Department: Electrical and Computer Engineering

**EEE 3300L Electronics I Laboratory**

**Curriculum Designation:** Required course for EE majors. Elective for CpE majors.

**Course (Catalog) Description:** Laboratory in support for EEL3300, Electronics.

**Prerequisite:** EEL3112, EEL3112L  
**Corequisite:** EEE3300

**Textbooks/Required Material:**

**Course Objectives:** After completion of the course, the student should be able to:
1. Measure diode voltage and current for different input voltages and generate the I-V characteristic of the silicon P-N junction diode.
2. Measure the ripple voltage and calculate the voltage regulation of a half-wave rectifier, a full-wave rectifier, and a DC voltage doubler circuit.
3. Draw the I-V characteristics of a zener diode in the reverse bias and estimate the value of the zener knee voltage.
4. Calculate the voltage regulation for each load resistance in a zener regulating circuit.
5. Generate the I-V characteristic of a MOSFET and calculate its transconductance.
6. Generate the I-V characteristic of a BJT and calculate its forward current gain.
7. Generate the voltage transfer characteristics of BJT and MOSFET inverters.
8. Determine the bias points of BJT and MOSFET single-stage amplifier circuits.
9. Calculate the voltage gain, input resistance, and output resistance of BJT common-emitter amplifier and common-source amplifier circuits.
10. Design, construct, and evaluate a practical electronic circuit by using the knowledge students have gained in their circuit theory and electronic courses.

**Topics Covered:**
1. PN-junction diodes  
2. Bipolar junction transistors  
3. Metal oxide semiconductor field effect transistors  
4. Operational amplifiers

**Class Schedule:** One 165 minute lab per week (1 credit hours).

**Subject Area:** Engineering

**Significant Design:** Yes

**Relationship to Assessed ABET Student Outcomes:** 6(a-d), 7(d) (EE only)

**Last Updated by:** R.J. Perry  
**Date:** 4/30/2021