ENEE 417 - Fall2005
Week #3; starting 09/14/05
Design #1:   Op-Amp Curve Tracer

a. If Laboratory Projects for weeks 1 & 2 have not been run, do those first.

   No report is needed for weeks 1 & 2 but be sure to have gained working knowledge of the tools, especially LabVIEW, data acquisition, and Spice using transistor models.

b.   In this experiment for weeks3 an op-amp curve tracer will be designed, constructed, and tested; use 1458 op-amps and bias them with symmetric + & - voltages of about 15 volts each.

1.   Review use of a) the Tektronix 577-177-D1 commercial curve tracer and b) curve tracing in PSpice (or Spice).
2.   Design an op-amp curve tracer following the circuit shown below and discussed in class. Test this on resistors and diodes; compare with the results from the commercial curve tracer. Using LabVIEW as a signal generator for your op-amp curve tracer, obtain 2N3904 transistor curves.
3.   Using the LabVIEW oscilloscope, obtain an hard copy along with a file of the curves on a disk.
4.   Use LabVIEW to computer control the Tektronix oscilloscope and record a file on disk of the curves.
5.   For the 4007 CMOS transistors, use the DAQ card to acquire transistor curve data and display on a virtual oscilloscope the Id versus VDS curves with VGS as a parameter. Compare with curves obtained via Spice using the equivalent RCA 3600 transistor models.
6.   Write a one to three page report summarizing your results (for this op-amp curve tracer).

(as soon as possible) make a parts list from your final choice of circuit and paper and give this to the laboratory technicians; verify that they will be able to obtain the parts needed.)