



**King Fahd University of Petroleum & Minerals
College of Computer Science and Engineering
Information and Computer Science Department**

Master Thesis Guidelines

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Version 1.0**

1. Introduction

This guideline document intends to help graduate students in the ICS department structure their thesis document and address the typical sections that are expected in an M.Sc. thesis. The content of the thesis depends on the area, the topic, and how much work has been already done in the literature. However, while the structure of the document might be different from one thesis to another, it should discuss the following components:

2. Abstract

In one or two paragraphs, provide a concise summary of the work you carried out including a statement of the problem that you tried to solve and how did you solve it. You may address the following points to have a complete abstract:

- Context
- Objective
- Method
- Results
- Conclusions

3. Introduction

This chapter contains a discussion of the general area of research which you explore in your thesis. It should contain a summary of the motivations for performing this work. It should also present the structure of the thesis document. In particular, it may contain the following subsections:

- Problem description
- Motivation
- Thesis organization

4. Background

This chapter should provide background for all topics presented and used in the thesis. Any terminology, assumption, required theory that you build your work on, etc. should be illustrated in this chapter.

5. Literature Review

This chapter surveys previous work related to your research. This section should be carefully written and organized to make the relationships between the earlier research efforts clear and to also explain how that research relates to your work. Provide literature review for all related papers, the literature review should clearly highlight the gap the existing studies have which motivated you to conduct this work. A summary table that compares all relevant approaches will be helpful. Your selected papers should reflect a reasonable amount of breadth in terms of authorship and source. Insufficient breadth might lead the committee to fear that you are following individual opinion instead of well-founded and widely accepted scientific results. It is important to ensure the inclusion of most state-of-the-art works are appropriate with the date of the thesis.

6. Research Objectives Methodology

This chapter should describe the methodology used to conduct the research. The points raised in this section should be consistent with the subsequent chapters in the thesis, i.e. the contribution and evaluation should directly and clearly address these questions. It may address the following aspects of your work:

- Research Objectives
- Research design
- Data collection
- Research Questions
- Research Hypotheses

7. Research Contribution

Provide description of your research work. This is the core part of the thesis and it depends on the field and topic of the thesis. It may be the description of a new algorithm, a design of a software solution, etc. It may include sections such as:

- Algorithm description
- Architecture of the software
- Descriptive Statistics
- Experiment and findings
- Illustrative figures such as pseudocode, flowcharts, architecture and network diagrams may be used.

8. Analysis and Discussion

Provide analysis and discussion of the proposed solution or the proposed approach

- Discussion of the Findings
- Reproducibility

9. Validation

Validate the proposed approach including the advantages gain over existing solutions. It may include the following parts:

- Validation Process
- Comparison with existing approaches
- Threats to Validity/Limitation

10. Tool Support

Describe the tool/code implemented to automate the approach. It may include the following parts:

- Tool Architecture
- Features
- Interface

11. Conclusion and Future Work

Conclusion, challenges and future work focusing on the contribution of the conducted work. Typical sections include:

- Summary
- Contributions
- Future Works

12. References

Notes:

1. The final thesis format should follow the template provides by the DGS and can be found in their website.
2. Along with the final thesis submission, the DGS requires a similarity report to be submitted.