Homework Assignment 3

- Reading
  - Required: Chapter 3: Sections 6–7
- Required Problems (must turn in)
  - Ch. 3: 12–15
- Recommended Problems (don’t turn in)
  - Ch. 3: 52–55
- Required problems due on Wednesday, April 20
- Assignment is also posted on the class web site
- Solutions will be posted soon

Exam 1

- Exam 1 is next Wednesday
- Focus on the three Fourier transforms we’ve covered (DTFS, CTFS, DTFT)
- Should be able to apply the synthesis and analysis equations
- However, most points will be given for conceptual questions
- You are also expected to be familiar with the concepts covered in Chapters 1 & 2 that were covered in ECE 222

Miscellaneous

- Any feedback on the project? Did anyone do it?
Key Concepts from Last Time

- Real signals result in FS coefficients with complex conjugate symmetry
- There are two alternative forms of the CTFS.
  - These forms can also be used for the other 3 transforms (not covered).
  - Can convert one form to any of the others
  - Why do we prefer the complex sinusoid form?
- Relationship of signal symmetry to the transform coefficients.
  Even → real. Odd → imaginary.
- Gibb’s phenomenon. Occurs at edges. Magnitude of error is constant, duration approaches zero as number of coefficients → ∞.
- Sinc function defined.
- FS coefficients can give insights that are difficult or impossible by visual inspection of the signal alone.

Lecture Overview

Last Time

- Finish CT Fourier series
  - Other forms
  - Another example
  - Application

This Time

- DT Fourier transform
  - Definition of low- and high-frequency components
  - Relationship to LTI systems
  - Examples