1. Course number and name
   • EE 2151: Laboratory for EE 2351 Electric Circuits II

2. Credits and contact hours
   • 1 credit, 3 contact hours

3. Instructor’s or course coordinator’s name
   • Eric Galvan

4. Text book, title, author, and year
     a. Other supplemental materials
        i. Lab assignments
        ii. Composition Notebook

5. Specific course information
   a. brief description of the content of the course (catalog description)
      i. Use of oscilloscopes, function generators, and power supplies to test and study electrical networks and their behavior. Technical writing and computer aided circuit design.
   b. prerequisites or co-requisites
      i. Prerequisite(s): (EE 1105 w/C or better) OR (EE 1110 w/C or better)
      ii. Corequisite: EE 2351
   c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program
      i. Required course

6. Specific goals for the course
   a. specific outcomes of instruction (e.g. The student will be able to explain the significance of current research about a particular topic.)

Students completing EE 2151 will be able to:
   i. Measure voltage, current, and power using multimeters. (D)
   ii. Use basic electronic test equipment such as oscilloscopes and function generators to measure and verify signal parameters. (D)
   iii. Use Oscilloscope and Function Generator to analyze basic Op-Amp functionality. (D)
   iv. Analyze, simulate, and construct first and second order circuits in the time domain. (I, D)
   v. Analyze, simulate, and construct series and parallel RLC circuits with a sinusoidal source. (I, D)
   vi. Analyze, simulate, and construct RL circuits with average and complex power. (I, D)
   vii. Experimentally investigate the magnitude and phase frequency response of passive circuits (RL, RC, and RLC), and applications of these circuits.
   viii. Design and implement a 3-way audio crossover. (I, D)
ix. Apply software tools to the analysis of electric circuits in the frequency and time domain. (I, D)

b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.
   i. Student Outcome 5a, “an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives”
   ii. Student Outcome 6a, 6b, and 6c, “an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions”

7. Brief list of topics to be covered
   • Lab Exercise 1: Introduction of Simulation Software Using Multisim.
   • Lab Exercise 2: Introduction to Basic Circuits on Breadboard
   • Lab Exercise 3: Introduction to Oscilloscopes and Function Generators
   • Lab Exercise 4: Analysis of Op-Amps.
   • Lab Exercise 5: Sinusoidal Steady State Analysis
   • Lab Exercise 6: Steady State Power Analysis
   • Lab Exercise 7: Natural Response of RC and RL Circuits
   • Lab Exercise 8: Transient Response of Second Order RLC Circuits
   • Lab Exercise 9: Frequency Response and Filters
   • Lab Exercise 10: Filters and Transfer Functions (3-way audio crossover)