Lab – 1

Subject Code: EC303 P

Due Date: 14/8/2020

Instructions:

1. Please mention legends, axis labels, titles etc in your plot/subplot for better understanding & clarity.
2. The report to be submitted must include matlab code & all observations pertaining to each plot below the same.
3. Kindly number your answers correctly.
4. **NO PLAGIARISM.**
5. Ask any questions in class or via LMS so that it will be beneficial to all (us and you).

Questions:

1. Consider a sinusoidal signal x(t)=sin(2*π*t) for two complete cycles. Using this signal, plot to represent the following:

a) Analog continuous signal
b) Analog discrete-time signal
c) Digital discrete-time signal
d) Digital continuous signal

(Take a large no. of samples to get a smooth curve. Plot all the sub-parts in the same plot using subplot)

2. Spectrum plot of sinusoidal signal

a) Generate a sinusoidal signal of amplitude 2 V and frequency 100 Hz. (Take a large no. of samples to get a smooth curve)
b) Plot the amplitude spectrum for the sinusoidal signal generated in part (a).
c) Plot the phase spectrum for the sinusoidal signal generated in part (a).

(Take a large no. of samples to get a smooth curve. Plot all the sub-parts in the same plot using subplot)

3. Power Spectrum of Noise

a) Generate a random noise element, N=2048 and plot the power spectrum of random noise versus angular frequency.

(Take N equal spaced vector between 0 to pi for angular frequency & limit y-axis range between 0 to 1).

b) Generate a white Gaussian noise element, N=2048 of power 5dBW. Plot the power spectrum of random noise versus angular frequency. Also confirm that the power is approximately 3 watts, which is 5 dBW.