

Place title of your project here
ENGG* 3100 Group No.
Final Report

name of group member One
name of group member Two
Group Member three
etc.

March 23, 2010

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Executive Summary

Provides a concise summary of the project. Follow the instructions provided in lectures for both content and style of the executive summary.

1 Introduction

States purpose and scope of the work (i.e., problem statement). Indicates the technical content to follow and the conclusion. Follow the instructions provided in lectures for both content and style of the introduction.

2 Background

Present background information, including relevant criteria, constraints, and assumptions. Follow additional instructions provided in lectures for both content and style.

3 Design concept

Present the conceptual model of your design. Do not present alternatives in the final report. Follow additional instructions provided in lectures for both content and style.

4 Detailed design and analysis

4.1 Detailed design description

Present your design with all necessary details including CAD drawings, circuit diagrams, software models (if not using the software template), process diagrams, etc. Use your judgement to decide what to include in the main text and what to have in the appendices and refer to it in the main text. For example, you can refer to large drawing in the appendices.

4.2 Analysis and optimization

Present an in depth analysis of your design including detailed calculations, sensitivity analysis, optimization, etc. Make sure to have full justification of all analysis.

5 Testing and evaluation

5.1 Description of prototype and how it works

If you are building a prototype, then describe it here in details.

5.2 Simulations

Provide all details about your simulations (if applicable) including set up, validation, and interpretation of results. Mention here any issues with numerical accuracy and software capabilities.

5.3 Test cases

Describe how you have tested your design using simulations, prototypes, or other means as applicable. Again, details are important.

5.4 Design evaluation

- Consideration of constraints
- How well design meets objectives and criteria
- Details on proposed design changes based on testing and evaluation

6 Conclusions

- Strength and weakness of final design
- Suggestion for more advanced prototype or simulation
- Recommendation to the client

Nomenclature

ABC some abbreviation

CDE another abbreviation

mol unit description

A Latex instructions

- References can be cited within the text by placing an entry in the `report.bib` file, as discussed in the quick start guide, and placing a `\cite{yourlabel}` within the text, like this `?`, or `?` for URL references. *Be seriously weary of references that are only available online. Do this only if absolutely necessary.* The order of your entries in the bib file is not important. The entries will be placed in the reference section and ordered automatically for you.
- If you see a “??” or “?” in your output where a label or citation reference should be, please check your labels first - L^AT_EX doesn’t pick up the link for some reason. Sometimes it’s due to a typo you made. Sometimes, the bibliography needs to be synthesized more than once (in this case make a change in your tex file, save it, and it will rerun once more; do it a few times to be sure). Sometimes it’s because of temporary files that exist in `\tmp` that don’t get resynthesized. Select all files in `\tmp`, delete, make a change in tex file, and save.
- Footnotes can be easily created¹ like this.
- References to sections or figures within the text can be made by inserting `\label{yourlabel}` beside or inside the block that you would like to reference, and use `\ref{yourlabel}` to get the appropriate number. For example, if you type `\section{Introduction}\label{sec:intro}`, the Introduction section can be referenced in the text by typing `In Section \ref{sec:intro}, we describe...`, which will become after LaTeX compilation to `In Section 1, we describe...` The same stands for figures and equations, as below in Appendix B and C. If you see lines overflowing beyond the margin, don’t use `\verb` environment, or edit your table to make the text inside columns be less wide. You should not have any problems with regular text.
- Equations are created inside an equation environment. Again, there are lots of examples and fancy formatting you can look up online, but here is a simple example

¹This is my footnote

you can use :

$$E_{light} = mc^2 \quad (1)$$

In Equation (1), underscore is used to define a subscript level. The next character is typeset as subscript. The “up” arrow, above the 6 key on your keyboard is same for superscript. If you have more than one character you’d like to sub/superscript, use curly brackets around the phrase or word. If you’d like to use fancy math symbols inside text, use the `$ $` symbols, like this: `$\delta=\pi r^2$` ($\delta = \pi r^2$). Here is a more interesting example:

$$\begin{aligned} \sin [2\pi(u_o x + v_o y)] &= \frac{1}{2j} \left[e^{j2\pi(u_o x + v_o y)} - e^{-j2\pi(u_o x + v_o y)} \right] \\ \cos [2\pi(u_o x + v_o y)] &= \frac{1}{2j} \left[e^{j2\pi(u_o x + v_o y)} + e^{-j2\pi(u_o x + v_o y)} \right] \end{aligned} \quad (2)$$

And another few:

$$H_r(u) = \begin{cases} o_x & |u| < f_{s/2} \\ 0 & otherwise \end{cases} \quad (3)$$

$$\int_{-\infty}^{\infty} \int_{-\infty}^{\infty} f(x, y) \delta(x - g, y - \nu) dx dy = f(g, \nu) \quad (4)$$

$$\lim_{x \rightarrow \infty} \frac{1}{x} = \Sigma_{\forall y} \dots = \sum_{\forall y} \dots \quad (5)$$

As you can see, depending on the style sheet, the location, and the meaning of your subscript, or superscript, the typesetter chooses to place your $x \rightarrow \infty$ below the lim in the equation block, and beside it here: $\lim_{x \rightarrow \infty}$.

B Figure examples

In Figure 1 below, is an example of attaching and referencing a figure in your report. With `[htp]` you declare your placement preference:

- h** Here in text where you declare the figure block;
- b** Bottom of same page, or bottom of other pages as space permits;
- t** Top of same page, or top of other pages;
- p** On separate page of figures, combined with other figures.

The ordering is “preference only” - eg. try here first if you can, top, or page otherwise. \LaTeX will try to accommodate you, but it can’t guarantee that the figure can fit beautifully within your preference, so you may get different results. If you insert “!”, eg. [h!], \LaTeX will put more effort in placing your figure to your preference, worsening the look of your document at times. You don’t have to use this setting. It’s fine if figures don’t appear immediately below your first reference point - you will not be penalized.

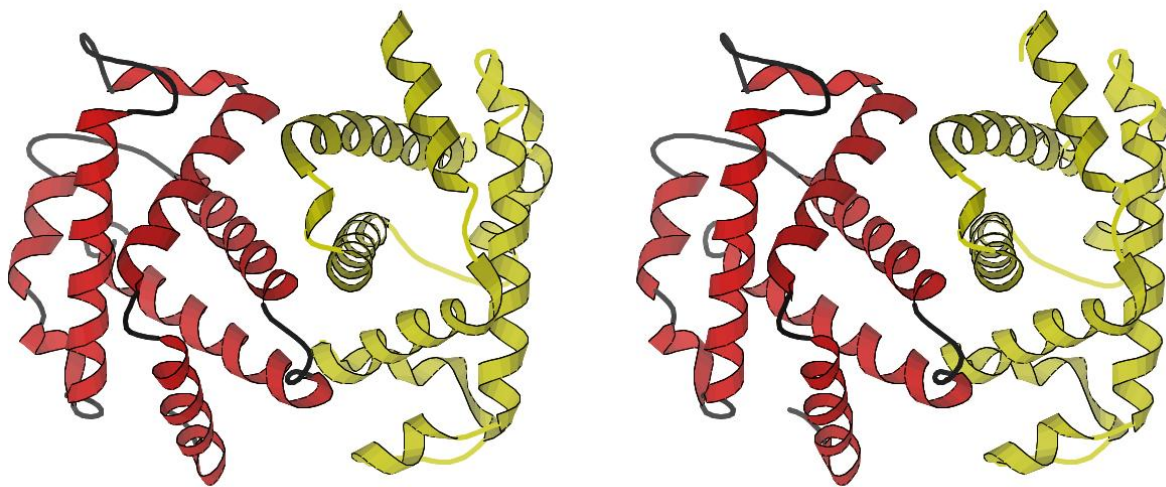


Figure 1: Haemoglobin protein chains, for viewing in “cross-eye” stereo. Cross your eyes looking at the page so the left and right doubles overlap in the middle, relax your eyes, and you’ll be seeing in 3D!

Figure 2 gives another example. In `caption`, name in square brackets goes to list of figures, name in curly brackets goes to figure caption under figure. This allows you to write a better description under the figure, and be able to put a different, compact title for the list of figures since there is less space to work with there.

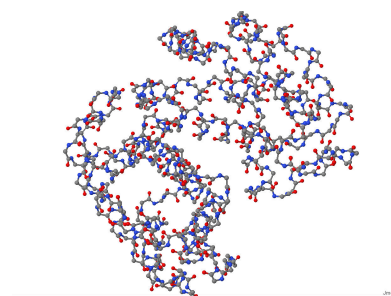


Figure 2: Haemoglobin C-C-N backbone

C Tables

For tables, there are many special type settings you can do. A basic table is produced as below, in Table C. `|l|cr|` specifies that there are 3 columns, left, centre, and right justified, with “`—`” symbols meaning where to place the vertical lines. `\hline` produces horizontal lines. The content of cells is delimited by `&` inside the tabular block. For more information and different other editing features, including converting excel spreadsheets into latex tabular blocks (saves you the typing), please refer to your favourite internet search engine. Just type “latex tables”.

	First	Second
Start	1.0	2.5
Stop	2.0	3.8

Table 1: Example table, the long description