Instructional Objectives (at the end of this lab you should be able to:)
- Explain to someone else the overall objectives of EE101.
- Identify each item in the basic set of lab instruments: <u>oscilloscope, signal generator, power supply, multimeter</u>, and be able to explain the general use of each.
- Connect the signal generator to the oscilloscope using appropriate cables and observe various signals produced by the signal generator
- Write your observations, clearly and legibly, so that a technical person can understand your conclusions and would agree with them.

Description and Background
A very common laboratory instrument in electronic and circuits laboratories is the oscilloscope. The oscilloscope is used to display signal waveshapes, so that the characteristics may be observed. For example, an engineer may be interested to see whether the waveshape is essentially sinusoidal in appearance, or whether there are any voltage "spikes" appearing in an otherwise smooth signal. The oscilloscope can be used for measurements of frequency, time responses, voltage amplitudes, and multi-channel oscilloscopes can provide an easy means to compare two or more signals simultaneously. The oscilloscopes in the EE101 lab are two channel types – so two different signals may be displayed at the same time.

Equipment
Oscilloscope, signal generator, and laboratory cables.

Procedures
P1. Connect the signal generator to the oscilloscope as explained in class. Be sure that the signal generator <u>amplitude</u> is turned down before turning on the signal generator (this is good procedure, so as to not overload circuits later in the course). Set the signal generator frequency to a desired level, and then vary the amplitude, waveshape choices, and frequency values.

→ After trying out various frequency, amplitude settings, and waveshapes, and observing the resulting signal on the oscilloscope, describe the use of the oscilloscope for observing signals. What can you conclude from your experimental observations?