

Course Information

Instructor

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Teaching Assistant

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Time: W5W6R8R9

Room: Delta 215

Course Contents

1. Purpose:

"Signals and Systems" is a fundamental course to the study of many fields that constitute the discipline of electrical engineering, such as communications, signal processing, and control. In this course, we will focus on the analysis of deterministic signals and linear time-invariant systems. Some practical examples on signal processing, communication, and control systems will be presented.

2. Course Outline:

- 1) Fundamentals of Signals and Systems
- 2) Linear Time-Invariant Systems
- 3) Fourier Series Representation of Periodic Signals
- 4) The Continuous-Time Fourier Transform
- 5) The Discrete-Time Fourier Transform
- 6) Time and Frequency Characterization of Linear Time-Invariant Systems
- 7) Sampling and Discrete-Time Processing
- 8) The Laplace Transform
- 9) The z-Transform

3. Prerequisite:

Calculus, Differential Equations, and Complex Variables

Textbook

Alan V. Oppenheim and Alan S. Willsky, with S. Hamid Nawab, Signals and Systems, 2nd Ed., Pearson Education Limited, 2014 (or Prentice-Hall, 1997).

References

1. Michael J. Roberts, Signals and Systems: Analysis Using Transform Methods and MATLAB®, 2nd Ed., McGraw-Hill, 2012.
2. Simon Haykin and Barry Van Veen, Signals and Systems, 2nd Ed., John Wiley & Sons, Inc., 2003.
3. Edward W. Kamen and Bonnie S. Heck, Fundamentals of Signals and Systems: Using the Web and Matlab, 2nd Ed., Prentice-Hall, 2000.
4. Leland B. Jackson, Signals, Systems, and Transforms, Addison-Wesley, 1991.

Grading

Midterm I: 25%

Midterm II: 30%

Final: 30%

Homeworks: 15%