

ELE 506 – Digital Signal Processing

SYLLABUS

Text: *Digital Filters and Signal Processing, with MATLAB Exercises* by L. B. Jackson

Exams: Two class exams (40%), final exam (40%), HW/MATLAB assignments (20%)

Course Topics:	Chapter
Discrete Time Signals and Systems: Review of z-transform & properties	2&3
Input-Output Relationships: Difference equations, impulse response, transfer function, frequency response, state variables.	4
Discrete Time Networks: Direct form and cascade/parallel digital filter structures, filter coefficients' properties, types of linear phase filters, allpass filters, relationships between frequency response magnitude and phase.	5
Discrete Time Fourier Transform (DTFT): Sampling theorem, properties of the DTFT, perfect reconstruction filter bank.	6
Discrete Fourier Transform (DFT): Definition of DFT, windows, FFT algorithms, Cooley-Tukey algorithms, Chinese remainder theorem, Prime-factor FFT algorithm, circular convolution.	7
Power Spectrum Computation: Periodogram, spectrogram	--
FIR and IIR filter design	Parts of 8&9

Any student with a documented disability is welcome to contact me early in the semester so that we may work out reasonable accommodations to support your success in this course. One should also contact Disability Services for Students, Office of Student Life, 330 Memorial Union, 874-2098.

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