**Introduction to Engineering: Guidelines for Writing Unit Engineering Reports**

(MONASH University: Engineering, Purdue Owl Writing Lab, Montana State University Engineering Templates)

**Key Features of Engineering Reports:**

Reports:

* Are designed for quick and easy communication of information
* Are designed for selective reading
* Use sections with numbered headings and subheadings
* Use figures and diagrams to convey data.

Basic Structure of an Engineering Report: 100 pts Total

* Title Page (5 pts)
* Summary (5 pts)
* Introduction/Background (10 pts)
* Methodology (10 pts)
* Results:
  + Visual (10pts)
  + Textual (10 pts)
  + Data (10 pts)
* Conclusions (10 pts)
* References (10 pts)
* Appendices (10 pts)
* Report Format and Organization (10 pts)

1. Title Page:
   1. Gives the course name, department, and school.
   2. The Title of the Report
   3. The author’s name(s)
   4. The date of submission
2. Summary/Abstract:
   1. The Summary is ½ page or less and provides a brief overview of the substance of the report.
   2. States the topic of the report.
   3. Outlines the most important findings of your investigation.
   4. States Key Conclusions
      1. The Summary DOES NOT:
         1. Provide general information
         2. Explain what you are carrying out an investigation
         3. Refer to later diagrams or references.

Example Summary: From a report entitled: “Preliminary Design of a Bridge.”

**Summary**:

“This report presents a design for a bridge to be constructed on the Calder Freeway crossing Slaty Creek in the Shire of Macedon Ranges. Two designs for the bridge were devised and then compared by considering the cost, construction and maintenance of each bridge. Design 1 is a super-T beam ridge while Design 2 is a simple composite I girder bridge. It is concluded that Design 1 is the better design. This design is cheaper, easier to construct, and more durable and easier to maintain.”

1. Background/ Introduction:
   1. The background explains the Research Problem and its context. This should be a clear statement of the purpose of the investigation and should be ½-3/4 of a page long.
      1. It explains the importance of the problem (Why does it matter, Why is more information needed?)
      2. Explain the reason and goals for the study
      3. Explains the limitations of the research performed.
2. Methodology:
   1. Explains how data was gathered/generated (Steps for doing your investigation). This should be clear enough for someone else to take and replicate your investigation.
   2. Explains how data was analyzed
   3. Assumes the reader understands the material (Doesn’t include explanatory material)
   4. Is written in the “PAST TENSE and PASSIVE VOICE”
      1. A 1” piece of coil **was** cut
      2. The research **has been** carried out
      3. It is the research, and not your activities, that are of interest!!!
3. Results: Visually and Textually represent research findings!
   1. Visual Representations include: Graphs, Tables, Diagrams, Charts
      1. Give all Visual Representations a Title
      2. Figures must be referenced if necessary by giving source information
      3. Must include textual explanations
   2. Explanatory Text:
      1. Text points out the most significant portions of research findings
      2. Indicates key trends or relationships
      3. Highlights expected and/or unexpected findings
      4. Discusses any problems and possible solutions encountered in the investigation
   3. Incorporation of Data:
      1. Visually represent the Data in Chart and/or graph format
      2. Include equations used for calculations
         1. Center Equation on the page
         2. Show your work!
         3. In the text, refer to the equation as either Eq.1 or equation 1. Use whichever format you choose consistently throughout your report.
4. Conclusions:
   1. The Conclusion should be 1-2 paragraphs and related directly back to the aims of the investigation. The conclusion provides an effective ending to your report.
      1. Should state whether you have achieved the aims of your investigation (refer directly to your Research Problem)
      2. Should give a brief summary of the key information in your report. What has been learned and what remains to be learned.
      3. State possible applications for this study in the “Real World”
      4. Should restate the major findings of the investigation (Directly refer to the Data!)
      5. Give Recommendations: You are now the expert!!!!
5. References:
   1. List any and all outside sources used during your investigation
   2. Include any references included in visual representations
   3. Should follow the Marlette Writing Guide
6. Appendices:
   1. This should contain any material that is too detailed to include in the main report.
   2. Each appendix must be referred to at the relevant point in the text.
      1. Example: “The data obtained are summarized below. The details are given in Appendix 3.”

**Report Format and Organization**:

* Your audience, purpose and contents should influence your report organization and format
* Use Headings and Subheadings and label them!
  + They should be specific and helpful
  + Used to break up text and “chunk” information
  + Used to guide the reader’s attention
  + Avoid vague verbs/adverbs/nouns
* Language and Vocabulary:
  + Be straightforward and Concise
  + Use simple terms: Not jargon
  + Keep sentences less than 20 words
  + Be specific!!
* Visual Design:
  + This can make or break the success of your report!
  + Use graphics!
  + Graphics should be neat and clearly labeled
  + Should be used to illustrate specific points
  + Should be incorporated in a way that is natural to a report’s content and context.
  + Should be explained fully in text using references like “Fig 1 shows….”
  + Should be cited if taken from a source
  + Graphics do NOT speak for themselves!!! Textual information should come BEFORE the graphics!
* Use White Space: Guide reader’s attention through the use of headings, subheadings and visuals!
* Source Documentation:
  + Quoting is discouraged
  + Cite Sources if you are paraphrasing, summarizing or using any work not your own