EE 282
Electrical Engineering Program

1. Course Number & Name: EE 282, Engineering Modeling Laboratory
2. Course Credit and Contact Hours: 1 Unit, 3 hours
3. Course Coordinator: Nansong Wu, Ph.D.
5. Supplemental Materials: Additional references and reading materials will be posted in Canvas if applicable.
6. Specific Course Information:
   a. Description: This laboratory course is designed to introduce engineering students to high-level programming and simulation environments in which they can model, measure, analyze, and visualize data.
   b. Prerequisites: CS 115
   c. Co-Requisite: None
   d. Status: ☑ Required for EE program, ☐ Elective, ☐ Selected Elective
7. Specific Goals for the Course:
   a. Specific outcomes of instruction: Upon successful completion of this course the students will be able to:
      i. Understand how to use MATLAB as programming language.
      ii. Able to build model through analysis of data.
      iii. Able to do advanced plotting in three dimensions.
      iv. Perform statistical analysis on the data and use probability and interpolation.
      v. Proficient in solving differential equations and calculus problems using numerical analysis.
      vi. Understand model building using SIMULINK.
   b. This course supports the following ABET Student Outcomes:
      i. SO-6: an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
8. Brief List of Topics to be Covered:
   a. MATLAB basics
b. Two-dimensional plots
c. Branching statements
d. Loops and vectorization
e. Basic user-defined functions
f. Advanced features of user-defined functions
g. Additional data types and plot types
h. Cell arrays, structures, and handle graphics
i. Input-output functions
j. Handle graphics and animation
k. Guide-based graphical user interfaces
l. Simulink