LAB FORMAT AND STYLE MANUAL

Revision September 2013

SAINT LOUIS
UNIVERSITY

Department of Aerospace and Mechanical Engineering
Parks College of Engineering,Aviation and Technology
Saint Louis University

THE FORMAL LABORATORY REPORT

The formal laboratory report should be composed of the items or sections listed below, in the order given. However, some of the sections can sometimes be combined or omitted as indicated, depending upon the particular situation.

1) Title Page
2) Table of Contents
3) Summary
4) Nomenclature
5) Introduction
6) Design of Test
7) Test Procedure
8) Test Results
9) Discussion of Results
10) Conclusion(s)
11) Appendices

A description of each of these sections is given below.

1. The Title Page

The Title Page should have the following form:

Department Code Course #: Course Name

Title of the Experiment

by

Name

Member of Group NO._____

Date Experiment Performed:_____

Date Report Submitted:_____

Submitted to: Instructor's Name

Department of Aerospace and Mechanical Engineering
Parks College of Engineering,Aviation and Technology
Saint Louis University

2. Table of Contents

The Table of Contents should have the following form:

Table of Contents

Section	Page
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

3. Summary

The Summary is a brief abstract (usually less than one page) of the entire laboratory experiment. In an industrial environment, it is written for the readers, usually upper management, who do not have the time to read all of the details of the experiment and who also do not have a need to know all of the details. Consequently, although the Summary touches on all of the report, it is short on Introduction and long on Discussion of Results and Conclusions.

The Summary, even though it comes at the front of the report, is usually written last, using the rest of the report as a guide. Because of this, the writer is often concerned that he is duplicating information, but this is simply a natural result of the purpose of the Summary.

4. Nomenclature

The Nomenclature is a listing of all variables and symbols used in any section of the report. This helps the reader to understand the tables, graphs, and calculations. It is important to define all symbols and variables for clarity. People use different symbols depending on the project at hand. In order for everybody to understand the report, this is a necessity. Standard formatting for this section follows:

Δ = delta operator
P_0 = static pressure

5. Introduction

The Introduction is the beginning of the report and should be used to inform (teach) the reader of the basic subject area of the experiment. As such, it should read something like a textbook, only condensed of course.

The introduction should be brief. It should contain all equations and theoretical explanations of the equations needed to complete the data reduction. The author should demonstrate his or her understanding of the lab manual instead of paraphrasing it. A well-written introduction contains the directly relevant information from the lab manual and unique demonstrations of understanding derived either from the author's perspective on the information provided or outside sources (which should be cited whenever used).

6. Design of Test

This section contains 2 sub sections:

Objective of the Experiment:

The Object of the experiment is a brief explanation, usually just a couple of sentences, of the basic reason(s) for performing the experiment. This reason(s) is usually the validation of some statement in the Introduction of the gathering of some data mentioned in the Introduction. Thus, in the Object, reference is often made to information in the Introduction.

Test Apparatus and Function:

This section should contain all devices and equipment used in the lab and the functions or descriptions of each device. If one main device is used with measuring equipment attached use the following example format:

- Wind Tunnel: open circuit, 12"x12"x24" test section, 9.5 to 1 contraction ratio, 145 mph maximum test section speed
    - Pitot Static Tube: measures free stream static and total pressures
    - 18 pressure tap Clark Y-14 airfoil: measures surface static pressure
    - 18 pressure tap wake rake: measures stagnation pressure behind the airfoil
    - 20 tube manometer board: reads differential pressures from airfoil or wake rake

8. Test Procedure

The Procedure is commonly a numbered list of steps describing how the Apparatus was used to perform the experiment. However, since each of these steps usually takes some explanation, it often is more like a series of numbered paragraphs. It is also acceptable for the Procedure to be described in narrative fashion if appropriate.

9. Test Results

This section contains only the data taken during the experiment. If the amount of these is small, they may be presented in the Results section, but if large, they should be placed in Appendices. In any event, the reader must be told clearly where they are and how they are presented.

10. Discussion of Results

This section should contain all reduced data and error analysis in the experiment (if the amount is small, otherwise put in Appendix and reference them). In this section, the writer gives his analysis of the data and observations. This section contains any graphs used to support statements of conclusions. If the number of graphs is large, they should be placed in an Appendix and the reader clearly told where they are located. The discussion of error analysis should occur here with specific references to percentages and values of importance for the argument.

The primary objectives of this section are:

- Error analysis
- Recognition and explanation of trends in the analyzed data
- Presentation of the analysis
- Demonstration of theoretical understanding

This section, by argument, leads the reader from the Results to the Conclusions.

11. Conclusion(s)

The Conclusion(s) section has three primary objectives:

- Summarize the procedure for performing the experiment and analyzing the data
- Summarize and generalize the error analysis findings
- Conclude why or why not the objective was achieved by referencing theoretical trend correlations and error analysis.

12. Appendices

The appendix must contain a sample calculation of every equation used in the analysis. This example should include both the symbolic equations along with actual numbers from the gathered data introduced into the equations.

Also in the appendix should be any data tables or figures that are too large to fit logically in the main sections of the report.

The sample calculation section and any other appendix sections should be labeled for organization.

THE DAILY LABORATORY REPORT

A daily laboratory report is basically a shorter, condensed, version of a formal laboratory report. Thus, the description of a formal laboratory report can be used to develop a guide for a daily laboratory report.

A daily laboratory report merely needs to answer the three basic questions surrounding an experiment, why was it done, what was done, and what was found, in as few words as are necessary. Thus, the list of sections in a formal laboratory report can be reduced to the following for a daily laboratory report:

1) Title Page

2) Introduction

3) Design of Test

4) Test Procedure

5) Test Results

6) Discussion of Results

7) Conclusion(s)

8) Appendices

For an explanation of each of the above sections, see the description of the formal laboratory report.

In general, laboratory reports are lengthy and time consuming, as they require considerable calculations and analysis. Therefore, it is very important that the daily reports are elaborated as a GROUP PROJECT, with all the members of the group contributing equal parts. Working as a group will make this course a lot more bearable and fun.

Please observe the following two requirements:

1) It is required that the student(s) that work on a particular section of the report hand-write their initials besides the title of the section.

2) Each member of the group must review the final copy of the report and sign besides their name on the title page before submittal.

The Title Page must be revised to the following

Department Code Course #: Course Name

Title of the Experiment

by

Group No.

Name and OK signature after reviewing report
Name and OK signature after reviewing report
Name and OK signature after reviewing report

Date Experiment Performed:

Date Report Submitted:

Submitted to: Instructor's Name

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