1. Course number and name
   - EE 3338: Electronics I

2. Credits and contact hours
   - 3 credit hours, 3 contact hours

3. Instructor's or course coordinator's name
   - John Moya

4. Text book, title, author, and year

5. Specific course information
   a. brief description of the content of the course (catalog description)
      i. Electronics I is an introduction to electronic devices and circuits: Amplifier
         concepts, diodes, field effect transistor amplifiers, bipolar junction
         transistor amplifiers.
   b. prerequisites or co-requisites
      i. Prerequisites: EE 2351 and EE2151 with “C” or better.
      ii. Corequisite: EE 3138
   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.)
      i. Students will understand the design aspects of and be capable of analyzing
         circuits containing Diodes, Op Amps, and Field Effect and Bipolar
         Junction transistors. (ABET Criterion 3: 1c, 6)
      ii. Demonstrate competence in written technical communication. (ABET
          Criterion 3: 3b
   b. explicitly indicate which of the student outcomes listed in Criterion 3 or any
      other outcomes are addressed by the course.
      i. Student Outcome 1c, “an ability to identify, formulate, and solve complex
         engineering problems by applying principles of engineering, science, and
         mathematics”

7. Brief list of topics to be covered
   - Review of pertinent circuits material
   - Bode Plots
   - Op Amps and Op Amp Circuit Analysis
   - Diodes and Diode Circuit Analysis
   - Transistors and Transistor Circuit Analysis
1. Course number and name
   • EE 3138: Laboratory for Electrical Engineering EE3338

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

3. Instructor’s or course coordinator’s name
   • John Moya

4. Text book, title, author, and year
   • No textbook required
     a. other supplemental materials
        i. A bounded notebook (i.e. a composition notebook) I required for this lab. Lab assignments will be handed out the week before they are due.

5. Specific course information
   a. brief description of the content of the course (catalog description)
      i. Laboratory for Electrical Engineering (0-3) Introduction to experimental analysis of junction diodes, bipolar junction transistors, and junction field effect transistors. Frequency response measurements of operational amplifier circuits. Fourier analysis. PSPICE simulations.
   b. prerequisites or co-requisites
      i. Prerequisites: EE 2151 and EE2351 with “C” or better
      ii. Corequisites: EE 3338
   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.)
   Upon completion of this course, student will:
   i. Demonstrate competence using common EE measurement instruments, such as digital multimeters (DMM) and oscilloscopes, for the measurement of resistance, current, voltage, etc.
   ii. Understand basic techniques for analyzing data.
   iii. Understand basic concepts for designing circuits including components such as diodes, Op Amps, and transistors.
   iv. Demonstrate competence in written technical communications
   b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.
   i. Student Outcome 1c, “an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors”
ii. Student Outcome 6a, 6b, 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
   • Operational Amplifiers. Closed loop gain, finite open loop gain, inverting and non-inverting configuration, integrator and differentiators
   • Diodes, forwards and reverse bias, breakdown region, Zener diodes, full and half wave rectifiers.
   • Metal-semiconductor Field-Effect Transistor, device structure, current-voltage characteristics, modes.
   • Bipolar Junction Transistor, device structure, operation, current-voltage characteristics.