# Georgia Institute of Technology

## School of Electrical and Computer Engineering

ECE 3043          Electrical and Electronic Circuits Laboratory          Verification Sheet

NAME:_____          SECTION:_____

AD LOGIN:_____

Experiment 13: Common Source Amplifier

| Procedure | Time Completed | Date Completed | Verification (Must demonstrate circuit) | Points Possible | Points Received |
|---|---|---|---|---|---|
| 2. Parameter Measurement | | | | 25 | |
| 3. Bias | | | | 25 | |
| 3. Small Signal Gain and Frequency Response | | | | 25 | |
| **3. Clipping** | | | | 25 | |

To be permitted to complete the experiment during the open lab hours, you must complete at least **four** procedures during your scheduled lab period or spend your entire scheduled lab session attempting to do so. A signature below by your lab instructor, Dr. Brewer, or Dr. Robinson permits you to attend the open lab hours to complete the experiment and receive full credit on the report. Without this signature, you may use the open lab to perform the experiment at a 50% penalty.

SIGNATURE:_____          DATE:_____

# ECE 3043 Check-off Requirements for Experiment 13

Make sure you have made all required measurements before requesting a check-off. For all check-offs, you must demonstrate the circuit or measurement to a lab instructor. All screen captures must have a time/date stamp.

2. Parameter Measurement
  - ✓ Table of $I_D$ versus $V_{GS}$ for constant $V_{DS}$
  - ✓ Plot of square root of $I_D$ versus $V_{GS}$
  - ✓ Calculation of K and $V_T$

3. Bias
  - ✓ Drain, gate, source voltages and drain current recorded.

3 . Gain and Frequency Response
  - ✓ Oscilloscope screen capture showing input and output signals and Vpp measurements for each signal.
  - ✓ Calculation of the gain.
  - ✓ Plot of gain versus frequency made with HPVEE, LabView, or by hand with -3dB frequencies and midband gain labeled and their values recorded.

3. Clipping
  - ✓ Screen capture showing soft clipping on output and measured positive and negative peak amplitudes (use max and min functions on scope).
  - ✓ Screen capture showing hard clipping on output and measured positive and negative clipping levels (use max and min functions on scope).