

ELEC-A5204 Homework 2

13.8.2019

Answer to all questions in given Matlab files and use Matlabs publish feature to generate a pdf file. Always return the published pdf AND Matlab files. Task are also written to Exercise1 X.m files which can be downloaded from Mycourses. When an exercise ask you to draw figures, return them always with suitable axis labels and titles. Don't modify the master exercise .m-file, modify only the functions. Return the functions as well as the published pdf.

1 Magnitude to dB conversion

Create a function that outputs linear magnitude to dB conversion. Use 1 as reference level. Make sure that your function works with numbers, vectors and matrixes.

2 Impulse response FFT

Familiarize or revise the concept of Fast Fourier Transform (FFT) . FFT can be used to do frequency analysing signals and systems. System frequency response is most easily obtained from the impulse response.

Build a function which calculates 1 s long fft of an impulse response and plot it with logarithmic frequency axis in db-scale. Impulse response is convoluted readily for you. Return the log-scale fft for checking.

3 FFT from real life signal

Build a function which calculates fft from text data. Data is from an ECG measurement and you can define one's pulse from the measurement What is the pulse?