Signals and Systems
EEL 3135
Spring 2002

Instructional Objectives #3
By the final exam, you should be able to do the following:

1. Sketch the direct form I and II block diagram representations of a system described by a difference equation.

2. Given its impulse response, compute the frequency response of an LTI system.

3. Given its impulse response, compute the magnitude and phase response of an LTI system.

4. Determine the response of an LTI system to a complex exponential or sinusoid.

5. Given a difference equation that describes an LTI system, determine the system’s impulse response.

6. Given the transfer function of an LTI system or the poles and zeros of the system, sketch the system’s magnitude response.

7. Recognize whether a system is a lowpass, highpass, bandpass, or bandstop filter.

8. Compute the frequency response of a comb filter and plot the poles/zeros and magnitude response.

9. Determine the DTFT of a sequence using the definition.

10. Use the DTFT properties to determine the DTFT of a sequence.

11. Use Parseval’s to compute the sum of the magnitude squared of a sequence.

12. Given a DTFT, determine the associated sequence using the IDTFT.

13. Given the Z-transform a sequence with a ROC that includes the unit circle, determine the DTFT of the sequence.

Caution: Use this list as a study guide. It is not meant to be an exhaustive list.