Computer Lab Assignment - 05 - Spring 2020

Signals & Systems,
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Deadline: March, 13, 2020.

March 3, 2020

1. In the fundamental interval the signal $x_1(t)$ is defined as

$$x_1(t) = \left(1 - \left|\frac{t}{2}\right|\right)(u(t+1) - u(t-1))$$

2. In the fundamental interval the signal $x_2(t)$ is defined as

$$x_2(t) = t^2(u(t+1) - u(t-1))$$

- For each of the periodic signals given above assume a time period T = 3 and compute the Fourier coefficients. Next, plot the following: The Fourier coefficients; both the real and imaginary components vs the theoretical values.
- Next, for each of the periodic signals mentioned above (with the period T = 3), reconstruct the original signal from the Fourier coefficients.
  - Plot the original and reconstructed signal on the same figure.
  - Demonstrate the convergence of the reconstructed signal with respect to the original signal

Merge all the sections into a single pdf file and upload.