**ENGR477 Mechanical Engineering Laboratory**

**LABORATORY REPORT TEMPLATE**

**LAB NAME**

**Lab Group #**

**Section #**

**TA Name**

Name 1

Name 2

Name 3

**School of Engineering**

**Faculty of Applied Science**

**The University of British Columbia Okanagan**

**Date**

**I. LABORATORY REPORTS**

Students are expected to prepare technical engineering reports. The report should present the results, meaningful discussion, practical application of the work, and error analysis.

**Report Outline for Complete Engineering Report**

*1. Cover Page:*

Course Name, Lab Name, Group #, Section #, TA Name, Group Members, Affiliation, Date

*2. Short Introduction and Objective*

The introduction should provide answers to the following questions: a. What is the purpose of the experiment? b. What are the results of the experiment? c. What is the significance of the results? Then, provide an explanation of the objectives and relevance of the experiment in a clearly and concisely the objective(s) of the experiment.

*3. Theory:*

Include pertinent principles, laws, and equations in this section. Discuss the nature and physical significance of any experimental coefficients, correction factors, and efficiencies. These may be theories associated with how a measurement device works or how other quantities are calculated from measured or other calculated quantities.

*4. Apparatus, Instrumentation, Procedure and Data Collection:*

Provide a short description of the equipment and procedure used in the experiment. Refer to the lab manual when appropriate. Include the model type and manufacturer's name of the apparatus, and state clearly the special precautions taken to enhance measurement accuracy, or control some relevant variable, as well as the controlled and independent variables.

*5. Results and Discussion:*

The results should be presented in graphical or tabular form. Each figure (diagram, graph) or table should have a number and a complete title. Each figure should make sense even when removed from the report. In the case of graphs, the axes should also be completely dimensioned and labeled. The results should be discussed with regard to accuracy and the specific conclusions that can be drawn from the experiments and questions that are asked. Merely presenting graphical or tabular data is not sufficient discussion. Include in this section a complete analysis of the error. Detailed quantitative error analysis may be placed in an appendix. Data, which deviates grossly from the expected value, should be carefully checked and explained.

*6. Conclusions:*

This section should include a list of definitive conclusions that can be drawn from the results. They must be consistent with observation and accepted theory.

*7. References or Bibliography:*

References should be included in your report where required, using numbers enclosed in square brackets. A bibliography can then be provided at the end of the document. For example:

In the text of the report:

'The temperature of the flame has bee reported in other sources as 1300 K [1].’ In the Reference listing:

1. Doe, J., and Doe, J., "Measurement of Flame Temperature". Combustion Journal, Vol. 5,

p. 95, 1974.

*8. Appendices:*

Include in the appendices any of the following:

a. Sample Calculations and Derivations. Sample calculations should be given for any number which is calculated in the report including those for graphs and tables. There should be a sample calculation for any number given which is not taken as raw data.

b. Computer Program Listings / Information, etc

**II. Grading of Reports**

Below is a copy of the form used to evaluate the lab report.

**ENGR XXX Laboratory Lab Grading Sheet**

**I. Short Introduction and Objective\_\_\_\_\_\_\_\_/10**

Introduction of fundamental objective, motivation, and background;

Identification of salient objectives;

Explanation of physical principle;

Derivation of fundamental formulae

**II. Experimental Design & Data Collection \_\_\_\_\_\_\_/10**

Identification of important apparatus;

Explanation of significant procedures;

Formulate/Apply appropriate procedures to perform experiment and collect data

**III. Results and Discussion \_\_\_\_\_\_\_\_/50**

Logical presentation and citation of figures

Succinct description of each Figure

Relevant and cogent discussion of results

Presentation of calculations

Accuracy of calculation error

Discussions

**IV. Conclusions \_\_\_\_\_\_\_\_/10**

Concise summary of the experiment by citing data and source of error, and list significant conclusions

Consider limitations of theory or measurement errors (if applicable)

**V. Sample Calculations and Derivations \_\_\_\_\_\_\_\_/10**

All Relevant Calculations and Derivations Covered Calculations and Derivations Correct

**VI. Quality of Visuals and Data Presentation \_\_\_\_\_\_\_\_/5**

Effectiveness of figures, drawing, photos, etc.

Referencing to the Lab Manual necessary and sufficient use of figures;

Correct captions, titles, source lines

**VI. Quality of Writing \_\_\_\_\_\_\_\_/5**

Format conforms to expectations

Document is organized effectively at macro and micro levels

Sentences are correct and concise

Document has been proofread (misspellings and typos)

Appropriate Appendices Given

TOTAL \_\_\_\_\_\_\_\_/100