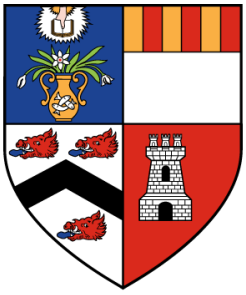

UNIVERSITY OF
ABERDEEN

Title

EG59XX Individual Project in XXX Engineering

By

CANDIDATE NAME, B.Sc., C.Eng. etc.
STUDENT NUMBER

A dissertation submitted in partial fulfilment of the requirements of the award of Master of Science in XXX Engineering at the University of Aberdeen

(Month, year)

Abstract

An abstract should be three-quarters of a page to a page of text, which introduces and motivates the project, describes how the project was conducted, describes the key results and outlines the key findings and conclusions.

Contents

List of Figures

List of Tables

Chapter 1

Introduction

1.1 More detailed introduction

Following **?** we can add references to our text. References can be formatted in alternative ways to suit the location (**?**). **?** and **?** also wrote a papers. These will automatically be correctly reordered and formatted (at least to an extent). In section **??** I will list the software you need to achieve this.

I can easily add more text and references **?** and (**?**),

1.1.1 Numbered lists and bullet point lists

To run LaTeX in Windows you need components:

- MikTeX - which is the language that does the typesetting;
- Texmaker - which is the editor;
- (Optional) Jabref - which is a bibliography database manager.

Alternatives software is available for Mac and Linux systems.
Numbered lists can also easily be created.

1. Item 1
2. Next item
3. Additional item

1.1.2 Equations

Newton's second law can be written as

$$F = m\frac{\mathrm{d}^2 y}{\mathrm{d}t^2}, \tag{1.1}$$

where F is the force on a body of mass m and position y. Equation (**??**) can now be easily referenced. Here we've used inline equations, which can be longer than single variables, i.e. $\cos^2\theta + \sin^2\theta \equiv 1$.

We can add a new equation

$$y = mx + c. \tag{1.2}$$

We can reference equations within a group of subequations. The two-dimensional Navier-Stokes equations for an incompressible Newtonian fluid are:

$$\frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} = 0, \tag{1.3a}$$

$$\frac{\partial u}{\partial t} + u\frac{\partial u}{\partial x} + v\frac{\partial u}{\partial y} = -\frac{1}{\rho}\frac{\partial p}{\partial x} + \frac{\mu}{\rho}\left(\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2}\right), \tag{1.3b}$$

$$\frac{\partial v}{\partial t} + u\frac{\partial v}{\partial x} + v\frac{\partial v}{\partial y} = -\frac{1}{\rho}\frac{\partial p}{\partial y} + \frac{\mu}{\rho}\left(\frac{\partial^2 v}{\partial x^2} + \frac{\partial^2 v}{\partial y^2}\right), \tag{1.3c}$$

where the (u, v) are the fluid velocities in the (x, y) directions, p is the fluid pressure, ρ is the fluid density and μ is the fluid viscosity.

We can now reference all these equation (**??**), one of these equation (**??**) or a subset of these equations (**??**-**??**).

Equations do not necessarily have to have numbers i.e.

$$F = m\frac{\mathrm{d}^2 y}{\mathrm{d}t^2},$$

but you should at least number all the key equations.

A whole range of formulae are possible including:

$$\frac{a+b}{c+d} = \epsilon, \tag{1.4}$$

$$\int_{-\infty}^{\infty} e^{-x^2}\mathrm{d}x = \sqrt{2\pi}. \tag{1.5}$$

These can involve Greek letters α, β, γ, δ, υ, ξ, η, μ, Δ, Π, random fonts $\boldsymbol{t}$, $\mathbb{T}$, $\mathcal{T}$, and other assorted mathematical squiggles $\aleph$, $\Rightarrow$, $\rightarrow$, $\odot$. Many more symbols can be found by Googling "latex symbols".

1.1.3 Figures

Figures can be added using the follow commands, and again are easy to reference - i.e. figure **??** shows ...

1.1.4 Tables

Tables are more tricky, but will be familiar to anyone who has put a table on a website using `html`. References to tables follow a similar format - i.e. table **??** contains ...

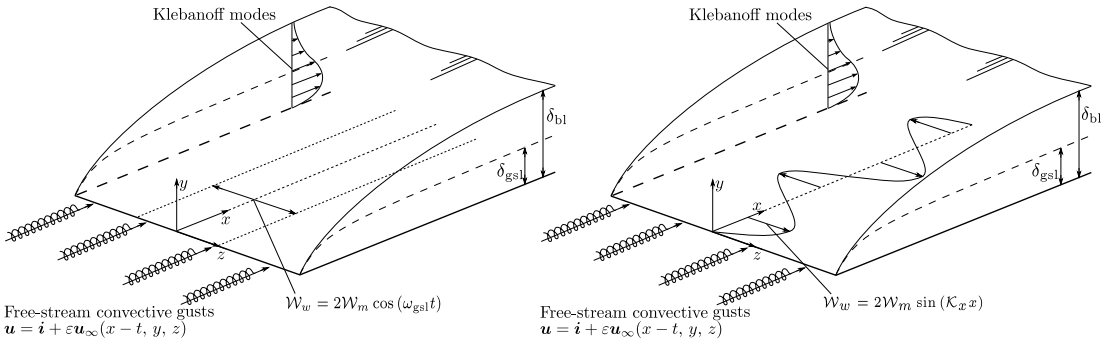

Figure 1.1: My first figure

Table 1.1: My first table

1	$y = x$	3
4	5	Cats
$\cosh^2\theta - \sinh^2\theta \equiv 1$	8	9

Chapter 2

Literature review

If I add a new chapter, section or subsection, then it is automatically included in the appropriate place in the table of contents.

2.1 An illustrated history of cheese

Write me.

2.1.1 Cheese is good

Write me

2.1.2 Help

Write me

2.2 An illustrated history of wine

Wine is good - it goes well with cheese - see section **??**

Appendix A

Matlab code

Description of Matlab code

A.1 Matlab code to solve differential equation

```
N = 10;                     % Number of grid points
x = linspace(0,0.5*pi,N);   % Setup the x grid
dx = x(2) - x(1);           % Set Delta x on a uniform grid Set Delta x
    on a uniform grid Set Delta x on a uniform grid Set Delta x on a
    uniform grid

y = zeros(N,1);    % Pre-allocate the solution vector
y(1) = exp(-1);    % Set the initial condition

for i = 1:N-1  % Loop over each point in the grid
  xhalf = 0.5*(x(i) + x(i+1));
  yhalf = y(i) + 0.5*dx*y(i)*sin(x(i));
  y(i+1) = y(i) + dx*yhalf*sin(xhalf);
end
```