## *0: INTRODUCTION*

Electronic communications is all around us! Almost every facet of our modern lives is touched by this technology. A technician possessing a good understanding of communications fundamentals will find many exciting career opportunities.

Your study of communications systems will begin with radio and the electronic subsystems that are necessary in radio transmitters and receivers. In the first portions of this laboratory you will construct and test a low-power AM (Amplitude-Modulation) transmitter; you will then add the necessary circuitry to receive the transmitter's signal, and recover or "detect" the information (sound) that was put into the transmitter. Before you're done you'll also have gained familiarity with other communication system building blocks, including VCOs (Voltage Controlled Oscillators) and PLLs (Phase Locked Loops).

After learning analog fundamentals, you'll be introduced to digital telecommunications blocks including the UART (Universal Asynchronous Receiver Transmitter), the RS232 interface, and fiber optics. You will also get a taste of modern PC communications software.

To help you succeed in this laboratory, it is strongly suggested that you be enrolled in the corresponding lecture course. Other helpful hints:

- At least two days before your scheduled lab day, read through the experiment in this manual. Do not try to memorize the individual steps or procedures in the experiment, but rather, read the experiment and think about the *concepts* that are being applied and the *results* that should logically be obtained.

- If you are having trouble understanding an experiment, or part of an experiment, try to determine if the trouble relates to a lab *procedure* you are unfamiliar with (or have possibly forgotten), or if the problem is the *concept* behind the experiment. In the former case, a review of experiments and lecture notes from previous terms can help jog your memory. In the latter case, your textbook, class notes, or instructor may be helpful.

- At least one day before the lab, read through the experiment *procedure*. This time, you are reading for detail; imagine that you are now in lab performing the experiment. It is a "dry run." You may discover at this time that you don't understand a particular point; again, you now have opportunity to correct the situation before lab day.

- If the experiment requires you to build a circuit, try to have it built before you go to the scheduled lab. This will give you a *lot* more time in lab for measurements, questions, and possibly troubleshooting. It will also take some of the pressure off that can cause you to rush through experiments.

- Remember that laboratory, when approached with the proper attitude, should not be a stressful experience. Be prepared to make mistakes -- we all do, and you most certainly will! Be relaxed, prepared, and open to the learning experience.