BITS Pilani
Hyderabad Campus

Department of Electrical and Electronics Engineering
SIGNALS AND SYSTEMS LAB

Introduction

In this Lab, the student will acquire hands-on experience with programming in MATLAB. MATLAB will enable you to study and understand the theory behind signals and systems as well as validate the theory with real-word examples. The lab will cover linear time-invariant systems, Fourier series and Fourier transform, sampling, digital filters, along with several accompanying digital signal-processing (DSP) applications.

Scope of the Lab

Students will write their own scripts to understand basic signal operations. Symbolic Math Toolbox is also used for Laplace and Z-transforms. Fourier transform and design of digital filter is also done using Signal Processing Toolbox. The Simulink toolbox in MATLAB helps in better visualization of many difficult concepts easily.

Infrastructure

- MATLAB2019a Version
- Emona Telecom Trainer Kit - 101
- Digital storage oscilloscope(DSO)
- Function Generator
- Lenovo M720 Tower model computer

Emona kit interface with DSO
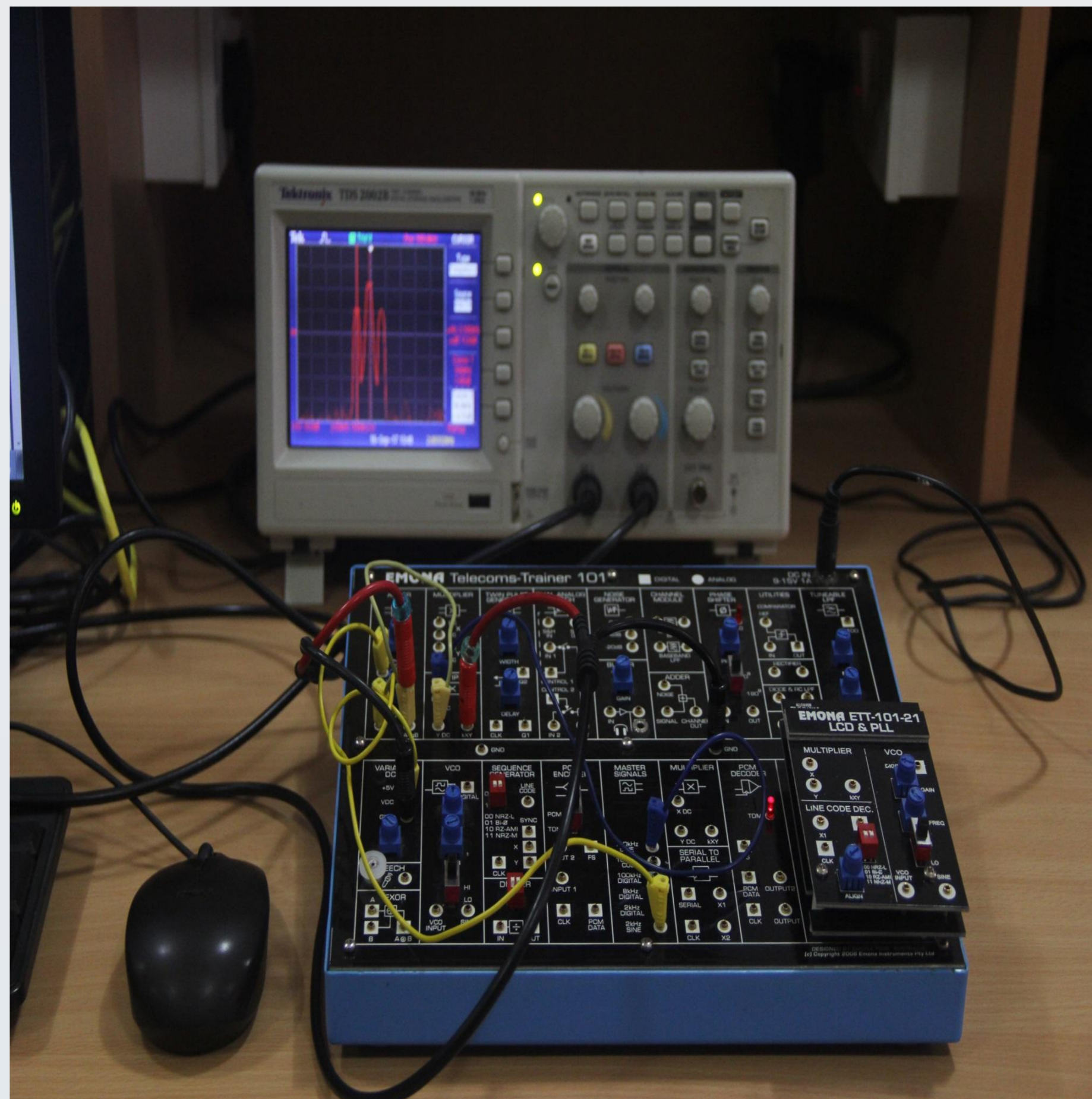
Function / Arbitrary Generator (20MHz)

Matlab2019a

Application Areas

- Signal Processing
- Digital Filter Design
- Image processing
- Video Processing
- Communication Engineering

List of experiments

- Exp 1: Familiarization with MATLAB.
- Exp 2: Matrices and Plotting
- Exp 3: Relational Operators, Loops and Functions.
- Exp 4: Generation, windowing and Time operations of Signals.
- Exp 5: Convolution on Continuous Time Signals.
- Exp 6: Synthesis of Signals using Fourier Series.
- Exp 7 : Laplace Transforms
- Exp **8**: Advanced MATLAB Problems.
- Exp 9: Study of Analog Filters Using MATLAB.
- Exp 10: Sampling Theorem

Faculty Coordinator

Prof. BVVSN Prabhakar Rao

Other Faculty Users

Prof.Venkateswaran Rajagopalan
Dr. Rabindra Mohanty

Research Scholars

Mr Naresh Bahadursha
Ms Himanshi Awasthi

Technician

Mr. S. Bhasker Reddy

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