Laboratory Report Guidelines
For
ECET 107 & ECET 157

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**Introduction:**

The primary objective of a laboratory report is to convey to someone else what you have done in testing a particular circuit. In this sense, the report should be so complete and understandable that the person you are giving the report to will grasp what you are attempting to do and not have a single question about what you have done. If you can accomplish this, you have put together an excellent laboratory report.

The following paragraphs will describe how to put together such a document. If you follow the guidelines put forth here and always consider the reader of the report, you will be able to have a report that is understandable and will receive an excellent grade.

**Laboratory Format:**

The laboratory report should be put together in the following format. This format must be followed if the student is to receive full credit for the work that they do.

1. Objective
2. Equipment/parts List
3. Block Diagram/Schematic(s)
4. Procedure
5. Data
6. Conclusion
7. Questions/Problems

Each of these areas will be presented in this document and explained.
**Objective:**
This is the part of the lab report that tells the reader what you are intending to do with the specific lab you are undertaking. This should be about 2-3 lines and very general. If you put too much into the objective statement, you may lose the reader and they will not want to go any further. If you are too general, they will wonder exactly why these tests were run in the first place.

**BAD EXAMPLE:**
“The objective of this lab is to test amplifiers.”
(Way too general and very uninteresting to the reader)

**GOOD EXAMPLE:**
“Our objective in this lab is to evaluate the AE155 amplifier. We will look at the gain characteristics, current requirements and compression point.”
(Explains much better what is going to be attempted)

**Equipment/parts List:**
This is an important section of the report because it lists the equipment that is to be used in the testing procedure. This is a vital section if you are in industry and are applying for a patent of a circuit you have designed. It is vital that you be able to get the same pieces of equipment to duplicate the tests you have run and put in this report.

For equipment you need to have three things listed:
1. NAME OF EQUIPMENT
2. MODEL NUMBER OF EQUIPMENT
3. SERIAL NUMBER OF EQUIPMENT

For the parts list, you should list every resistor, capacitor, inductor, switch, cable, protoboard, clip lead, etc. that you will be using. If you think about the person that will be attempting to duplicate these tests and think about how nice it will be to have a complete list of equipment and parts BEFORE they start the tests, you will understand how complete this must be.

Examples would be:
**Model 155 Signal Generator, serial number 33562**
**Model 4467 Multimeter, serial number 2958473**
(4) 1KΩ ¼ watt Resistors
(2) 0.1 μF Capacitors
(2) Coaxial cables with clip leads on one end and BNC connector on other.
**Block Diagram/Schematics:**

This is a diagram that shows the circuit being tested and ALL of the test equipment that was listed in the section above. If may be necessary to put more than one block diagram in this section to accomplish this. It is in block form and shows how one block is connected to another to make up the testing system.

The schematic, or schematics, for the circuits that are to be tested should be included in this section. These schematics, or a single schematic, should contain all of the parts that were listed in the previous section.

Both of these sections should have figure numbers assigned to them so that they can be referred to in the report. (Figure 1-1, Block Diagram for the Gain Measurement section, and Figure 3-6, Schematic for Amplifier Circuit to be tested.)

**Procedure:**

This is the most important part of the laboratory report. It is such because it tells the reader what you have done so that they can do exactly the same thing. This should be in STEP FORM, not a large paragraph. Each step should assume that the reader does not have an extensive background in the topic you are working with. Be very complete and basic when you put together a procedure for the lab report.

**BAD EXAMPLE:**

1. Connect the circuit
2. Set the frequency to 4 kHz
3. Read the meter

(This example is very vague and does not tell the reader how to set the frequency, what circuit they are working with, and which meter to use or how to read the value).
GOOD EXAMPLE:

1. Connect the setup as shown in Figure 3-1 with the test equipment turned off
2. Set the generator to 4 kHz and 2.5 Volts, as displayed on an oscilloscope.
3. Attach the generator to the circuit at point A and read the output voltage from the circuit on the multimeter on the 50 volt scale.
4. etc.
5. etc.
6. etc.

(This procedure is much more concise and will tell the reader exactly how to perform the tests. If you are going to go in a specific direction when writing a procedure, go to the MORE IS BETTER side rather than to abbreviate it).

If you are required to do Calculations, Computer Analysis, and Measurements in the lab, have a separate section in the procedure for all three of these sections. That is:

**Calculations**

1.
2.
3.
4.

**Computer Analysis**

1.
2.
3.
4.

**Measurement**

1.
2.
3.
4.

(Be specific in each one of these sections, just as if you only had one section to explain). Also, DO NOT put date or schematics in the procedure section.
**Data**
The most important area to concentrate when you are putting together a DATA section for a lab report is LABELING. That is, label every graph, chart, equation and diagram that you use to present what you have accomplished. Do not make the reader guess what you are trying to display.

If you have calculations, computer analysis, and measurements to do for the lab, put them in separate sections in the DATA section. Be sure to include printouts of the computer analysis. Do not simply say that you did the analysis and the numbers came out very close. Show your results as clearly as you possible can.

**Conclusion:**

This is one of the most important parts of the lab report (next to the procedure section). It either confirms that everything has gone well or tells why it did not. It is the summation of everything that has been done in the laboratory and how it turned out. This should be about one short paragraph and you should think very carefully before writing it.

**Questions:**

Some labs will have questions/problems associated with them. When you do these, be sure to write out the question or problem that has been stated and then do the answer. If there are calculations, include them. If you are asked a question, answer it with more than YES or NO.

**General Comments:**

1. Be concise with the report. Details, Details, Details
2. NEVER USE PENCIL FOR A LAB REPORT, NOT EVEN DRAWINGS
3. If a mistake is made, place one line through the mistake and initial that mistake
4. Sign and date the last page of the lab report