

# CprE 185: Introduction to Engineering and Problem Solving

## Lab Report Format

### Overview:

Each student is responsible for submitting their own lab report the week following the assigned lab. Although you work in small teams or pairs during the lab session, each student is still expected to create their own copy of the lab report. ***Duplicate or extremely similar lab reports will not be accepted!***

### Report Format:

Each lab report typically consists of 2-3 pages including the cover page. All reports must adhere to the following format. Each section (as designated by the numbered sections below) must begin on a new page.

#### 1.) TITLE PAGE

- All portions should be centered horizontally and vertically on the page
- The page should be in all caps, boldface, and font size 16.
- The page must be of the following sample format:

**TITLE**  
(2 lines white space)  
**LAB #**  
**SECTION #**  
(at least 4 lines white space)  
**SUBMITTED BY:**  
(1 line white space)  
**STUDENT NAME**  
(1 lines white space)  
**SUBMISSION DATE:**  
(2 lines white space)  
**DATE**

#### 2.) REPORT PAGE

- The report page should be font style Times New Roman, size 12.
- All headings should be left justified and bold face.
- ***Each report page must contain the following sections with the appropriate heading:***

##### **Problem**

Clearly state the problem and specify its requirements. Often both real-world and lab projects contain a significant amount of background information that might prove unimportant to the project. Hence, it is important gain a clear and unambiguous understanding of the problem and what you hope your engineering solution to achieve.

##### **Analysis**

Provide a short description of the design criteria and constraints. In this section, you should clearly identify the problem inputs, i.e. the data available to the engineer or computer user, and outputs, i.e. the desired results of the program or engineering solution. In addition, discuss the relationship between the input and output. For example, is there any formula(s) that specify how the input is to be converted to the output? Are there any assumptions the engineer must make to derive a solution?

**Design**

Formulate and describe the steps for actually solving the problem. Often, engineers begin computer programming and hardware solutions by breaking the problem into a series of easily solvable sub-problems. In other words, what are the necessary steps will take to solve this engineering lab problem? Will you utilize any existing, external source code? How can you further refine the sub-problems into a computer algorithm? You should describe your design approach in some detail; this section should be approximately 2-4 paragraphs in length.

**Testing**

Once the design has been successfully implemented, it is necessary to test and verify the solution meets all problem requirements. Describe your approach to testing your solution. Don't rely on just one test case. Perform a series of systemic operations that you believe best demonstrates the functionality of your solution.

**Comments**

The comments section should include a short paragraph evaluating your design and describing what you have learned in the lab. Be sure to include any problems you encountered during the lab and a basic description of how your team overcame each challenge. Is there anything you would change about the lab?

**3.) IMPLEMENTATION**

- Each implementation section should include a copy of your lab source code - well documented and organized.

**4.) PRE-LAB PAGE**

- When applicable, students must also complete a short pre-lab homework assignment as preparation for future lab exercises.
- Pre-labs will typically consist of a few short answer problems and simple programming examples.
- No standard format is defined for the pre-lab page, but keep it organized!