EE622: Biomedical Signal Processing

Assignment-2

Please implement your programs using Python by 05/02/2022

1. Given an ECG signal "original_ECG.mat", compute its DFT. (Sampling frequency of the signal is 1000 Hz.)

   (a) Plot its magnitude and phase spectrum.

   (b) Find out the magnitude in dB and phase angle in degrees at frequency 30 Hz. Display the values.

2. The original speech signal is given as "science.wav". The sampling rate is 32 Khz.

   (a) Add 10 dB, 0 dB and -10 dB Gaussian noise to it. Plot the signals

   (b) Perform Weiner filtering to eliminate the noise from the corrupted speech signals. Evaluate the SNR value for the filtered speech signals.

References:

1. R. M. Rangayan, *Biomedical Signal Analysis*, John Wiley and Sons (2nd Ed.)