Bachelor Thesis

Preparing Examination Work Report in BSc/MSc/MEng in Computer Engineering Programme at Örebro University Using LaTeX

Author Names
Computer Science

Studies from the School of Science and Technology at Örebro University
Örebro 2024

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Supervisors:	**First Supervisor, Affiliation** **Second Supervisor, Affiliation**
Examiner:	**Examiner**

Abstract

Abstract is a short overview of the content of the work. The main goal of abstract is to give a reader an idea about the work, without the need to read it all. Thus, the abstract should be concise, but at the same time concrete on the content of the work.

Typically, abstract is not more than one page long, and presents the work in a brief and concise way. Often abstract follows the outline of the work presents a problem, method, and results.

Keywords

Template, BSc, MSc, Thesis, Computer Science, Computer Engineering

Contents

Chapter 1
Introduction

This is the introduction. Here, you need to introduce your reader to the topic and guide through some logical steps to the problem formulation. Please remember who is your reader: if you consider your typical reader to be an engineer, then you probably do not need to start by explaining what is a computer. But you do need to give enough information to explain the reader why the problem you have chosen for your work is important and relevant.

Please, keep in mind that your thesis is the main deliverable of your exam work. Of course, a significant contribution (either theoretical, or scientific, or engineering) must be done in order to provide the content for the thesis. Majority (but not all) of learning objectives are evaluated by the examiner based on the thesis, the work presented in it, and the form of presentation.

1.1 Problem Formulation

At some point, after some general introduction, you need to formulate and frame your problem. This is directly related to the learning objective *F1a*.

The problem or the goal of the project must be clear and specific. You might want to split it us into sub-goals and objectives. You might also want to apply so called, SMART criteria for each objective, meaning that they need to be Specific, Measurable, Attainable, Relevant, and Time-bound. Applying this criteria might help you to avoid focusing on something that is irrelevant or might not be possible to achieve given the timeframe.

Robot Operating System (ROS)

1.2 Division of Work

If the thesis is written in a group, it is important to provide a clear statement on the division of work and contribution of each of the co-authors.

1.3 Outline

In the end of the introduction, you need provide the structure of the remaining parts of the thesis. So, you can say something like this: The rest of this thesis is organised as follows:

Chapter 2 gives an overview of relevant previous works in the field of something and something else.

Chapter 5 contains conclusions. Not many, but some.

Chapter 2
Related Works

The review of related works is directly targeting learning objective *F1b* and is a compulsory and vital part of any engineering or scientific work.

In your role as a researcher or an engineer, you must be up to date with the state-of-the-art in your field. You should be able to critically review what has been done before and then be able to apply it, when possible and appropriate, the a problem at hands.

In most cases, this part of the thesis takes from 20% to 40% or even more of the whole volume of the thesis. It might look alarming if this part of the thesis is too shallow, however, every work if unique and is thoroughly evaluated on an individual basis.

You can cite works by using their keys in the bib files, like in this example [10, 11, 23, 24, 4, 5, 17, 1, 3, 6, 2, 7, 15, 18, 16, 12, 22, 15, 13, 21, 20, 14, 19, 9, 8].

The bib file can be created by hand or imported from other applications, such as Mendeley or CrossRef.

Notice that hyperrefs are enabled. This means references (to chapters, sections, figures, tables, algorithms, etc) are links, which can be clicked to navigate through the thesis. Also, backrefs are enabled, which means that references include “cited on page(s)” links.

Chapter 3
Implementation

This chapter contains the essence of your work, what you have done to address your problem, goals, and objectives. In some cases, this part can be split into the description of the method applied and into its implementation. But it can also be all in the same chapter, depending entirely on the nature of the presented work and the preferences of the author(s).

The main learning objective addressed in this part is *F2*, however, it also contributes to other objectives.

It is important to clearly outline what work has been performed within the timeframe of this thesis and what came from previous or related projects. This helps to evaluate individual technical contribution of the work and helps to resolve ambiguities.

Figure 3.1 contains a liquid. Table 3.1 contains some stuff. Algorithm 1 is also shown.

Please, make sure that any figure, table, or other float is referenced in the main text!

Figure 3.1: Long caption. This figure shows something.

Table 3.1: Long caption. This is a table.

		Heading1	Heading2
Heading3	Heading5	Some stuff in a table.	Some stuff in a table.
	Heading6	Some stuff in a table.	Some stuff in a table.

Algorithm 1 Long caption. This is an algorithm.

Require: The first input.
Require: The second input.
Ensure: The output.

```
First statement.
for all Something. do
    if A condition. then
        Statement.
    else if Another condition. then
        Statement.
    else
        Statement.
    end if
    Statement.
end for
```

Chapter 4
Results

This chapter presents results, that were obtained by applying the method outlined in Chapter 3 to the problem stated in Chapter 1, taking into account previous works, reviewed in Chapter 2.

This chapter is directly targeting learning objective *F3*.

It is important that this chapter must review results of the work in an objective way. It may include objective interpretation of the results, however it should not contain authors reflections or conclusions.

Chapter 5
Conclusions

These are conclusions. Here you can look at the problem, method, results, and reflect on the overall project outcomes, particular objectives and other aspects.

5.1 Review of Project Goals

If you provided clear and detailed goals and objectives in the introductory part of your thesis, then it is a good idea to review them here and outline how (ir if, or to what extent) each of them has been achieved.

5.2 Context

It is important to be able to put your work in the environmental, societal, ethical, and enterprise context. Of course, not all works contribute significantly to each of the aspects, however it is important to provide critical review of your work.

This part helps to address learning objective V4.

5.3 Future Works

In most cases, the completed work open new opportunities. Or it might be that not all possible ways to solve the problem could be explored. In this section you can outline possible directions of future work that you find the most relevant given your knowledge and experiences in this project.

Acronyms

ROS Robot Operating System

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