A Guide for Informatics Project I Final Document Writing

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ICS 3 Group: A/B/C/D/E

Supervisor: Name

An Informatics Project Document Submitted to the School of Computing and Engineering Sciences (SCES) in partial fulfilment of the requirements for the award of a Degree in Informatics and Computer Sciences

July 2025

Commented [DM1]: The title should not have more than 15 words and should be objective (scope, purpose and tool). It should also be bold and in font size 14). The title should answer the questions *what*, *where* and *how*. Check sample titles in the concept note guideline.

Commented [DM2]:

These writing guidelines should strictly act as the bare minimum. Any improvement that could be added to the formatting and content is highly encouraged.

Commented [DM3]: This should be exactly as is here.

Declaration

I/We declare that this project has not been submitted to any other University for the award of a Degree in Informatics and Computer Sciences.

Commented [DM4]: All level 1 headings (all preamble pages' headings and chapter headings) should be centralized, in bold, font size 14, and must use title casing (every word apart from conjunctions should start with capital letters)

Students' Signatures:

Sign: _____ Date: _____

Sign: _____ Date: _____

Supervisor's Approval Signature:

Commented [DM5]: No submission will be accepted without the supervisor's signature showing approval

Sign: _____ Date: _____

Acknowledgement

I/We would like to acknowledge …

Commented [DM6]: This is a statement acknowledging any individual or institute that played a role or contribution to your project work.

Abstract

Commented [DM7]: The abstract should not be more than 200 words and should contain a summary of the document at its current state.

Table of Contents

Commented [DM8]: This should be automatically generated by adding the various heading levels to the titles and subtitles.

List of Figures

Commented [DM9]: The list of figures, tables, etc. should also be automatically created by following the right procedures. Each item under these lists should include the chapter, e.g., first image in chapter 2 should be 2.1, followed by an appropriate caption, then a citation if the figure or item has been borrowed from a secondary source. The citations, however, should not appear on the list in the preamble pages.

List of Tables

Commented [DM10]: Each table should contain the chapter number and the image number in that chapter, e.g., 2.1 for the first table in chapter 2, etc.

Abbreviations

BICS – Bachelor of Informatics and Computer Science

SCES – School of Computing and Engineering Sciences

SU – Strathmore University

Commented [DM11]: These should be done in alphabetic order and the abbreviations should be in bold.

Chapter 1: Introduction

1.1 Background

Background text … (Ahmed, 2025).

According to Ahmed (2025), most ICS Project I guidelines...

Commented [DM12]: All level 2 headings should align left and should be in font size 12 and in bold.

Commented [DM13]: The background should not be less than a page long and should contain diverse information on the research scope and context. The last paragraph in this subsection should give a sneak peek into the solution that the project brings forth. A lot of the information in the background should be cited using APA.

Commented [DM14]: The text in the document should be in font size 12, justified, and use line spacing of 1.5.

Commented [DM15]: The entire document should use font type Times New Romans.

Commented [DM16]: The document margins should be 1-inch all round.

Commented [DM17]: The document should avoid any use of first or second person language.

1.2 Problem Statement

Commented [DM18]: This should identify the problem(s) the project intends to solve within the given research scope, and expound on them. Ensure there is no digression in this section. Any expounding should strictly be on the problem(s) and any effects these may have caused in the given scope of research.

Commented [DM19]: This section should be at least half a page long and not more than a page long.

1.3 Objectives

This subsection contains two categories of objectives: general objective/aim and specific objectives.

Commented [DM20]: All subsections (including one like this that has further subsections) should contain some text content.

1.3.1 General Objective

Commented [DM21]: Level 3 headings should be in bold, font size 12 and aligned left.

These guidelines give minimum general instructions that a student should adhere to in writing the Informatics Project I final document.

Commented [DM22]: This subsection contains the general objective that should point to the ultimate deliverable of the entire project scope. It should be one sentence long and should always reflect the title of the project.

1.3.2 Specific Objectives

Commented [DM23]: These should be 5 scope-wide objectives that should be SMART as explained in class.

Commented [DM24]: Each objective should start with the word **To**, followed by a Bloom's Taxonomy verb as explained in class.

i. To identify the current ...
ii. To define the problem(s) ...
iii. To design …
iv. To develop/implement …
v. To test …

1.3.3 Research Questions

Commented [DM25]: These should directly ask the questions to fulfill each individual objective under 1.3.2. They should therefore be directly derived from 1.3.2.

i. What …?
ii. How…?
iii. How…?
iv. What…?
v. How…?

1.4 Justification

Commented [DM26]: This subsection should describe why the solution created is the best for the problem(s) identified. It also shows why the project is worth being done.

1.5 Scope

These define the boundaries and deliverables of a project. A project's scope helps to establish clear goals, tasks, and timelines.

Commented [DM27]: This should explain the boundaries of the project including, but not limited to, location of study, tools to be used, environment to be deployed, main functionalities, etc.

Commented [DM28]: This section is relevant as it avoids any scope creep for the duration of the project.

1.6 Limitations

Limitations, also known as constraints, are restrictions that may impact the execution and the eventual outcome of a project. These may be internal or external. Document any of these limitations here.

1.7 Delimitations

Delimitations are boundaries that the researcher sets in a research study, deciding what to include and what to exclude, e.g., specific variables, objectives, etc. Delimitations are set to ensure that one's goals do not become impossibly large to complete.

Chapter 2: Literature Review

2.1 Introduction

Commented [DM29]: Chapters 2 to 5 will all have an introduction. This subsection gives an outline of the entire chapter to the reader. This should be a paragraph long.

2.2 Informatics Project I (Context/Scope Subtitle)

Commented [DM30]: This subsection should give general knowledge on the general context/scope that the project is working on. In this case, since the guidelines are for the Informatics Project I document writing, it is key to highlight general knowledge about the subject area, and thus the given name "*Informatics Project I*". In a different example where a solution is being provided for the SU Medical Centre, it would be prudent to have general information about the SUMC in this subsection, aptly naming it "*The Strathmore University Medical Center*". This subsection should be at least three-quarters of a page long. Most literature review text should be adequately cited using APA.

Some text … (Soto & John, 2024). ...

2.3 Current Informatics Project I Final Document Writing Guidelines

Commented [DM31]: This subsection should give details (more so the current state of affairs) about the specific area of concern in the research.

Commented [DM32]: This should be at least half a page long.

Commented [DM33]: This subsection could also have further subsections under it to explore the different approaches in the current scenario.

2.4 Challenges in the Current Informatics Project I Document Writing Guidelines

Commented [DM34]: The challenges experienced under 2.3 (current state of affairs or approaches) or 2.2 (the where) can be explained in this subsection. One can further subsection these to 2.4.1, 2.4.2, etc.

2.5 Related Applications

Some content to introduce the subsection.

2.5.1 Related Application I

...

2.5.2 Related Application II

...

2.5.3 Related Application III

...

2.6 Gaps in Current Approaches and Related Applications

Commented [DM35]: This subsection should highlight any related application similar in objectives to what the document is about. In a context where one wanted to create a new social media tool, the related applications would be Facebook, Twitter, Instagram, etc. The related applications should be a minimum of 3 and a maximum of 5. Include a relevant cited figure for each related application.

Commented [DM36]: This subsection should describe any gaps in the current approaches and related applications that the solution fills.

2.7 Technologies to be used

These represents literature review for the diverse technologies that the research project will use. Here, one can give more details about a particular technology/tool of choice in a way that is deeper and more inclusive than subsection 3.5. Note that you are not obliged to list all technologies you will use in this subsection; only those you feel relevant to make a review on.

2.7.1 USSD

Literature review about USSD and some of the similar solutions this has been used in with regards to this project…

2.7.2 Infrared Technology

Literature review about infrared technology and some of the similar solutions this has been used in with regards to this project…

2.8 Conceptual Framework/Diagram

Some text to briefly explain the conceptual framework.

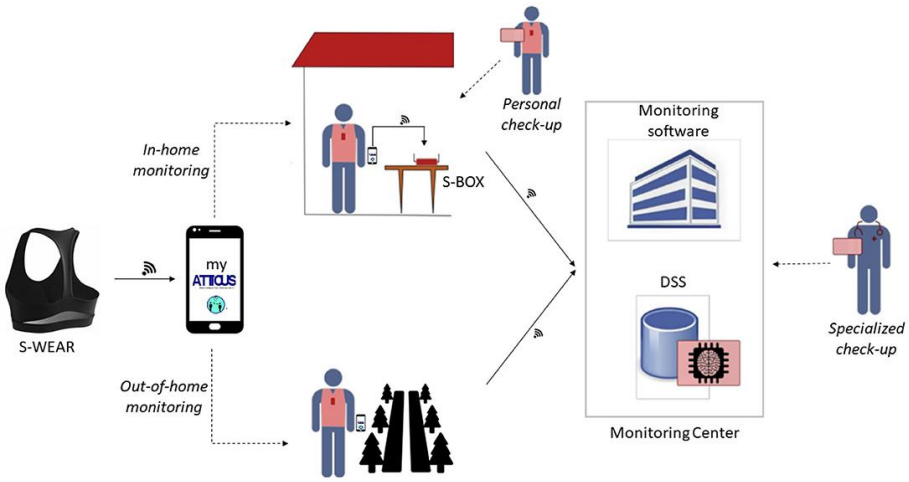


Figure 2.1 Sample Conceptual Framework/Diagram (Surname, Year)

Chapter 3: Methodology

3.1 Introduction

3.2 System Methodology

Commented [DM37]: Select a system development Methodology and justify why it is best suited for your project. Explain the methodology's process and at least have a cited figure for the same. The methodology here will guide what diagrams will eventually be described in this chapter and drawn in chapter 4 for analysis and design purposes.

For the methodology, you may use SSAD/SSADM or OOAD techniques.

The table below shows the diagrams you will need to describe (in this chapter under 3.3 and 3.4) and draw (in chapter 4) in the various techniques. They comprise of both analysis diagrams and design diagrams. Place each in their appropriate sections.

SSAD/SSADM	OOAD
• Use Case Diagram	• Use Case Diagram
• Sequence Diagram	• Sequence Diagram
• System Sequence Diagram	• System Sequence Diagram
• Entity Relationship Diagram	• Entity Relationship Diagram
• Context Diagram (DFD Level 0)	• Class Diagram
• Data Flow Diagram (DFD) Level 1	• Activity Diagram

Include a diagram of the methodology of choice and describe the various steps in the selected methodology under various subsections of 3.2. The last subsection of 3.2 should be a justification of the methodology of choice.

3.3 System Analysis

Brief introduction of this subsection…

3.3.1 System Analysis Diagram 1

Brief information on how this will be used (Note that you are not supposed to draw these diagrams in this chapter).

3.3.2 System Analysis Diagram 2

…

3.3.3 System Analysis Diagram 3

…

3.4 System Design

Brief introduction of this subsection…

3.4.1 System Design Diagram 1

Brief information of how this will be used (Note that you are not supposed to draw these diagrams in this chapter).

3.4.2 System Design Diagram 2

…

3.4.3 System Design Diagram 3

…

3.5 System Development Tools and Technologies

Commented [DM38]: This subsection will list and describe the various tools and technologies that the project will use. Have further subsections (3.5.1, 3.5.2, etc.) to list and describe each of the tools and technologies while justifying why they are best suited for the various objectives in the project.

3.6 Deliverables

Commented [DM39]: List and describe the tangible deliverables that will be delivered as a result of the entire project scope. Use subsections 3.4.1, 3.4.2, etc. to describe these deliverables.

Chapter 4: System Analysis and Design

4.1 Introduction

An outline of what the chapter contains.

Commented [DM40]: For a good system analysis and design, the following must be observed:

- Complete set of well explained requirement analysis/system requirements (functional and non-functional requirements)
- Selection of the appropriate diagrams based on the methodology
- Accurate structural representations of the analysis and design diagrams
- Legible diagrams
- Consistency in analysis and design

Commented [DM41]: Introduce the contents of this chapter by giving a brief one-paragraph outline here.

4.2 System Requirements/Requirement Analysis

This is the process of determining user expectations for a new or modified product. These features, called requirements, must be quantifiable, relevant, and detailed. There are 2 key categories of system requirements: functional requirements and non-functional requirements

4.2.1 Functional Requirements

Commented [DM42]: These should be well detailed and should at least be half a page to one-page long.

These are product features or functions that developers must implement to enable users to accomplish their tasks. These should be done in prose or a requirements table and should highlight any of the functional requirements as highlighted in the diverse categories as discussed in class and during system analysis and design presentations.

Each functional requirement should be described in its own paragraph/table row/column (depending on the choice of representation).

4.2.2 Non-Functional Requirements

A non-functional requirement is a specification that describes the system's operation capabilities and constraints that enhance its functionality.

Each non-functional requirement should be contained in its own paragraph.

4.3 System Analysis

Commented [DM43]: Give a brief introduction of the subsection.

Brief introduction…

4.3.1 System Analysis Diagram 1

Each analysis diagram should be preceded by some text explaining the contents of the diagram.

4.3.2 System Analysis Diagram 2

4.3.3 System Analysis Diagram 3

4.4 System Design

Commented [DM44]: Give a brief introduction of the subsection

Brief introduction…

4.4.1 System Design Diagram 1

Each design diagram should be preceded by some text explaining the contents of the diagram.

4.4.2 System Design Diagram 2

4.4.3 System Design Diagram 3

4.4.4 System Wireframes/Mockups

Brief introduction…

Commented [DM45]: Have at least 4 wireframes/mockups

The wireframes/mockups could be hand-drawn or could be drawn using software tools of choice.

4.4.4.1 Wireframe/Mockup 1

Each Wireframe/mockup should be preceded by some text to explain the contents of the wireframe/mockup.

4.4.4.2 Wireframe/Mockup 2

4.4.4.3 Wireframe/Mockup 3

4.4.4.4 Wireframe/Mockup 4

Chapter 5: System Implementation and Testing

5.1 Introduction

Commented [DM46]: This chapter's aim is to document the implementation and testing aspect of the project. To ensure clarity, ensure that figures are included for the various implementations and testing scenarios.

Commented [DM47]: A brief introduction of the chapter.

5.2 Description of the Implementation Environment

This subsection should give descriptions of the various implementation environments. Ensure that all environments are well captured for accountability and good documentation.

5.2.1 Hardware Specifications

Highlight and describe the hardware specifications that facilitated the implementation and testing of your system. These should be well segmented.

5.2.2 Software Specifications

Highlight and describe the software specifications that facilitated the implementation and testing of your system. These should be well segmented.

5.3 Dataset Description

This subsection should only be used in cases where machine learning was implemented. The dataset should be well described to ensure the reader is able to comprehend what kind of data was used in training and testing of the machine learning model.

5.4 System Implementation

Commented [DM48]: Give a brief introduction of this subsection.

5.4.1 System Module 1

Commented [DM49]: Each of these subsections should contain some text breaking down the module alongside a screenshot/screenshots of the module.

A clear **screenshot** of the module should be given, preceded by some text explaining about the module and its role in the system.

5.4.2 System Module 2

5.4.3 System Module 3

5.4.4 System Module 4

5.4.5 Machine Learning Data Training

This subsection should only be included if there was machine learning in the scope of the system. It should document how the data was trained and tested.

5.5 System Testing

Commented [DM50]: This subsection should document the testing process of the implemented system.

Give a brief introduction….

5.5.1 Testing Paradigm

Explain the paradigm(s) that were used for testing the system. These may include:

- White box testing
- Black box testing
- Pentest
- Unit testing

5.5.2 Testing Results

Commented [DM51]: Testing results should be well tabulated.

Draw a table of modules done and their testing results. The table should contain the following columns:

- Test Case
- Description
- Test Data [what data was used in the testing]
- Experimental Outcome
    - Result
    - Test Verdict [pass:fail?]

Chapter 6: Conclusions, Recommendations and Future Works

Commented [DM52]: This chapter should be a minimum of 1 page and a maximum of 2 pages long.

6.1 Conclusions

Commented [DM53]: This should be about half a page long.

This subsection is **NOT A SUMMARY**. Rather, it should contain the achievements of the project vis-à-vis the initially set objectives, challenges encountered in the scope of the project, and any general observations made and are worth noting throughout the scope of the project.

6.2 Recommendations

This section should document any added suggestions on the way similar research/system should be done in future, with regards to the experience by the researchers. It should also contain any suggestions of the optimal environment the implemented system should be deployed to achieve full capacity.

6.3 Future Works

This subsection should propose any gaps in the scope of the system/research that should provide potential areas of research in the future. For instance, one could suggest that a certain system be made using a different approach to fill a gap that the current system might not have been able to fill due to some unavoidable challenges such as time or any other resources.

References

Ahmed, S. (2025). *On being included: Racism and diversity in institutional life*. Duke University Press.

American Society for the Prevention of Cruelty to Animals. (2024, November 21). *Justice served: Case closed for over 40 dogfighting victims.*

Soto, C. J., & John, O. P. (2024). The next big five inventory (BFI-2): Developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *Journal of Personality and Social Psychology*, 113(1), 117-143.

United States Government Accountability Office. (2023). *Performance and accountability report: Fiscal year 2019*. https://www.gao.gov/assets/710/702715.pdf

Commented [DM54]: These should be done using APA formatting style and should be listed alphabetically. All references listed should be cited in-text, and vice versa. Citations should also be done using APA. Use references that are not older than 5 years to maintain research relevance.

Commented [DM55]: Sample printed book with one author.

Commented [DM56]: Sample webpage written by a group/organization.

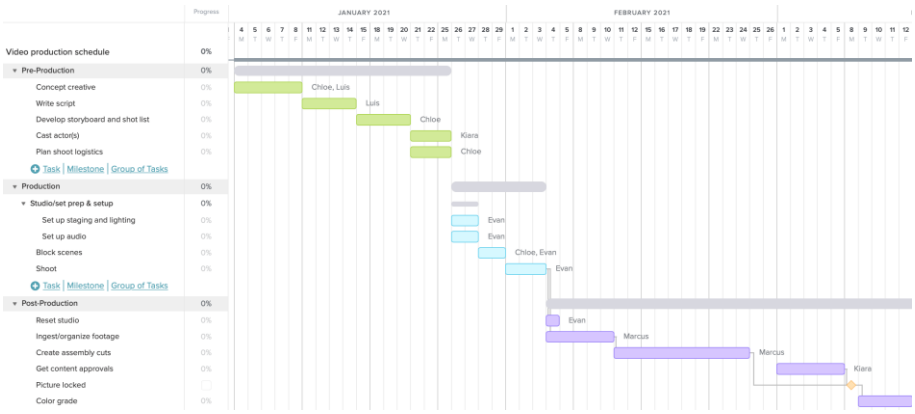
Commented [DM57]: Sample journal with 2 authors.

Commented [DM58]: Sample report by a government agency.

Appendix

Appendix A: Gantt Chart

Commented [DM59]: Each appendix should be in its own page. Ensure the title of each appendix is in title casing.



Include a similarity report for your document.

Include the final document marking template (uploaded on elearning) at the very end of the document (not as an appendix).