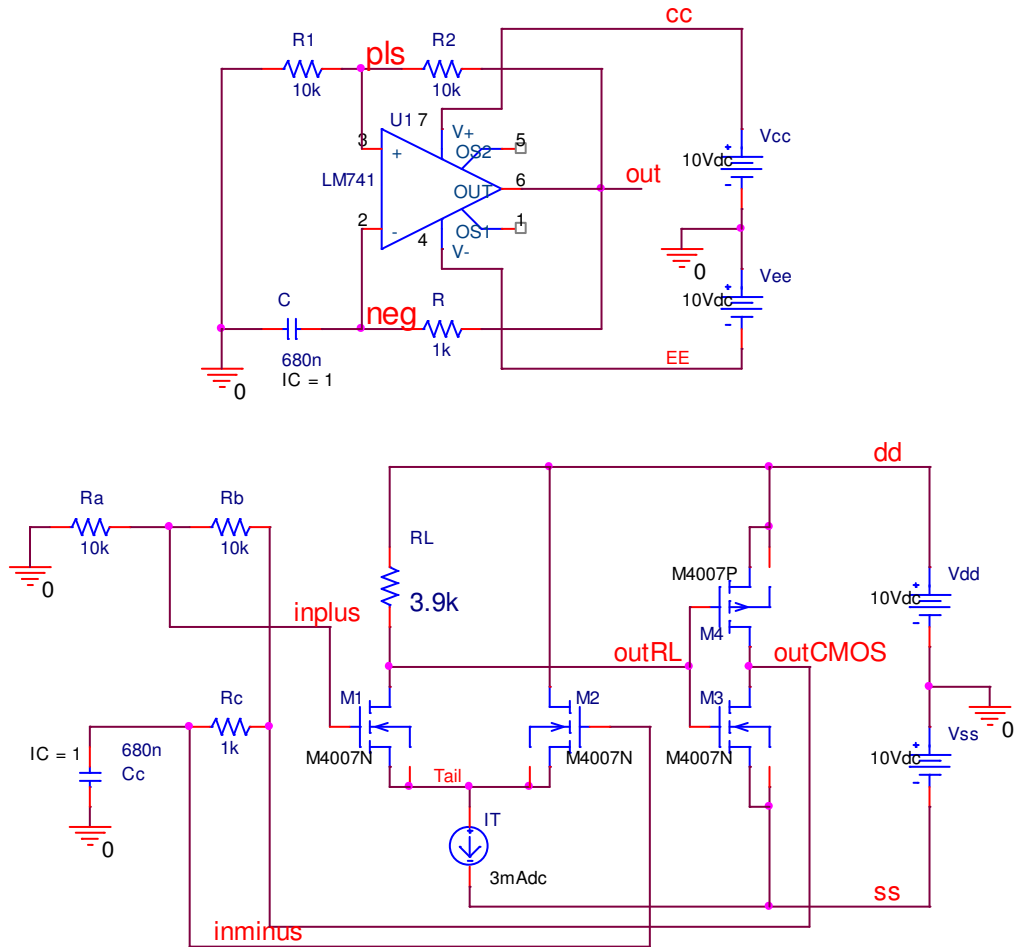


First Two Weeks ENEE 307 Experiments

1. Get used to the laboratory equipment and key parts. Thus, check the manuals for the measuring equipment (many on the web) and data sheets for the transistors and op-amps.
2. Measure the op-amp, 1458, dc gain and 3db point and from that give the large signal circuit model.
3. Design the following two versions of a relaxation oscillator using the 1458 in the op-amp version and 4007 transistor packages in the CMOS version.



- a) Run Spice and compare the two versions. Do transient and X-Y plots (with X=capacitor voltage and Y=output voltage). Do a parametric run on the CMOS tail current from 1mA to 5mA in 1mA steps. Also design the tail current source by using two NMOS transistors with a resistor (about 5.1kOhm) or two BJT 2N3904 with a resistor (about 6,8kOhm).
- b) Construct and test both oscillators in the laboratory and compare with the Spice runs.
- c) Submit the following week a report including Spice and experimental data compared.