A GUIDE TO LABORATORY REPORT WRITING
FOR DIGITAL AND PROCESSOR-BASED COURSES

One of the major objectives of this course is to improve students’ communication skills. Therefore, a concise lab report, clearly describing all work performed, conclusions, and comments will be required within 7 days of completion of the lab exercise.

Remember, your work only has value to the extent that others can understand and utilize it. Many prospective readers will be busy people who only have a limited time to assimilate the results of your work (professors are sometimes a good example). Hence, it is essential that you learn to communicate as clearly as possible. A job is not complete until the results have been placed in a form that can be easily assimilated by others.

The components required for your lab reports include the following:

1. Title Page
2. Statement of Objective
3. Introduction
4. Description of Experimental Setup/List of Equipment Used
5. Procedure
6. Results
7. Discussion of Results
8. Conclusions
9. References (if any)
10. Appendices (if any)

The contents of each of the sections in a laboratory report are described below.

1. **Title page should include**
   - A brief but informative title that describes the subject of the report
   - Your name
   - Names of other group members *who were present for the experiments*
   - Date(s) the experiment was performed
   - Date the report was due
   - Date the report was submitted
   - Laboratory section number
   - Name of the Instructor

2. **Statement of Objective**

   The objective should state the problem that your procedures and results attempt to address. Some key verbs that you may use in the objective might include “to investigate,” “to measure,” or “to compare.” The section should inform the reader precisely why the project was undertaken.
3. Introduction

A concise description of the relevant background should be provided including a
discussion of the motivation for the exercise and information that is needed to
understand other parts of the report such as the results or discussion sections.

Relevant equations (if any) should be introduced and all the terms to be used in the
report should be defined. Equations must be numbered and presented as parts of
complete sentences.

4. Description of Experimental Setup / List of Equipment Used

Provide a neat, correct and clear schematic or drawing of the experimental set-up,
showing all the interconnections and interrelationships. Include a short textual
description that refers to all parts of the schematic drawing. This section should have
all the information needed for a reader to duplicate the setup independently. List all
the equipment and materials used in the experiment, such as name and model number.
The reader must be able to connect each item in this section to the item in the
Description of Experimental Setup section.

5. Procedure

Detail the procedure used to carry out the experiment step-by-step. Sufficient
information should be provided to allow the reader to repeat the experiment in an
identical manner. As with all sections of the report, the procedure describes what was
done in the lab and should, therefore, be written in the past tense. Copying the
procedure from a lab manual would be an inaccurate reflection of the work
completed in the lab and is not acceptable.

6. Results

The type of information in this section will vary according to the individual
experiment and can include numbers, truth tables, drawings, images (e.g.,
screenshots), code fragments, etc. Any numerical data should be tabulated carefully.
Variables tabulated or plotted should be clearly identified by a symbol or name.
Units, if any, should always be clearly noted.

7. Analysis and Discussion of Results

This section describes the end results of the experiment and any analysis or
procedures used. If equations are used they must carry sequential identifying numbers
that can be referenced elsewhere in the text. The final results of the experiment are
reported in this section, using figures, graphs, tables or other convenient forms. The
end result of the data analysis should be information, usually in the form of tables,
charts, graphs or other figures that can be used to discuss the outcome of the
experiment or project.
This section should include your interpretation of the outcome of the experiment or project. The information from the analysis is examined and explained. You should describe, analyze and explain (not just restate) all your results. Describe any logical projections from the outcome, for instance, the need to redesign parts of the procedure. Assess the quality and performance of your procedure.

8. Conclusions

*Base all conclusions on your actual results.* Explain the implications of your results. Examine the outcome in the light of the stated objectives. This section should answer the question “So what?” Seek to make conclusions in a broader context in the light of the results.

9. Figures and Tables

Figures and tables ordinary belong in the body of the report unless they are large enough to interrupt the flow of the discussion. All figures and tables should have a descriptive caption and be cross-referenced and described in the text. The figure or table should appear in the report after (although not necessarily immediately after) the first place it is referenced.

10. References (if any)

Using standard bibliographic format, cite all the published sources you consulted during the conduct of the experiment and the preparation of your laboratory report. List the author(s), title of paper or book, name of journal, or publisher as appropriate, page number(s) if appropriate and the date. If a source is included in the list of references, it must also be referred to at the appropriate place(s) in the report.

11. Appendices (if any)

Details of analysis, etc. that were referenced in the main body of the report should be included in the appendix. If the appendix contains more than one item, each one is designated by a specific letter (Appendix A, Appendix B, etc.). The Appendix should be reserved for large items that would normally interrupt the flow of the report if included in the body of the text. Screenshots, short code fragments, or diagrams would ordinarily be included in the body of the report.