EE 360D Signals and Systems I Discussion Syllabus

Fall 2021

Course EE 360D Signals and Systems I
F 5:30 PM - 6:30 PM
REMOTE

Corequisites MATH 459 or MATH 432, and EE 360D
Prerequisites EE 221 or EE 292, and MATH 431
Instructor David Santiago

Office Hours: by E-mail and by appointment

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Office: SEB 4219

Hours: MW 2:00 PM – 3:45 PM

Texts H. Hsu, *Schaum's Outline of Signals and Systems*, 3rd ed., McGraw-Hill, 2010, ISBN-13: 978-0071829465.

M. Hayes, *Schaum's Outline of Digital Signal Processing*, 2nd ed., McGraw-Hill, 2011, ISBN-13: 978-0071635097.

Optional Texts Jesus Rogel-Salazar, *Essential Matlab and Octave*, CRC Press, 2014, ISBN: 978-1482234633.

S. Chapman, *Matlab Programming for Engineers*, 4th ed., Brooks/Cole, 2007, ISBN: 978-1111576714.

Lectures Lectures will be available at http://comsys.ee.unlv.edu/~stubber/
username: student

Homework Computer Homework will be assigned regularly and will be collected via Canvas usually before the exams. You may work on the computer assignments in groups however, you are expected to turn in your own work. Homework will require the use of MATLAB or Octave.

Quizzes Quizzes will be assigned throughout the semester to keep students in check with the material

Cheating Any type of cheating is punishable by an *F* in the course.

Course Material

- MATLAB (or Octave) General Assignments
  - Assignment 1: Generating Signals
  - Assignment 2: Implementing Difference Eqns. And State Systems
  - Assignment 3: Convolution
  - Assignment 4: ZIR, ZSR, and Total Response

- MATLAB's Toolbox Assignments:

  Assignment 5: Analog System Design, Analysis, and Simulation

  Assignment 6: Discrete System Design, Analysis, and Simulation

Course Outcomes

Upon completion of this course, students will be able to:

1. Represent signal and systems using functions.
   - 1.1. Classify signals and systems according to the mathematical properties that model them.
   - 1.2. Modify a signal using independent variable transformations.
   - 1.3. Model systems modeled by linear difference and differential equations by flow graphs and block diagrams.
   - 1.4. Create a state space representation of a linear system.
2. Analyze linear systems in the time domain.
   - 2.1. Determine the zero input response (ZIR) of systems described by differential and difference equations.
   - 2.2. Determine the zero state response (ZSR) of systems described by differential and difference equations using convolution.
   - 2.3. Determine a system's impulse response.
   - 2.4. Determine the stability of linear time invariant systems.
3. Analyze signals and linear systems using the Laplace and z transforms
   - 3.1. Determine the ZIR of systems described by differential and difference equations.
   - 3.2. Determine the ZSR of systems described by differential and difference equations.
   - 3.3. Determine the transfer function of linear time invariant systems.
   - 3.4. Determine the poles and zeros of linear time invariant systems.
   - 3.5. Determine the stability of linear time invariant systems.

University Policies

Public Health Directives

Face coverings are mandatory for all faculty and students in the classroom. Students must follow all active UNLV public health directives while enrolled in this class. UNLV public health directives are found at https://www.unlv.edu/coronavirus/health-requirements. Students who do not comply with these directives may be asked to leave the classroom. Refusal to follow the guidelines may result in further disciplinary action according to the UNLV Code of Student Conduct, https://www.unlv.edu/sites/default/files/page_files/27/ StudentConduct-Code.pdf, including being administratively withdrawn from the course.

Academic Policies: https://catalog.unlv.edu/content.php?catoid=29&navoid=7326 **Student Services & Activities:** https://catalog.unlv.edu/content.php?catoid=29&navoid=7331 **University Policies:** https://catalog.unlv.edu/content.php?catoid=29&navoid=7332 **University Community & Libraries:** https://catalog.unlv.edu/content.php?catoid=29&navoid=7322