

Introduction to Discrete Time Signals & Systems Laboratory

ECE 2057

Credit Hours: 0.50

Course Levels: Undergraduate (1000-5000 level)

Course Components: Lab

Course Description:

Introduction to sampled time signals and linear time invariant sampled time systems. Lab only.

Prerequisites and Co-requisites:

Prereq or concur: 2051.

Course Goals / Objectives:

- Be competent with the fundamentals of discrete time linear time invariant (LTI) systems
- Be competent in working in teams for laboratory experiments
- Be competent in analyzing, designing and sythesizing discrete time LTI systems, including finite impulse response (FIR) and infinite impulse response (IIR) filters
- Be familiar with how to implement designs in hardware using modern techniques such as FPGAs and microcontrollers
- Be exposed to troubleshooting and debugging practices

Course Topics:

- Instrumentation and CAD tool review: oscilloscope, Matlab, microcontroller and FPGA programming
- FPGA implementation of discrete time filters (FIR, IIR)
- Microcontroller implementation of discrete time filters (FIR, IIR)

Introduction to Discrete Time Signals & amp; Systems Laboratory - 2/2

Designation: Required