

Introduction

The communication Systems Laboratory intends to cover the basic understanding of functionalities of various block-sets involved in communication system. It involves system design and simulation exercises using MATLAB and Simulink and experiments based on HW boards. Students are introduced to the functioning of modern communication systems and how they perform in the presence of noise.

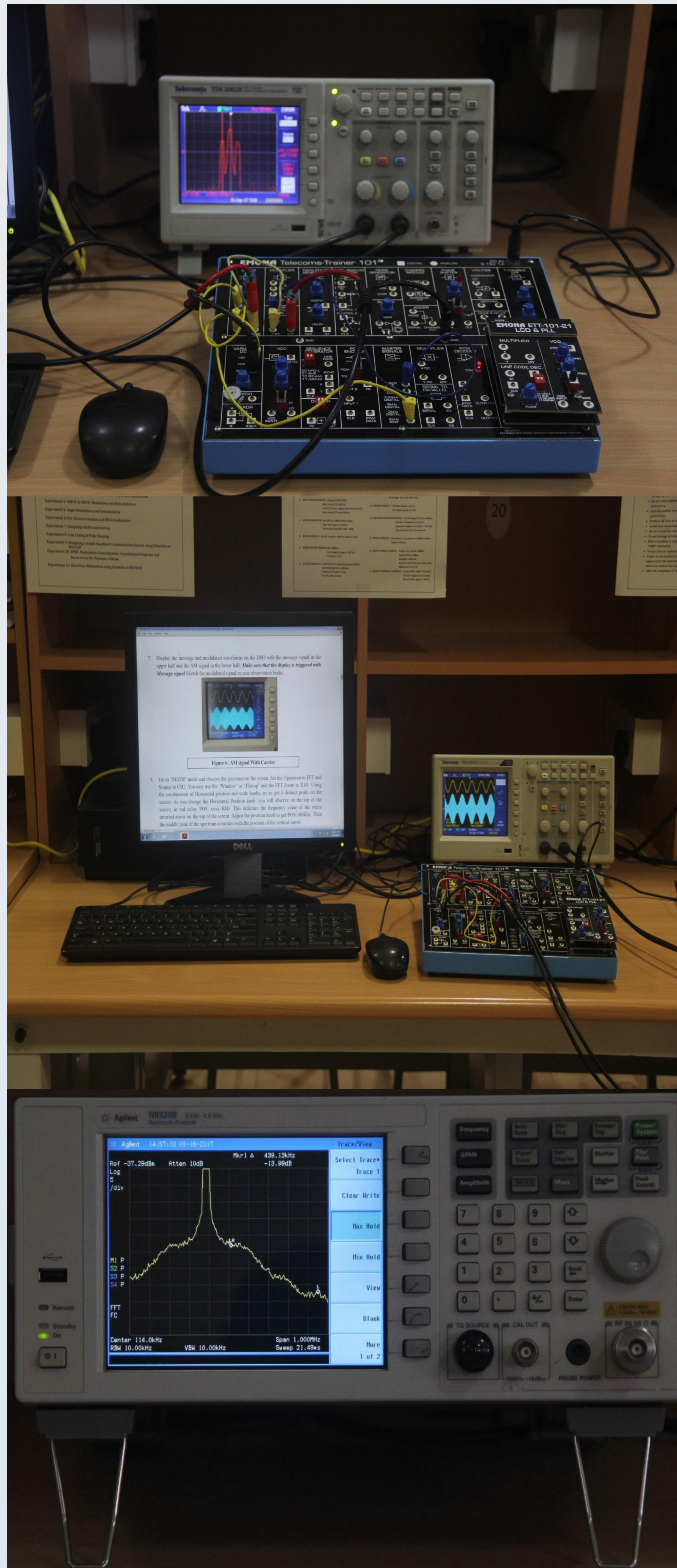
Scope of the Lab

In this Lab , the students study in detail about the various types of modulators and demodulators, transceivers and spectrum analyzer and also different types of Pulse Code Modulation (PCM) formats both using hardware and software

Infrastructure

- Emona Telecom Trainer Kit 101
- Digital storage Oscilloscope(DSO)
- Function Generator
- Agilent Spectrum Analyzer N9320B (9 KHz - 3 GHz): Offers modulation data, including carrier power, modulation rate, AM depth or FM deviation, SINAD and carrier frequency offset, Provides four display modes: symbol, waveform, ASK/FSK error and eye diagrams.
- MATLAB 2019a

Emona kit interface with DSO



Application Areas

- Broadcast Radio/TV
- Digital Telephony
- Mobile Communications
- Railway Signaling and Air Traffic Control
- Satellite Communications

Research Scholars

Mr. G. Jayesh Pintubhai
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List of Experiments

- Introduction and Acquaintance with Digital Storage Oscilloscope (DSO)
- Studies on Signals and their Spectra using Emona Telecom Trainer Kit
- Amplitude Modulation (With carrier) and Demodulation
- DSB-SC & SSB-SC Modulation and Demodulation
- Angle modulation and Demodulation
- PLL Characterization and FM Demodulation
- Sampling and Reconstruction
- Line Coding & Pulse Shaping
- Designing a simple Baseband Communication System using Simulink on MATLAB
- BPSK Modulation, Demodulation, Constellation Diagrams and Recovery in the Presence of Noise.
- Band Pass Modulation using Simulink on MATLAB

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