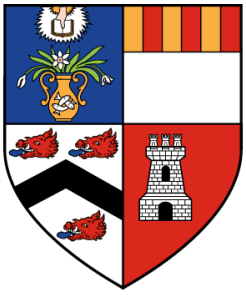

UNIVERSITY OF
ABERDEEN

Title

EG59XX Individual Project in XXX Engineering

By

Morgiane, Ph.D., M.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

In this dissertation, I will discuss most efficient ways of teaching LaTeXto PGTs students.

Contents

Abstract **ii**

1 Introduction **vii**
1.1 Text in bold vii
1.1.1 Example of subsection vii
1.2 Text in Italic vii
1.3 Text in color vii

2 Literature review **viii**

3 Methodology **ix**

4 Mathematics Examples **x**
4.1 Displayed Maths x
4.2 Inline Maths x
4.3 Systems of Equations x
4.4 Matrices x

5 Conclusions **xii**

A Matlab code **xiii**
A.1 Matlab code to solve differential equation xiii

List of Figures

3.1 Scottish Maths Support Network Logo ix
3.2 Creative Common Symbol ix

List of Tables

2.1 Members of the SMSN committee viii

Chapter 1

Introduction

This chapter introduces the topic ....

1.1 Text in bold

1.1.1 Example of subsection

Hello world!

1.2 Text in Italic

Hello world!

1.3 Text in color

Hello world!

- *Formatting text with Latex*;
- **Trying a few commands**

Chapter 2

Figures and Tables

2.1 Figures

Figure 3.2 was borrowed from MathCentre and Table 2.1 was created after the SMSN website.

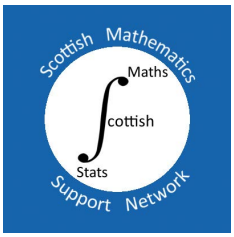

Figure 2.1: Scottish Maths Support Network Logo

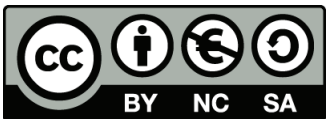

Figure 2.2: Creative Common Symbol

2.2 Table

Surname	Name	Role
Macdonald	Callum	Chair
Durkacz	Kate	Treasurer
Ahmed	Shazia	Secretary
Davidson	Peter	Committee Member
Richard	Morgiane	Committee Member

Table 2.1: Members of the SMSN committee

Chapter 3

Mathematics Examples

3.1 Displayed Maths

The equation:

$$ax^2 + bx + c = 0$$

3.2 Inline Maths

has 2 solutions $x_1 = \frac{-b+\sqrt{b^2-4 \cdot a \cdot c}}{2a}$ and $x_2 = \frac{-b-\sqrt{b^2-4 \cdot a \cdot c}}{2a}$.

3.3 Systems of Equations

The following equations:

$$\frac{dy}{dx} + 3y = e^x \tag{3.1}$$

$$\frac{d^2y}{dx^2} + 5\frac{dy}{dx} + 2y = (x-1)^2 \tag{3.2}$$

are ordinary differential equations. Equation 4.1 is an ODE of the first order and Equation 4.2 is an ODE of the second order.

3.4 Matrices

The matrix of following system of equations:

$$\begin{cases} x - 3y + 4z & = 5 \\ 2x + y + z & = 3 \\ 4x + 3y + 5z & = 1 \end{cases}$$

is:

$$\begin{pmatrix} 1 & -3 & 4 \\ 2 & 1 & 1 \\ 4 & 3 & 5 \end{pmatrix}$$

The identity matrix, in any dimension, has the form:

$$\begin{pmatrix} 1 & 0 & \dots & 0 \\ 0 & 1 & \dots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & \dots & \dots & 1 \end{pmatrix}$$

Chapter 4

Conclusions

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
```