and understand their performance, to Comprehend various coding techniques on transmission medium in Digital communications.

Sections Handled:

B.Tech III Year II Semester – Digital Communications lab - ECE - A&B Sections

B.Tech II Year II Semester – Analog Communications lab - ECE - A&B Sections

Major Equipment Details:

S. No	Name of The Equipment	Qty
1	AM Transmitter & Receiver Make: FALCON Model No:ACL-01	3
2	Analog Signal Sampling & Reconstruction Make: FALCON, PhysitechModel No:ACL-01	3
3	Audio amplifier section super heterodyne receiver Make: SS Lab Model:AC-13	2
4	ASK Modulation& Demodulation Make: PhysitechModel No:PHY-155	2
5	Companding Kits Make: Physitech	2
6	Convolution Block Code Encoder &Decoder Make: Falcon Model No:ADCL-06	2
7	CRC Encoder &Decoder Make: Falcon Model No:ADCL-08	2
8	Digital Storage Oscilloscopes (9), CROs (6) Make: Scientech Model No:CADDO-804	15
9	Digital Multimeters Make: FALCON Model No:DMM-10	10
10	Delta Modulation& Demodulation Make: Physitech Model No:PHY-100 DPSK Modulation& Demodulation Make: Physitech Model No:PHY 99 DPCM Modulation& Demodulation Make: Physitech Model No:PHY-152	2
11	FM Transmitter Kit& Receiver Kit Make: FALCON Model No:ACL-01	2
12	FSK Modulation& Demodulation Make: PhysitechModel No:PHY-183	2
13	Generation and detection of AM Model:AC-1 Generation and detection of FM Model:AC-2A Make: SS Lab	2
14	Function Generators Make: APLAB	10
15	Generation &Detection of PCM Make: Physitech Model No: PHY-150	2
16	Linear Block Code Encoder & Decoder Make: Falcon Model No: DCL-03&04	2
17	PAM, PWM & PPM Modulation & Demodulation Kit Make: FALCON, PhysitechModel No: DCL-08	9
18	PSK Modulation& Demodulation QPSK Modulation& Demodulation Make: PhysitechModel No: PHY-121	2
19	Rigol Spectrum Analyzer with tracking generator (DSA815TG RIGOL 1.5GHz) Make: Scientech	1
20	Stabilizer 5 KVA Make: Proview	1
21	Source Encoder &Decoder Make: Falcon Model No:DSP-320	2
22	Time Division Multiplexing Make: PhysitechModel No: PHY-177	2
Total Cost		**Rs.8,87,005.58**

Faculty Lab Incharge with qualification: Mr.S.ChandraSekhar, M.Tech (Ph.D)

Lab Technician name with qualification: Mrs.B.Venkateswara Rao, B.Tech, M.Tech

Experiment list as per curriculum:

Analog Communication Lab:

A. Hardware

1. Amplitude Modulation & Demodulation.
2. AM - DSB SC Modulation & Demodulation.
3. Spectrum Analysis of Modulated signal using Spectrum Analyser.
4. Diode Detector
5 Pre-emphasis & De-emphasis
6. Frequency Modulation & Demodulation.
7. Sampling Theorem
8. Pulse Amplitude Modulation & Demodulation.
9. PWM, PPM Modulation & Demodulation.

B. Software

10. Amplitude Modulation & Demodulation.
11. AM - DSB SC Modulation & Demodulation.
12. Frequency Modulation & Demodulation.
13. PWM, PPM Modulation & Demodulation.
14. Radio Receiver Characteristics

Digital Communication Lab:

1. Time division multiplexing.
2. Pulse code modulation.
3. Differential pulse code modulation.
4. Delta modulation.
5. Frequency shift keying.
6. Phase shift keying.
7. Differential phase shift keying.
8. Companding
9. Source Encoder and Decoder
10. Linear Block Code-Encoder and Decoder
11. Binary Cyclic Code - Encoder and Decoder
12. Convolution Code - Encoder and Decoder

Experiment list beyond the curriculum

Analog Communication Lab:

1. AM - SSB SC Modulation & Demodulation.
2. Phase Modulation & Demodulation.

Digital Communication Lab:

1. Quadrature Phase shift keying.
2. Amplitude shift keying.