On the front page of your report, you MUST include your names, group letter, group number, and the day of your long lab. If this information is missing, your report will NOT BE GRADED.

EXTRA LETTER
This term, we would like you to include an extra letter with your report, in addition to the cover letter. This extra letter should be addressed to next year’s teams, giving them advice on how to manage this course. For example, you could mention the challenges you faced, any team issues you worked through, and similar topics.

1.0 REPORT SPECIFICATIONS
Your report must include the following parts:

1. Title page (put first with all the identifying information included)
2. Cover letter
3. Report
   • Introduction
   • Background information
   • Methodology
   • Solutions Development
   • Final design solution and rationale
   • Conclusions
   • Recommendations
   • References
   • Appendices

2.0 TITLE PAGE
For the title page, include the information listed below:

• The report title
• The name of the course (ENGG 253)
• The recipient’s name (Dr. Sean Maw, Director of Engineering Research, Olympic Oval)
• Your first and last names
• Your lab section number(s)
• Your table/group number
• The date you handed the report in.
Use an aesthetically pleasing page design (e.g. all elements centered, an ornamental font, and whatever else you would like to do.) See page 345, Figure 15-4B (Power Tools) for an example of a title page.

3.0 COVER LETTER
Using a full-block format* for your letter (all elements lined up at the left margin), introduce your report to Dr. Sean Maw, Director of Engineering Research, Olympic Oval, by providing the following information.
*See example, Figure 15-4A, on page 344 of Power Tools. However, please put the date at the left-hand margin rather than in the center of the page.

3.1 Purpose/Introduction/Background
- Tell Sean that you are sending him a report entitled *Whatever It Is Entitled* and putting the title in italics.
- Explain the main purpose of the report and essential background information.

3.2 Methodology
- Describe the methodology that was used.

3.3 Conclusion
- Describe the results and your interpretation of these results.

3.4 Contributions of Individual Team Members
- Specify each team member’s contribution, e.g. 20%. If the team worked successfully throughout the project with each person contributing equally, you can omit this part.

3.5 Signature of Each Team Member
Provide a space with the typewritten name below of each team member. Each team member must sign the letter, UNLESS that team member does not agree with the content of the letter. In this case, that person must NOT sign the letter and he or she must write his or her own letter giving his or her own version of his or her contribution. If the team members would like to receive separate grades, written evidence of each person’s contribution must be present in the logbooks, design binder, and team contract.

4.0 REPORT
The following sections must be included in your report; however, what you entitle each section is your choice.

4.1 Introduction
Please include the following information in your “Introduction.”
1. Describe the situation under investigation.
2. Provide a succinct statement of the problem to be solved (objective).
3. Summarize the clients'/users’ needs in terms of the corresponding goals that are sought in an optimal design solution.

4.2 Relevant Background Information
The background information should provide the following:
- Detailed descriptions of the user population(s) to be served by your design.
- The environment in which the design solution will be used.
- The design specifications or constraints within which a solution must be developed.
- Prior art in the field and other aspects of the work to be performed.

4.3 Methodology: EVIDENCE
Describe in sufficient detail the process or procedure that was followed in developing the final design solution. All assumptions and decision points, together with the rationale for each decision, should be included.
In this section, make sure you include, in whatever place is appropriate, the principles we have covered last term and this term: for example,

- “Thinking out of the box”
- Information stream/perpetual motion
- Familiarization
- Functionality
- Testing
- Evidence
- Significant numbers
- Visual literacy: visual communication techniques
- Managing constraints

### 4.4 Solutions Development
Summarize the evolution of your design by describing the preliminary concepts together with the reasons why they were rejected or modified. To create this summary, use any coach authorized work. That is, the supporting material you provide needs to be supported by evidence from logbooks, weekly memos, anything you covered in class (labs and lectures), and WebCT. The logbook entries must be signed by a coach to be considered valid evidence.

To describe the ideas out of which your “final” solution evolved, you must provide sufficient detail so that the readers will be able to understand the basics (what they are), together with their functionality (how they work). Clearly state all the decisions you made in developing and selecting your final design solution and justify these decisions with supporting arguments and data.

### 4.5 Final Design Solution and Rationale
The following information must be included in this section:

- Describe your final design solution in enough detail so that Sean will be able to recognize both its strengths and its weaknesses. Include descriptive drawings of the final design, using appropriate visual aids, such as orthographic or isometric drawings.
- Point out what would be done differently between the test article and the final solution and justify the pros and cons of those differences.
- Talk about the effectiveness of your design.

### 4.6 Conclusions
Conclude the report by discussing whether the final solution you have developed satisfies the original design goals that were sought. Make sure you include the answers to these specific questions:

1. Will the users’ needs be met with this design?
2. Should the design be implemented? Why or why not?

Justify your statements with relevant data, logical reasoning, and references to appropriate discussions elsewhere in the report.

3. Identify the risks associated with the implementation of your solution as well as the risks associated with the failure to implement.

### 4.7 Recommendations
Suggest further work that could or should be performed on this design, its development, and its implementation. If you had more time to work on this project, what would you do?
5.0 REFERENCES
Using the IEEE style shown on your handout (from last term), list all the references (sources) you have used in your report. Remember the References page is different from a Bibliography: References show only the sources you have actually quoted or paraphrased, not background reading. PLEASE, PLEASE, PLEASE remember to make reference to the reference in the report. That is, put in the source numbers. If you have any questions about how to reference a source, make sure you ask a communications coach.

6.0 APPENDICES
As stated in the SkateBot handout, one appendix must be a structure chart which identifies the module hierarchy and printed listings of the program code for each module. The program statements for each module must be printable on a single 8.5 X 11 inch sheet of paper, using a font with a size of no less than 12 points. All program documentation must be formatted so that it is easy to read and understand the function of each module and the overall program.

Also include in the appendices whatever information that could not be included in the formal body of the report without disrupting its continuity or extending its length to unreasonable limits.

7.0 FORMATTING AND STYLISTIC CONSIDERATIONS
Please remember to do the following:

1. Number the pages (the letter and title page do not have page numbers. The “Introduction” is page 1.)
2. Use a clear and logical heading style to identify the main and subsections of the report.
3. Use an easy to read serif font (such as Times New Roman) for main text areas and a sans serif font (such as Arial) for headings.
4. Use either single-spacing or space and ½: use a consistent amount of white space between sections and subsections. For example, if you are using single spacing, you could put three blank lines between main sections and two blank lines between subsections.
5. Leave a 1” margin on all 4 sides of the page.
6. Leave the right margin “ragged” rather than justified.
7. Whenever information is easier to understand in graphical or tabular form, display this information in a figure or table.
8. Remember to put table numbers and titles above the tables and figure numbers and titles below the figures. Remember to introduce tables and figures before they appear.

On the front page of your report, you MUST include your names, group letter, group number, and the day of your long lab. If this information is missing, your report will NOT BE GRADED.