DSP EEE F434: Practical 1
Introduction to MATLAB and Discrete-time sequences

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Structure of Practical Hours

- Weekly 2 hours
- Individual tasks based on the lecture course
- Tasks will be posted on Nalanda
- I propose to have group projects on real-world and live problems

Tasks: Discrete-time Sequences and Matlab Function

1. Develop Matlab scripts to generate the discrete-time sequences (i) Unit impulse $x[n] = \delta(n)$ (ii) Unit step $x[n] = \mu(n)$ (iii) Real exponential $x[n] = \exp[n]$ (iv) Complex exponential $x[n] = \exp[(5j)n]$. Plot all these sequences in the same figure.
2. Develop a Matlab function for complex exponential of fundamental period T_0. Use this function to generate sinusoidal signals. Plot the sinusoidal.

Tasks: File Handling using Matlab

1. Generate a normal random sequence of size $N = 10^6$ and save the data in a .mat file. Extract the data from.mat file and plot for comparison.
2. Create an excel sheet and write 10 random numbers in two columns. Import the excel sheet data in Matlab.
3. Create comma-separated value (CSV) file and write 10 random numbers. Import the data in Matlab.

Projects Available

1. Analysis of birds voices
2. ECG data analysis
3. Transceiver design/Financial trading