

**WENTWORTH INSTITUTE OF TECHNOLOGY**  
**MECHANICAL ENGINEERING & TECHNOLOGY DEPARTMENT**  
**Laboratory Report Format**  
**June 2011**

The goal of report writing in the Mechanical Engineering and Technology Department is to have students assemble reports that will be acceptable in an industrial setting. A problem is assigned (Objective), requiring examination and a final evaluation (Conclusion). Assuming the reader is not technically proficient in the area, the conclusion must be clear and to the point. Aside from the "Objective" and "Conclusion," the rest of the report is back-up material used to justify the conclusions and aid someone who wishes to reproduce the results. Every lab report should be written with the idea of providing a complete and permanent record of the experiment, including observed data. In many situations, the only way an author will become known to others in a company is through the dissemination of their reports. Spelling, sentence structure, and neatness will be an important factor in the evaluation of both an author's ability and promotion potential.

### **Writing Quality:**

All written work submitted for this course must meet the Standards for English I. Poorly written papers will be returned to you, without a grade, for revision. The first paper returned will be without penalty, however, all subsequent papers not meeting the standards and requiring revision will receive lower grades. Students are encouraged to utilize the Writing Center Facility for help polishing their papers. Some reports will be required to be seen by and initialed by the staff of the Writing Center. All reports should be printed using Times New Roman 12 point font on 8.5 X 11 inch paper only, without perforated edges and stapled in the upper left corner. Reference material must be used and identified using the attached ASME reference format attached in the appendix of this document. Grading will be in accordance with the technical writing rubric included in the appendix.

### **Report Form:**

**1. Cover sheet:**

Use a standard Mechanical / Manufacturing Wentworth Institute of Technology cover sheet found in this manual appendix.

**2. Abstract:**

In one brief concise paragraph not to exceed 150 words, give the reader enough information to understand what the experiment was about, what was done, and what conclusions were drawn. This is not the experimental write up or procedure from item #4, or the complete conclusion from item #8, but includes a summary of what was done, and what was concluded.

**3. Introduction:**

Include a brief introduction to the experiment which includes presentation of theory and appropriate reference material citations regarding the experiment.

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### 4. Experimental procedure:

This is taken from the laboratory manual or from material given to the students by the professor. The procedure includes identification and description of equipment used along with the operational procedures to conduct the experiment.

### 5. Results:

- **Data:** All original measurements must be recorded no matter how trivial. Organize the data taken and put it in tabular form.
- **Table:** Repetitive and iterative calculations can be done using a spreadsheet and displayed in tabular form.
- **Illustration of set up:** Include a drawing of the arrangement of the equipment and measuring devices showing the location of gages, gage markings, etc. Use simple diagrams of essentials only.
- **Sketches of observations:** In some experiments the results are shown by making a sketch of what happens. Include those here.
- **Graphs:** Graphs must be integrated in the report by using a section break and using the entire page in landscape format using Excel for each graph.
- **Sample calculations:** Examples of each different calculation must be done using Microsoft equation editor and integrated as part of the report.
- **Discussion of results:** Comment on the graphs, results, or any other aspect of the experiment that is pertinent to the conclusion. A set of questions is generally given to provide a starting point for the discussion. Do not confine the discussion to merely answering the questions. A discussion of errors and their possible causes are always pertinent

### 6. Conclusion:

This is the most important part of the report. State conclusions that can be justified with the data. From the conclusions the boss will be able to determine what steps to take next. He/She will also learn if the experimenter understands the problem and has analyzed the data correctly. Make sure that thoughts are worded as conclusions, and not observations. Make simple declarative statements, and do not ramble into a discussion. Conclusions should tell how the results of this experiment can be applied to other experiments. All statements need to refer directly to the current data.

**7. References:** Cite all references in accordance with ASME standards attached in the appendix of this document.

### 8. Appendix:

Include an appendix with material as required.

NAME \_\_\_\_\_ GROUP No. \_\_\_\_\_

COURSE No. \_\_\_\_\_ COURSE TITLE. \_\_\_\_\_

DATE: \_\_\_\_\_ LABORATORY MEETING DAY: \_\_\_\_\_

LABORATORY MEETING TIME: \_\_\_\_\_

**WENTWORTH INSTITUTE of TECHNOLOGY  
MECHANICAL ENGINEERING and TECHNOLOGY LABORATORIES**

EXPERIMENT No. \_\_\_\_\_

EXPERIMENT TITLE: \_\_\_\_\_

INSTRUCTOR: \_\_\_\_\_

GROUP MEMBERS:

**GRADING:**

LEADER \_\_\_\_\_

ABSTRACT: \_\_\_\_\_

\_\_\_\_\_

INTRODUCTION: \_\_\_\_\_

\_\_\_\_\_

PROCEDURE: \_\_\_\_\_

\_\_\_\_\_

RESULTS: \_\_\_\_\_

\_\_\_\_\_

DATA

\_\_\_\_\_

SAMPLE CALC'S

WRITING CENTER FACILITY  
CONSULTATION: \_\_\_\_\_

DIAGRAMS

GRAPHS

DATE REPORT  
SUBMITTED: \_\_\_\_\_

CONCLUSIONS: \_\_\_\_\_

ENGLISH MECHANICS: \_\_\_\_\_

GRADE: \_\_\_\_\_

GROUP LEADER: \_\_\_\_\_

## **ASME Reference Format:**

**Text Citation.** Within the text, references should be cited in numerical order according to their order of appearance. The numbered reference citation should be enclosed in brackets.

Example:

It was shown by Prusa [1] that the width of the plume decreases under these conditions.

In the case of two citations, the numbers should be separated by a comma [1,2]. In the case of more than two reference citations, the numbers should be separated by a dash [5-7].

**List of References.** References to original sources for cited material should be listed together at the end of the paper; footnotes should not be used for this purpose. References should be arranged in numerical order according to their order of appearance within the text.

(1) Reference to journal articles and papers in serial publications should include:

- last name of each author followed by their initials
- year of publication
- full title of the cited article in quotes, title capitalization
- full name of the publication in which it appears
- volume number (if any) in boldface (Do not include the abbreviation, "Vol.")
- issue number (if any) in parentheses (Do not include the abbreviation, "No.")
- inclusive page numbers of the cited article (include "pp.")

(2) Reference to textbooks and monographs should include:

- last name of each author followed by their initials
- year of publication
- full title of the publication in italics
- publisher
- city of publication
- inclusive page numbers of the work being cited (include "pp.")
- chapter number (if any) at the end of the citation following the abbreviation, "Chap."

(3) Reference to individual conference papers, papers in compiled conference proceedings, or any other collection of works by numerous authors should include:

- last name of each author followed by their initials
- year of publication
- full title of the cited paper in quotes, title capitalization
- individual paper number (if any)
- full title of the publication in italics
- initials followed by last name of editors (if any), followed by the abbreviation, "eds."
- publisher
- city of publication
- volume number (if any) in boldface if a single number, include, "Vol." if part of larger identifier (e.g., "PVP-Vol. 254")
- inclusive page numbers of the work being cited (include "pp.")

(4) Reference to theses and technical reports should include:

- last name of each author followed by their initials
- year of publication
- full title in quotes, title capitalization
- report number (if any)
- publisher or institution name, city

### ***Sample References***

[1] Ning, X., and Lovell, M. R., 2002, "On the Sliding Friction Characteristics of Unidirectional Continuous FRP Composites," ASME J. Tribol., 124(1), pp. 5-13.

[2] Barnes, M., 2001, "Stresses in Solenoids," J. Appl. Phys., 48(5), pp. 2000-2008.

[3] Jones, J., 2000, Contact Mechanics, Cambridge University Press, Cambridge, UK, Chap. 6.

[4] Lee, Y., Korpela, S. A., and Horne, R. N., 1982, "Structure of Multi-Cellular Natural Convection in a Tall Vertical Annulus," Proc. 7th International Heat Transfer Conference, U. Grigul et al., eds., Hemisphere, Washington, DC, 2, pp. 221-226.

[5] Hashish, M., 2000, "600 MPa Waterjet Technology Development," High Pressure Technology, PVP-Vol. 406, pp. 135-140.

[6] Watson, D. W., 1997, "Thermodynamic Analysis," ASME Paper No. 97-GT-288.

[7] Tung, C. Y., 1982, "Evaporative Heat Transfer in the Contact Line of a Mixture," Ph.D. thesis, Rensselaer Polytechnic Institute, Troy, NY.

[8] Kwon, O. K., and Pletcher, R. H., 1981, "Prediction of the Incompressible Flow Over A Rearward-Facing Step," Technical Report No. HTL-26, CFD-4, Iowa State Univ., Ames, IA.

[9] Smith, R., 2002, "Conformal Lubricated Contact of Cylindrical Surfaces Involved in a Non-Steady Motion," Ph.D. thesis, <http://www.cas.phys.unm.edu/rsmith/homepage.html>