**Faculty of Natural and Mathematical Sciences**
Department of
Engineering/Information

King's College London
Strand Campus, London,
United Kingdom

# KING'S College LONDON

## 7CCSMPRJ/7CCSMUIP

### Individual Project Submission 20XX/XX (Replace XX by year)

**Name:** Your name goes here

**Student Number:** Student number goes here

**Degree Programme:** Programme title goes here

**Project Title:** Project title goes here

**Supervisor:** Supervisor's name goes here

**Word Count:** Word count goes here

**Signature:** *Signature*          **Date:** September 27, 2019

# King's College London

Department of Engineering/Information
King's College London
United Kingdom

7CCSMPRJ/7CCSMUIP Individual Project

## Project title goes here

Name: **Your name goes here**
Student Number: Student number goes here
Course: Programme title goes here

**Supervisor:** **Supervisor's name goes here**

This dissertation is submitted for the degree of MSc in Programme title goes here.

# 1 Template Descriptions

## 1.1 Template Folder Structure

After unzip the Latex template, you will find the following folders:

- **"root" folder:** The file "thesis.tex" is the master file of the whole document, which defines the structure of the chapters and other settings.

- **"contents" folder:** This is the folder for all chapters. Use the path

  `contents/chapter_filename`

  when including chapters. The following files can be found in this folder.

  - acknowledgements.tex: the contents of the Acknowledgement chapter.
  - abstract.tex: the contents of the Abstract chapter.
  - nomenclature.tex: the contents of the Nomenclature chapter.
  - introduction.tex: the contents of the Introduction chapter.
  - background.tex: the contents of the Background Theories chapter.
  - main.tex: the contents of the chapter regarding the main results.
  - conclusion.tex: the contents of the Conclusion chapter.
  - app_1.tex: the contents of the Appendix chapter.
  - sample_1.bib: the bibtex file for references. Remember to run "bibtex" to update the list of reference section.
  - TemplateDescriptions.tex: this is the content of this chapter (Template Description). Remove the line

    `\include{contents/TemplateDescriptions}`

    from "thesis.tex" which will remove the Chapter "Template Descriptions" from the document.

  Create a new chapter file if necessary.

- **"figures" folder:** This is the folder for all figures. Use the path

  `contents/figure_filename`

  when including figures.

contents/sample1 bibtex, run bibtex

## 1.2 Student and Project Information

The master file of this template is "thesis.tex". Change the following lines accordingly in "thesis.tex" to include your information.

```
%============================================================
% Change below accordingly and remove''\red{}''
%============================================================
\modulecode{\red{7CCSMPRJ/7CCSMUIP}} %Use the right module code
\submissiontitle{Individual Project Submission \red{20XX/XX (Replace XX by year)}}
\studentnumber{\red{Student number goes here}}
\programme{\red{Programme title goes here}}
\supervisor{\red{Supervisor's name goes here}}
\wordcount{\red{Word count goes here}}
\title{\red{Project title goes here}}
\author{\red{Your name goes here}}
\ReleaseProject{0} %Replace 0 by 1 if release project; Replace 0 by 2 if not release proj
\department{\red{Engineering/Information}} %use the right department
%============================================================
```

Remove the line

```
 \include{contents/TemplateDescriptions}
```

from "thesis.tex" which will remove the Chapter "Template Descriptions" from the document.

Replace the image "signature.png" in the folder "figures" by your signature image in "png" format.

# Acknowledgements

It is a short paragraph to thank those whose have contributed to the project work.

The content of "Abstract" is in "\contents\abstract.tex"

## Abstract

It is a precis of the report (normally in one page), which should include:

- A brief introduction to the project objectives

- A brief description of the main work of the project

- A brief description of the contributions, major findings, results achieved and principal conclusion of the project

<span style="color:red">The content of "Nomenclature" is in "\contents\nomenclature.tex".</span> All abbreviations and symbols used in the report must be listed and defined in alphabetic order.

## Nomenclature

$a$        The number of angels per unit area
$A$        The area of the needle point
$c$        Speed of light in a vacuum inertial frame
$h$        Planck constant
LMI        Linear Matrix Inequalities
$N$        The number of angels per needle point

# Contents

# List of Figures

# List of Tables

<span style="color:red">The content of "Introduction" is in "\contents\introcution.tex"</span>

# 2 Introduction

It provides the background and context of the work.

## 2.1 Aims and Objectives

The problems and project objectives should be stated comprehensively. The motivations of the project should be presented. The techniques and approaches used to deal with the problem should be stated with justifications, and the contributions and main results achieved should be stated clearly. The structure of the report can be described briefly at the end see subsection 2.2.

### 2.1.1 Dissertation Length

The dissertation should be less than 15000 words.

#### 2.1.1.1 Dissertation Length

Refer to KEATS for suggested structure

##### 2.1.1.1.1 More subsections

Insert more subsections if necessary

## 2.2 Background and Literature Survey

It gives an overall picture about the work with a clear review of the relevant literature. The background of the project should be given. What have been done to deal with the problem should be stated clearly. The pros and cons of various existing algorithms and approaches should be stated as well. Differences between your proposed method and the existing ones should be briefly described. It is important to make sure that the discussion is structured and coherent; the key issues are summarised; key and relevant references are used critically analysed and the literature is covered comprehensively.

The following links may help on literature review:

- **IEEE Xplore digital library** (http://ieeexplore.ieee.org/): a resource for accessing IEEE published scientific and technical publications (You must be with King's network to get access to the digital library)

- **ScienceDirect.com** (**ScienceDirect.com** http://scienceDirect.com): an electronic database offering journal papers not published by IEEE (You must be with King's network to get access to the database)

## 2.3 Insert More Sections if Necessary

The content of "Background" is in "\contents\background.tex"

# 3 Background Theories

The background theories supporting the work should be given in this section. Provide references when someone's work is recalled.

<span style="color:red">The content of "Main results" is in "\contents\introduction.tex"</span>

The chapter reports the contributions of your work. For example, it could contain the following sub-sections to summarise the contribution of the project such as Theoretical Development, Analysis and Design, Implementation and Experimental Work, Results, Observation and Discussion.

## 4 Objectives, Specification and Design

It recalls the objectives in a more detailed way to justify the development of a set of requirements and specifications, and identify a coherent set of issues to be addressed. It explains in detail the design and how the design can achieve the project aim (solve the problem).

## 5 Methodology and Implementation

It presents and justifies the methodology used to deal with the problem and describes in detail the implementation procedures. The background theory presented in the previous chapter can be recalled to support the proposed implementation. The originality, novelty and contribution are to be demonstrated with the discussion of the strengths and limitations.

## 6 Results, Analysis and Evaluation

It summarises the results obtained from the proposed design and methodology. The way to obtain the results should be described in detail. Analysis and evaluation have to be performed. Comparisons should be made. It should justifies if the project aims, objectives, requirements and specifications have been achieved.

## 7 Legal, Social, Ethical and Professional Issues

A chapter gives a reasoned discussion about legal, social ethical and professional issues within the context of your project problem. You should also demonstrate that you are aware of the Code of Conduct & Code of Good Practice issued by the British Computer Society (BSC) (`https://www.bcs.org/membership/become-a-member/bcs-code-of-conduct/`) for computer science project and Rule of Conduct issued by The Institution of Engineering and Technology (IET) (`https://www.theiet.org/about/governance/rules-of-conduct/`) for engineering project. You should have applied their principles, where appropriate, as you carried out your project. You could consider aspects like: the effects of your project on the public well-being, security, software trustworthiness and risks, Intellectual Property and related issues, etc.

# 8 Others

<span style="color:red">This section is for demonstration of equations, figures, tables, which is not required for the report.</span>

## 8.1 Maths

$$\frac{\mathrm{d}S_t}{S_t} = r\mathrm{d}t + \sigma\mathrm{d}W_t, \qquad S_0 > 0, \tag{8.1}$$

The equation $\sigma = ma$ follows easily [1].

## 8.2 Glossary and acronyms

Linuces and other Unix operating systems are better then Windows because they support Logical Volume Manager (LVM) out of the box [2].

> A ref is missing here

## 8.3 Figures

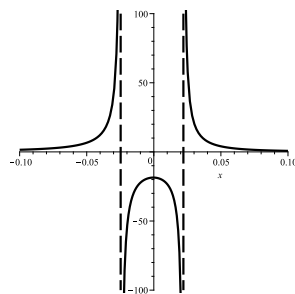Here is an example [3] of how to insert a picture:
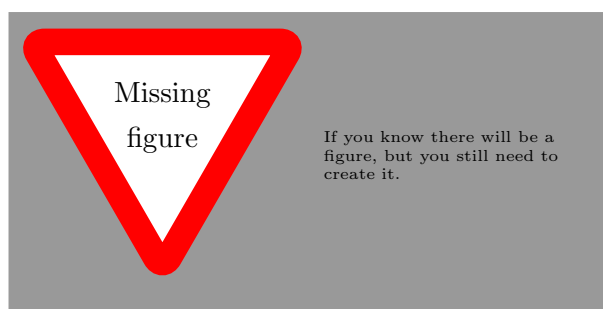


Figure 1: This is the caption for the figure.



Figure 2: This is the caption for the figure which is not even present.

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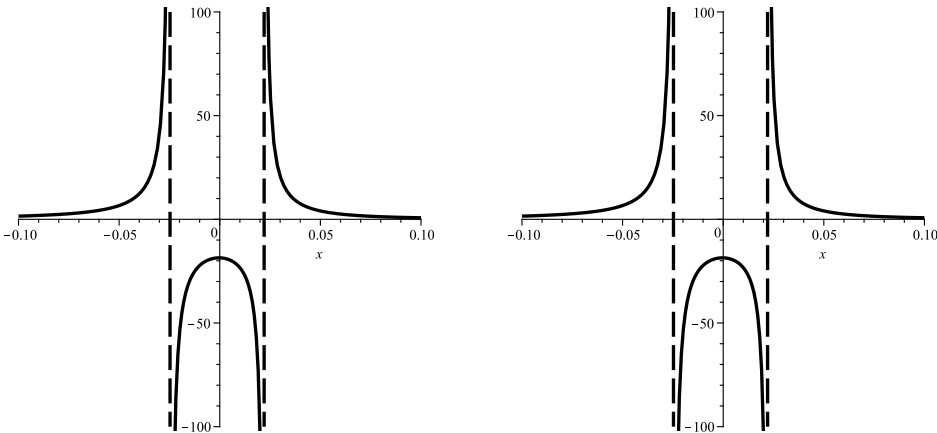
or two side-by-side pictures:



Figure 3: Another caption

## 8.4   Table

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Table 1: Random data for a table.

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# 9 More Others

## 9.1 What is calibration?

Here is an example of a matrix[4] in $A \in \mathcal{M}_n(\mathbb{R})$:

$$A = \begin{pmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & \ddots & \ddots & \vdots \\ \vdots & \ddots & \ddots & \vdots \\ a_{n1} & \dots & \dots & a_{1n.} \end{pmatrix}$$

## 9.2 Numerical methods for calibration

...

The content of "Conclusion" is in "\contents\conclusion.tex"

## 10   Conclusion

It is a chapter to sum up the main points and findings of the work; how you achieve the project aims and address the research questions; the contributions and results you have achieved. Future plan and development can be mentioned in this section as well. It is normally in one or two pages.

# References

[1] J. Doe, *The Title*. PhD thesis, University of Mars, 2011.

[2] I. M. Johnstone, *Gaussian estimation: Sequence and multiresolution models*. Publisher, 2011.

[3] I. Johnstone and B. Silverman, "Ebayesthresh: R programs for empirical bayes thresholding," *Journal of Statistical Software*, vol. 12, no. 8, pp. 1–38, 2005.

[4] F. Inc., "Phage lambda: description & restriction map," November 2008.

The content of "Appendix" is in "\contents\app_1.tex"

# A    Appendix

Supplementary materials (such as source code, user menu, etc) could be included. Each appendix must be labelled (for example, Appendix A, Appendix A.1, Appendix A.2, Appendix B, Appendix B.1, etc.) and with heading. All Appendices must be referred in the text.

## A.1    Points to Note

Please note the following points when you write your report:

- Consider the outline of the report. It is a good idea to start with the table of contents, which gives you an overall structure of the report.

- Show understanding of the topic and demonstrate the contribution of the work. 70% of the content of the report should be your own contributions and achievements.

- Always use your own words.

- The main report and any appendices must constitute one document.

- Pages must be numbered consecutively.

- Captions must be provided for all figures and tables.

- Equations (or important equations), figures and tables must be numbered.

- All figures and tables must be referred to in the text.

- Units of all variables must be provided.

- Numerical values (floating-point number) should be in 4 decimal places.

- Contractions should not be used.

- Check the punctuation of sentences. In particular, those sentences with equation. For example, if an equation is at the end of a sentence, a full stop should be used.

- All variables must be defined.

- Font face of variables throughout the report (in the text, equation, figures and table) must be consistent.

- Use proper headings for chapters, sections, subsections.

- Chapters, sections, subsections should be numbered and with the same numbering system throughout the report. It is suggested that vector and matrix variables should be in bold, scalar variables should be in italic.

- References must be used for materials used in the report that are not yours.

- A standard reference format must be adopted and be consistently applied through the report. General guidelines for reference format can be found on KEATS.

- Always backup your files.

# B    Review of stochastic calculus

## B.1    Riemann integration

## B.2    The Itô integral