

# EE 3054: Signals, Systems, and Transforms

## Summer 2007

### Outline

1. Discrete-time signals and systems
2. Linear time-invariant systems
3. Discrete-time convolution
4. The Z transform
5. The Discrete-Time Fourier transform
6. Continuous-time signals and systems
7. Continuous-time convolution
8. The Laplace transform
9. Fourier analysis for continuous-time signals
10. The Sampling theorem

### Texts

1. *Signal Processing First*, by J. H. McClellan, R. W. Schafer, and M. A. Yoder. Publisher: Pearson - Prentice Hall
2. A course packet is available on web contains exercises, the labs, additional notes and examples.
3. Secondary suggested text: *Signals and Systems* by Oppenheim and Willsky. Publisher: Prentice Hall
4. Optional supplement: *The Schaum's outline of Signals and Systems* by Hwei Hsu, McGraw-Hill, 1995. ISBN: 0-07-030641-9.

### Prerequisites

EE 2024: Fundamentals of Electric Circuits II  
MA 2012: Elements of Linear Algebra I  
MA 2132: Ordinary Differential Equations

### Homework

HWs must be turned in at the beginning of class on the due date. Solutions will be provided — therefore late HWs can not be accepted.

### Lab

Lab will meet every week. The lab will consist of computer-based exercises using MATLAB. You must bring your laptop to the lab, with MATLAB installed on your computer. Lab reports must be turned in the following week at the beginning of the lab hour. Students may work together on the labs, however, each student must write up their lab report on their own. Part of the grade for the lab component will be based on your progress *during*

the lab session. In addition, two lab quizzes will be given. The first lab quiz will cover elementary MATLAB commands. The second lab quiz will cover concepts from lectures and labs together with MATLAB usage. The labs and additional informat is on the web at:

<http://taco.poly.edu/selesi/EE3054/lab/>

### **Software**

MATLAB is a required software package for this course. Students registered for this course can have MATLAB installed on their laptop computer by the laptop office staff. Otherwise, the student version of MATLAB is available online at [www.mathworks.com](http://www.mathworks.com) or at the bookstore (about 110\$). You will also need the Signal Processing Toolbox (an extra 30\$).

MATLAB manuals are available in PDF format at [www.mathworks.com](http://www.mathworks.com). For example, the guide *Getting started with MATLAB* is available at the following URL.

[http://www.mathworks.com/access/helpdesk/help/pdf\\_doc/matlab/getstart.pdf](http://www.mathworks.com/access/helpdesk/help/pdf_doc/matlab/getstart.pdf)

Other documentation for MATLAB is available at the following URL.

<http://www.mathworks.com/access/helpdesk/help/helpdesk.html>

### **Grading**

The following grading scheme (subject to 1-2% changes) will be used to weight the course work for computint the total course weighted average.

Homework	5%
Quizzes	10%
Test 1	20%
Test 2	20%
Final	25%
2 Lab quizzes	5% each
Lab reports	5%
Lab activity	5%

In the event academic dishonesty occurs during a quiz or exam, a score of zero may be given.

### **Web**

<http://taco.poly.edu/selesi/EE3054/>

<http://taco.poly.edu/selesi/EE3054/lab/>

### **Etc**

Please refrain from using your laptop during lecture. It is distracting for the other students in the class.

### **Instructor**

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Office Hours: Wednesday 12:30-2:30 PM