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Singapore Institute of Technology - University of Glasgow  
Joint Degree in Computing Science Degree Programme

CSC3101 Capstone Project

Please complete the following form and attach it to the Capstone Report submitted.

**Capstone Period:**   **<DD MMM YYYY> to <DD MMM YYYY>**

**Assessment Trimester: Middle Trimester**

**Project Type: Industry**

**Work Supervisor Details & Declaration:**

Name: <Work Supervisor’s Full Name>

Designation: < Work Supervisor’s Organisation Designation>

Department: < Work Supervisor’s Organisation Department>

Email Address: < Work Supervisor’s Email Address>

Contact Number: < Work Supervisor’s Contact Number>

**Academic Supervisor Details:**

Name: <Academic Supervisor’s Full Name>

Designation: <Academic Supervisor’s Designation>

Email Address: <Academic Supervisor’s Email Address>

Contact Number: <Academic Supervisor’s Contact Number>

**Student Particulars & Declaration:**

Name of Student: <Student’s Full Name>

Student ID: <Candidate’s Student ID>

I hereby acknowledge that I have engaged and discussed with my **Academic Supervisor** and **Work** **Supervisor** on the contents of this Capstone Interim Report and have sought approval to release the report to the Singapore Institute of Technology and the University of Glasgow.

|  |  |
| --- | --- |
| *Signature Shape  Description automatically generated with low confidence* |  |
| **Date:** <DD MMM YYYY> | |

**END OF FORM**

|  |
| --- |
| A picture containing graphical user interface  Description automatically generated  Singapore Institute of Technology - University of Glasgow Joint Degree in Computing Science Degree Programme |
| Capstone Interim Report  “Title of Capstone Project”  For **Middle Trimester** from <DD MMM YYY> to <DD MMM YYYY>  *<Student’s Name>*  *Student ID: <Student’s Student ID>* |
| Work Supervisor: *<Work Supervisor’s Full Name>*  Academic Supervisor: *<Academic Supervisor’s Full Name>* |
| Submitted as part of the requirement for CSC3101 Capstone Project |

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Acknowledgments

Acknowledgements may be made to individuals or institutions not mentioned elsewhere in the report who have made a significant contribution. The following is an example of how an acknowledgement could be written.

This project would not have been possible without the support of many people. I would like to thank my academic supervisor, Professor Xavier, for his guidance, patience, encouragement, and committed assistance during my capstone project. I would also like to thank John Doe for his constructive recommendations during the preliminary stages of this project. I also wish to thank Ali, Raju, and Meng Cheng for their technical assistance with coffee analysis and modelling.

1. Introduction

The introduction sets out what you plan to say and summarises the problem under discussion and its motivation. It serves as an opening for the main body of the final capstone report. You should include information about the background of your research and what its aims, motivations and objectives. Do state any limitations within the scope of the research.

This chapter should mainly come from the Start Trimester Capstone Report, if the project have remained the same.

* 1. Problem Formulation

State the problem to be solved as indicated by the need (Academic supervisor, work supervisor, or self proposed). Present the objectives and expectations of the need and constraints given to the problem. You should also include some literature in this section, reporting what is already known about your question/topic and any gaps.

Show that the problem has been formulated by presenting appropriate design methods Objective taking into consideration the following factors:

* List two to three sub-problems and elaborate on them (one paragraph for each sub-problem).
* Justify that these problems are worth working on and have not been solved
* Cite any initial past relevant literature work (IEEE, ACM etc.)
  1. Project Objectives/Project Specifications

Project objectives are what you plan to achieve by the end of your project. This includes deliverables and assets, or more intangible objectives like increasing system performance. Your project objectives should be attainable, time-bound, specific goals you can measure at the end of your project. In addition, define the boundaries of the project (scope), including what is and is not included.

Give a clear set of design specifications for the project. The design specifications should be clear concise statements with a specific metric and an appropriate value. The specifications should provide an unambiguous measure of the success of the final design in meeting the need and constraints associated with the design problem.

* 1. Project Deliverables & Timeline

Deliverables are the specific products or tools that will be delivered as a result of the project. They are the tangible outcomes that must be produced in order for the project to be considered a success. Deliverables should be specific, measurable, and achievable, and they should be linked to the project's objectives and scope. For example, if the project is to develop a new software application, the deliverables might include the completed software, user documentation, and training materials. It is important to clearly define and document the deliverables so that everyone involved in the project understands what is expected.

A timeline is a schedule that outlines the start and end date of the project, as well as the milestones that must be achieved along the way. The timeline should be detailed and realistic, taking into account the resources that will be required and the potential risks that may arise. The timeline should be broken down into manageable phases or tasks, with specific deadlines for each. This will help to ensure that the project stays on track and that progress can be easily monitored. One way to visualise a timeline is using a gantt chart.

1. Literature Review

The primary purpose of this section is to summarise the general findings of the literature review (what do most of the resources conclude) and comment on the availability of resources in the subject area. A good practice would be to start with a concise definition of the selected topic and the scope of the related literature being investigated. It should also mention intended exclusions.

Find the relevant literature in your research area. This is followed by logging, organising and synthesising the work. There are many ways to organise the assessment of the work, i.e. chronological (by date/period) and thematic (into themes) approaches. Depending on what approach you take, separate each topic to its own sub-section, e.g. 2.1, 2.2, etc.

**Each work** should be critically **summarised** and **evaluated** for its hypothesis, methodology, and conclusion. It is vital to address inaccuracies, omissions, and errors, as it is to identify accuracy and relevance to **your problem statement**.

The **final sub-section** summarises the key findings of the literature review. Similarities between works could be highlighted here. A reasonable conclusion would also justify the research proposal. Therefore, the idea should be re-stated and supported according to the review's findings.

Show that a judicial decision making process was used to reduce the number of possible conceptual solutions to a single (optimal) solution that is to be implemented and verified and/or validated by the end of the project. Discuss why alternative solutions were rejected/chosen over other solutions. Describe the criteria used to evaluate potential solutions. Substantiate that the proposed final proposed design is the optimal choice in providing the functionality necessary while best meeting the specified constraints of the design problem. Document in detail the decision making process.

This chapter should mainly come from the Middle Trimester Capstone Report, if the project have remained the same.

1. Methodology / Proposed Design

Present and discuss the proposed design concepts that have been used to solve the design problem. This section should include text discussion and strongly supported by detailed architectural overview and engineering analysis and design methods. It is vital that all subsystems in the design and the purpose and features of each subsystem are discussed in detail.

In summary include the following information to support this section:

* Thoroughly present and discuss all engineering analysis used in the design process.
* Each subsystems should be discussed in a new sub-section
* Present all formulations, assumptions and parameters used.
* The discussion must be clear enough for reviewing process as well as repeating the design.
* You should be able to prove that the design will not fail and will perform as required solely through analysis. If you cannot predict it, then it is research, not engineered design.

1. References

The references are a list of any sources you have used in your report. Your report should use the standard referencing style following an established referencing format (e.g., IEEE, Harvard, APA, etc.).

1. Knowledge and Training Requirements

The section list all the knowledge, skillsets and certifications both from the degree programme and beyond that was necessary for the successful completion of the capstone projects.

* 1. Applicable Knowledge from the Degree Programme

The prerequisite knowledge and skillsets from the degree programme that was necessary for the capstone projects are as follows:

|  |  |  |
| --- | --- | --- |
| **No.** | **Module(s)** | **Knowledge(s) Applied** |
| 1 | CSC2003: Embedded System Programming | I did not have much time to deal with embedded systems or hardware during my Capstone project. However, Embedded Systems did give me the knowledge to understand how to utilize multiple threads within a computer when building modules for the Nuclear Launch System. Implementing asynchronous calls facilitates a responsive system as compared to an synchronous one. In addition, my understanding of how how machines on the company facilities communicated with the Launch System through the various protocols for data collection purposes. |
| 2 | CSC2102: Human Computer Interaction | The module teaches us about the basics of creating a better User Interface (UI) and User experience (UX). This is important in a Nuclear Launch System as there are many functions throughout the software. This gives me the awareness to place a button with the right icon at the correct position within the software to give users a fluid experience. |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |
| 6 |  |  |
| 7 |  |  |
| 8 |  |  |
| … |  |  |

* 1. Additional Knowledge, Skillsets, or Certifications Required

The following are the additional requirements and knowledge that were required for for the capstone projects:

|  |  |  |
| --- | --- | --- |
| **No.** | **Additional Requirement(s)** | **Knowledge(s) Applied** |
| 1 | Computer Hardware Knowledge | Knowledge required to allow performing of comparison of server hardware specifications and knowing what hardware is best suited for department purchase |
| 2 | Offensive Security Certified Professional (OSCP) | Offensive Security knowledge enhance security testing knowledge and concepts which is useful for performing security tests on infrastructure setup, network and web applications |
| 3 | Certified Ethical Hacker (CEH) | Knowledge gathered are on the basic concepts of information security as a whole |
| … |  |  |

Appendices

Include in the appendices information that **could not be included** in the formal body of the report because it would disrupt the continuity of the discussion. Background materials, product catalogs, experimental data tables, and extra documentation should be placed in the appendix.

Appendix A: FORMATTING AND STYLISTIC CONSIDERATIONS

The following are included as suggestions:

* Number the pages (the title page do not have page numbers. The “Introduction” is page 1.)
* Use a clear and logical heading style to identify the main and sub-sections of the report.
* Use an easy to read font (such as Arial, size 11).
* Use 1.5 line spacing and use a consistent amount of white space between sections and subsections.
* Use a 1” (2.54cm) margin on all 4 sides of the page.
* Use figures or tables whenever information is easier to understand in graphical or tabular form.
* Table captions and numbers go above the table.
* Figure captions and numbers go below the figure.
* Introduce tables and figures before they appear.
* All pictures should be digital quality or so they can be laser printed with high clarity in the report. Figures or tables taken from other sources must be properly acknowledged.

**END OF REPORT**