

Review for ECE2274 exam

The exam will be an in class practical exam 1:20 time limit. The class will be split in half. You will work without a partner. Must be able to build a circuit, evaluate, measure it, and use SignalExpress.

1. Oscilloscope measurements V_{pp} , V_p , V_{rms} , Period, and frequency.
Calculate current from a voltage across a known resistor.
2. Voltage division, Current division, series, and parallel resistors
 - a. (KVL) Kirchhoff's voltage law , (KCL) Kirchhoff's current law
 - b. Thevenin's equivalent voltage and resistance
3. AC sweep using the lab computer and marking the plot
 - a. Low frequency cutoff, High frequency cutoff, and Bandwidth
 - b. High pass RC filter
 - c. Low pass RC filter
 - d. OpAmp circuits
4. Diode rectifier power supply
Half-Wave, Full-Wave
 - a. Calculate ripple voltage
 - b. Measure ripple voltage
5. Diode circuits
 - a. OR gate
 - b. Diode clipping circuit
6. MOSFET
 - a. Biasing
 - b. Threshold Voltage
 - c. characteristic curve generations
 - d. Night light
 - e. Voltmeter using threshold voltage
7. BJT
 - a. Biasing
 - b. Current gain β
 - c. Current source
8. MOSFET logic
 - a. NAND
 - b. NOR
 - c. CMOS
9. TTL logic
 - a. Ring oscillator
 - b. TTL inverter