

EE 3054: Signals, Systems, and Transforms

Spring 2015

New York University Polytechnic School of Engineering

<http://eeweb.poly.edu/iselesni/EE3054/>

<http://eeweb.poly.edu/iselesni/EE3054/lab/>

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. *Signals and Systems using MATLAB* by Luis Chaparro. Academic Press.
2. A course packet is available on the course website. The packet contains exercises, the labs, additional notes and examples.

Other texts - optional/reference

1. *The Schaum's outline of Signals and Systems* by Hwei Hsu, McGraw-Hill, 1995. ISBN: 0-07-030641-9.
2. *Signals and Systems* by Oppenheim and Willsky. Publisher: Prentice Hall
3. *Signal Processing First*, by J. H. McClellan, R. W. Schafer, and M. A. Yoder. Publisher: Pearson - Prentice Hall

Prerequisites

EE 2024: Fundamentals of Electric Circuits II

MA 2012: Elements of Linear Algebra I

MA 2132: Ordinary Differential Equations

Homework

HW will be assigned weekly. It is important to do the HW promptly to learn the material, to check your understanding, to keep up with the course, and to do well on the quizzes and tests. * * *Late HWs will 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. Your progress and engagement during the lab session will be monitored by the TA. At the end of each lab session, you will show your work to the TA, and possibly answer questions about it. Your activity during the lab session will count toward your course grade.

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.

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 information are on the web at: <http://eeweb.poly.edu/iselesni/EE3054/lab/>

*** Late lab reports will not be accepted. ***

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 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. More Matlab tutorials are available on the web at <http://eeweb.poly.edu/iselesni/Matlab/>

The earlier in the semester you become comfortable with MATLAB, the better. Read through the MATLAB tutorials.

Quizzes

There will be a quiz every two weeks, approximately. Each quiz will cover the previously due homework assignments. Because the material each week builds upon previous course material, each quiz can be considered cumulative.

Quizzes will be closed book, closed notes. **No graphing calculators** are allowed at quizzes or exams. Cell phones are not allowed. Cell phones may **not** be used as calculators or clocks, etc.). Cell phones must be put into bags/backpacks and placed at the front of the exam room.

Grading

The following grading scheme (subject to change) will be used to compute the weighted average for each student. The course grade will be based on the weighted average.

Grades will be posted in the online grade book. You may monitor your progress in the course grade book.

		Weighted Ave.	Course grade
		90 - 100	a
		85 - 89	a-
Homework	5 %	80 - 84	b+
Quizzes	50 %	75 - 79	b
Final	20 %	70 - 74	b-
2 Lab quizzes	5 % each	65 - 69	c+
Lab attendance	10 %	60 - 64	c
Lab reports	5 %	55 - 59	c-
		50 - 54	d+
		45 - 49	d
		00 - 44	f

In the event of academic dishonesty during a quiz or exam, a score of zero may be given. Additionally, the grade for the course may be reduced.

Etc

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

Instructor

Ivan Selesnick

Email: selesi@nyu.edu

Phone: (718) 260-3416

Office: 2MTC 10.004

Web: <http://eeweb.poly.edu/iselesni/>

Note

According to the schedule, lab will be on Thursday. However, several times during the semester, lab will be on Wednesday and lecture will be on Thursday.