Preliminary Design Report Guidelines

1.0 Grading: The report will be evaluated using the Preliminary Report Evaluation Template. Table 1 indicates the section of the Evaluation Template that will be used to grade each section of the report.

Table 1 – Report sections and related sections from evaluation template

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<tr>
<th>Report Sections</th>
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<td>Executive Summary</td>
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<tr>
<td>List of Tables and Figures (optional)</td>
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<tr>
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<td>2.0 Problem Statement</td>
<td>Identification of Need and Problem Definition</td>
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<td>4.0 Discussion</td>
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* Sections of the report that are not associated with a stage of the engineering design process will be evaluated as part of “communications” in the evaluation template.

2.0 General Guidelines: Keep all explanations thorough but concise. Present only the key data and results that are needed to support your design decisions. Use tables rather than embedding numerical results in the text. Use appendices for material that the reader may wish to refer to but that is not essential to the explanations. Be judicious in your selection of tables and figures. Only include a figure if it aids the discussion. Create new figures to assist in keeping explanations of complex issues concise. ALL tables and figures MUST be referred to in the text of your report.

3.0 Format: The preliminary report should follow the typical format for a technical engineering report, as described below. This format will be familiar to you as it is similar to the Engineering Co-op work term report format.

Title Page: The title page announces your report to the reader. As an announcement, it should be descriptive of the report content and understandable to the general reader. Jargon and uncommon acronyms should be avoided in the title. Include the names of all team members and your industry client.

Evaluation: Communication
Executive Summary: The summary is written for the general reader who wishes to be familiar with the content of the report while avoiding details. Include concise statements of the objective, scope, methods and procedures used, key results, and principal conclusions and/or recommendations. The executive summary is written after the main report has been completed. Items in the main report, such as tables, figures or sections, are not referred to in the summary (Maximum 1 page).

Evaluation: Communication

Table of Contents and List of Figures and Tables: The table of contents allows the reader to find the location of a specific section, illustration, or table. It is constructed from the major headings used in the report.

Evaluation: Communication

Introduction: The primary goal of this section is to give the reader context to the report. This section should contain information about your industry client such as their name, type of industry, location and any other information you feel would be informative to the reader. Secondly this section contains your client’s initial problem statement. This is the problem as they initially specified it, but not necessarily the revised problem statement agreed upon after discussions and research. This revised problem statement is included in the next section.

Evaluation: Identification of Need and Problem Definition

Problem Statement: The output of this section should be a clear, concise statement of the problem revised from additional discussion with the client and related investigations. It is possible that this revised problem statement will be nearly identical to the initial problem statement. It is also possible that the revised problem statement will be drastically different. The path your design project takes depends on the project and the client. Regardless of the result, the path to that result must be justified. If the client supplied you with a clear well thought out problem statement, then you must include the research and discussions that resulted in you coming to this conclusion. If the problem statement was drastically revised then the research and discussions that resulted in the changes must be detailed.

Evaluation: Identification of Need and Problem Definition

Background: This section details the background research that you have conducted. Do not repeat research in this section that was part of the development of the problem statement and which is reported in the previous section. Summarise important findings of your research. Reference all sources and make use of appendices for detailed data.

Evaluation: Gather Information

Discussion: The discussion is the foundation of the report. It presents evidence in the form of referenced facts, data, test results, and analysis upon which the conclusions are based. A well written discussion flows logically from concept to concept to lead the reader to the appropriate
conclusions. The discussion will likely contain several sections. Depending upon the nature of your project, your discussion will include some or all of the following issues.

- Assumptions and evaluation of validity.
- Engineering science and mathematics to support the design (use appendices for any detailed calculations).
- Potential errors should be examined and estimated.
- Relevant drawings, tables, etc should be included, but ONLY if specifically referenced in the text.
- Review significant designs considered, and explain criteria used to differentiate between various design proposals.
- Describe selected design and who it differs from the alternative designs.
- Address risk, safety and reliability issues.
- Actual or potential economics and marketing of the design.
- Component selection process including justifications.

Evaluation: Generate Concepts and Decide

References: The goal of this section is to identify the sources used in your report. Any idea, figure, chart, data, statistic, or opinion that is either not your own or not “common sense” in the field must be referenced. This applies even if you paraphrase or summaries the information. More details on citations can be found on the University of Victoria Library website (http://gateway.uvic.ca/erf/citation.html) or in the UVic Writer’s Guide sources section (http://web.uvic.ca/wguide/Pages/MasterToc.html#Sources).

Evaluation: Communication

Appendices: The main body of the report must be concise and flow well. If you have information that would be of interested to the reader, but is either too bulky or not sufficiently relevant to be included in the body of the report, include it in an appendix. If you have multiple sets of data to include in the appendices each should be numbered separately (Appendix A, Appendix B, etc.). Examples of supplementary information could be patents, codes & standards, detailed processes, computer code, raw data, extensive engineering calculations, extensive background information, etc. Any drawings, 3D models, or other supportive visual information should also be included here. Each appendix must be referenced from somewhere within the report. If the appendix is not referenced then the information is superfluous and should be removed.

Evaluation: Communication

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