Signals and Systems EEN 303 Fall 2020

Lab -1

The purpose of this lab is to simulate different continuous and discrete signals including unit step, unit impulse, ramp, real and complex sinusoidal signals.

Part 1: Continues Time Signals

a. Unit Step, Unit Impulse, and Ramp Signals
- Rewrite and plot above signals as shown in pages (84-99)
- Provide results in your report.

b. Exponential and Complex Exponential signals pages (82-84)
- Introduce the given signals and plot them using MATLAB.
- Provide results in your report.

c. Sum of Periodic Continuous-Time Signals pages (112)

Consider the following two signals:

$x_1(t)=\cos(t)$

$x_2(t)=\sin(3t)$

and

$$\mathbf{x(t) = x_1(t) + x_2(t)}$$

- Is **x(t)** periodic signal? Explain your answer in detail.
- Plot the signal x(t) in time of three periods.
- Provide results in your report.

Part 2: Discrete Time Signals

a. Unit step, Unit impulse, and Ramp Sequences pages (99-104)

b. Introduce the given signals and plot them using MATLAB.
Provide results in your report.

c. Real and Complex Exponential Sequences pages (104-109)
- Introduce the given signals and plot them using MATLAB.
- Provide results in your report.

Part 3: Signals Operation (Shifting, Reflection, Expansion, and Compression)

Problem 10 page 142-144
- Provide script file and graphs.