

Final Report Guidelines

Basic Formatting Guidelines

Cover

The Dissertation submitted for evaluation should be Spiral Bound. The title, the authors name and the year of submission should appear in the front cover. All text should be centered.

Paper

Each copy of the Dissertation shall be on good quality A4-sized clear white paper having at least 80 gsm.

Font

The general text should be in 12 point Times New Roman. Chapter headings should be in 16 point size and subtitles should be in 14 point size.

Line Spacing

The typing should be with a line spacing of 1.5. Candidates may choose an appropriate spacing for the appendices and it should appear after the references.

Margins

Top, right and bottom margins should be equivalent to 1. The left margin should be 1.5".

Pagination

Pages should be numbered consecutively throughout the Dissertation. First page, cover page and title page should not be numbered. Starting with abstract, acknowledgements, table of contents, list of figures, list of tables and list of abbreviations should be numbered with lower case roman numerals beginning with i for the page. General numbering should start with the Chapter 1 in Arabic numerals. All page numbers should be placed on the bottom in the right corner of the page.

Dissertation Structure

The following pages are mandatory:

Cover Page

The cover page should include the full title of the dissertation, the author's name with initials and the year of submission.

Title Page

The title page should include the university crest, the full title of the Dissertation, the author's name, degree for which the Dissertation is submitted.

Abstract - a 1-page summary. Three paragraphs that describe the (i) problem, (ii) what can be done, and (iii) what you plan to do.

The abstract should be written in A4 page and it should not exceed one A4 page.

The abstract is an important element in the dissertation and should cover the entire work, not a simple introduction or a summary. The abstract should be a concise description of the problem addressed in the work, the methodology, results obtained, and conclusions. It should help a prospective reader decide whether to read the entire dissertation or not. The abstract may be the only available part of your dissertation that the readers can obtain via electronic literature searches or through published abstracts. Therefore, only the important aspects should be included to make the abstract useful to someone who may to reference your work. When writing the abstract use the active voice when possible, but much of it may require passive constructions. The abstract contains only text and should not contain lengthy background information, references to other literature, figures, quotes, elliptical (i.e., ending with ...), incomplete sentences, abbreviations or terms that may be confusing to readers, any sort of illustrations, figure, table, or references to them.

Acknowledgements

It is expected of the candidate to acknowledge all persons and organizations that facilitated the work described in the Dissertation.

Table of Contents

This should list all the chapters, sections, and subsections of the dissertation giving the page number on which each starts. You are required to use the word processor's tool for generating table of contents rather than manually typing titles and page numbers.

List of Figures

A list giving the figure number, caption and the page number should be provided. You are required to use the word processor's tool for generating List of Figures. All figures should be cited in the main text and no figures should exist in the report without cross referencing in the text.

List of Tables

A list giving the table number, caption, and the page number should be provided. You are required to use the word processor's tool for generating the list of tables. All tables should be cited in the main text and no table should exist in the report without cross referencing in the text.

List of Abbreviations

Abbreviations used in the Dissertation should be listed. Common terms that are obvious should not be included in the list.

Chapter 1 - Introduction: Describe the background of the problem (in simple terms and also at necessary technical depth), the problem, why it is important to address it, project objectives, project scope, deliverables and expected outcomes, resource requirements, etc. The introduction chapter should provide the overview of the work in a manner that motivates the reader. It is very important to define the problem clearly and concisely.

This chapter puts the work into context. Having read it, the reader should be able to get an idea on the:

- Area of study
- Rationale
- key information on already available systems/published research
- Author's approach to the problem.

Chapter 2 - Literature Review: The major content of the report is this. Discuss in your own language the prior/existing work on this by citing what you read/tested. You may organize this chapter into sections as appropriate; for e.g., by each work or groups of related work etc. You should not generally take text directly (verbatim) from your sources; if that is needed, quote them in " ". You are expected to be critical but be fair to discuss both pros and cons.). The literature survey should be up-to-date. There should be evidence that the author has read recent literature in the relevant field.

• **Implementation Type:** A concise summary of the background information to the implementation shall be presented in this chapter. In addition, a critical review of similar systems available (open source and proprietary) and technologies available and relevant implementation. You should not include any standard text book material, definitions (terms, technology, platforms etc.). However it is necessary to identify alternative technology options relevant for the implementation and their pros and cons. The review should not be limited to the technology used to implement and it is necessary to demonstrate the understanding of the alternative options available. Subsequently the selected technologies(s) shall be justified in the implementation chapter with references to the discussion in this chapter. Taxonomies and tabulated comparisons may be used in summarizing the findings. In presenting summaries of technology benchmarks in Journals and conference publications, reputed magazines etc. shall be cited. It is important to cite the references in this chapter appropriately. A concise summary of implementation tools review may be included at the end of background chapter

Chapter 3 - Analysis and Design: Here you will discuss what you are planning to do, your approach and methodology. If you have a model/architecture of your system/solution by now, describe this based on your completed research design.

This chapter will demonstrate the use of sound software engineering principles throughout the work.

Analysis: This chapter shall include the aspects related to the Software Requirement Specification. The contents shall include appropriate sections to the analysis of the proposed application. Rather than including a long list of diagrams, only the high level diagrams of analysis shall be included with appropriate descriptions and any detailed diagrams shall be included in the appendices and they shall be referred in the description.

Design: There should be evidence of a methodical approach to the design of the solution. You should discuss alternative solutions and one should be selected based on sound justifications. Coherent and logical arguments are encouraged with respect to the selection with justification. This chapter should include the design aspects such as software architecture, database design, user interface design, security design (if any) etc. Appropriate diagramming artifacts such as UML diagram, entity relationship diagrams, process flow diagrams, software architecture, user interface design, pseudo codes for specific algorithmic components (if any) should include in the design. Description shall include how the software engineering concepts such as life cycles, design patterns etc. have been adopted in the design. Rather than including a long list of diagrams, only the high level diagrams of analysis shall be included with appropriate descriptions and any detailed diagrams shall be included in the appendices and they shall be referred in the description.

Chapter 4: Data Analysis and Discussion:

One of the longest parts of your dissertation will be data analysis and discussion section. It's essential for a successful presentation, so a lot of attention should be paid to preparing it properly.

First of all, your analysis should include only the relevant data, corresponding your topic and the research goals. Methods of analysis must be chosen thoroughly as well - not only taking into account your aims, but also the type of data collected. Don't forget to use visual tools in your analysis section if appropriate - i.e., diagrams, tables, charts, and graphs. This will improve your presentation.

There are three main types of data analysis: experimental, quantitative and qualitative. Each of them should be analyzed in a special way, the most suitable for this type.

- Experimental study.

In this type of data analysis, the methods of data collection must be justified strongly. Make it clear why the chosen methods are the best and empower your claims with the corresponding references. The results presented should include the most interesting data that support the derived conclusions obviously. However, negative results should be described and explained as well. Point out the most meaningful conclusions.

- Quantitative/survey study.

Describe the relevant data and explain why it is important for the survey. Highlight the significant trends, comparisons, features etc. State clearly, whether your hypothesis was confirmed, partially confirmed or refuted. Illustrate it with some suitable data.

- Qualitative study.
- Such kind of study usually requires data analysis expressed in words only. Thus, the structure is highly important. This type of section may include subsections with separate headings, which will provide easy navigation for readers.

Main Tips to Remember About Data Discussion

- Justify your approach for data analysis extensively. Make obvious its advantages both for the type of your research work and for the topic you've chosen.
- Highlight the main themes, trends and patterns represented by the data. Evaluate it from the theoretical point of view.
- Compare the results of your dissertation with the existing studies on the topic. Do they correlate or not? What are the similarities and the differences? What new insights for the further study did you manage to get?
- Point out all important findings you've made. Prove their originality and importance with the relevant evidence derived from your collected data.

A few screen shots/images of the most important areas of the user interface shall be included. Trivial elements of the user interface such as the login screens should not be included. Areas such as sample reports (text and graphical) generated from the application shall be included among the figures. However only a few images should be included rather than a long list of screen shots of the application. Description of the software engineering aspects used in the implementation such as design patterns etc. shall be included in the text. Source Code should not be included.

However any specific important code segments shall be described using the notations used to present algorithms in academic writing. You are encouraged to see web and sources provided in this document on how to present the implementation chapter in a dissertation. The text may also include how implementation was carried out and existing tools have been extended (if any) or used, etc.

Chapter 5: Implementation Type: Evaluation and Testing

This is an important chapter of the dissertation which presents the user evaluation and testing of the application. Usability testing/Evaluation shall include the aspects such as sampling of subjects, evaluation scenarios, tools such as questionnaires, etc. The results obtained shall be critically analyzed with tabulated data and charts of analysis. A mere list of charts/tables would not be sufficient and a good critical review of the results obtained need to be presented as a description. The chapter shall also include aspects such as test plan, test cases, use of test automation tools and testing frameworks. The test cases and test plan etc shall be included in the appendix and be referred in the text in this chapter. The following example URLs highlights aspects of such testing.

- <http://www.usability.gov/how-to-and-tools/methods/planning-usability-testing.html>
- <http://www.usabilityfirst.com/usability-methods/usability-testing>
- <http://www.softwaretestinghelp.com/usability-testing-guide/>
- www.usability.gov/sites/default/files/usability-test-plan.docx

Chapter 6: Conclusion and Future Work

This chapter summarizes the work, discusses its findings and contributions, points out limitations of the current work, and also outlines directions for future research. This is an important chapter in a dissertation therefore you are encouraged to refer web on how to write the conclusion chapter. The chapter may include aspects such as major findings, lessons learnt, and achievement of objectives, how the work could be extended. The future work should not be a mere list functions rather author's recommendations on areas for improvements and how the work would be

extended. The research type dissertation need to highlight the contribution made in the work and novel applications need to highlight benchmarking of the work with already available similar applications.

Appendices

Appendices contain the material that is related but supplementary to the main work. Adopt a system of lettering appendices and keep to the system. For example, the first appendix referred to in the main text could be 'A', the second 'B', etc. Similarly, if you give one appendix a title, name any others. A list of appendices should appear after the Contents page.

Examples of appendix materials:

- User Manual
- User evaluation Tools (e.g. questionnaires)
- Test plan and Test cases
- Detailed Design Diagrams

The source code should not be included in Appendices or dissertation and may be included in as a softcopy with the final dissertation. Source code will be examined during the viva.

References: This is very important. Give a complete list of all your references. Make sure full details for item is given. For web URLs, indicate the date you accessed. Referencing and in-text citation should be done **strictly using Harvard Referencing System.**

General Points on Writing Style

- An introduction to each chapter and a summary at the end of each chapter shall be included except for the first and the last chapters.
- Omit needless words—redundant modifiers, pompous diction, excessive detail.
- Avoid stringing nouns together (make the relationship clear with prepositions).
- Eliminate "narration," expressions such as "It is my opinion that," "I have concluded," "the main point supporting my view concerns," or "certainly there is little doubt as to. . . ." Focus attention solely on what the reader needs to know.
- It is recommended to read a couple of good dissertations on web to understand how to write and what to include in each chapter.
- It is important to perform through proof reading several times by another person to check the appropriateness of formatting compliance, grammar, spelling mistakes, incorrect punctuations and writing style etc.
- Minimize the use of bullets a common mistake would be to include bullets all over. The description has to be written in paragraph style mostly with few bullet points. The document should have a flow like a narration throughout.
- First chapter concise and should not include a large segments of background material.
- It is important to use the recommended referencing style (IEEE) diligently. Care should be taken to avoid sources such as Wikis, blogs, other sources which may not be credible.
- Should have sufficient number of good quality references in the dissertation. It preferred to have up- to-date references from recent years.
- Each chapter should start in a new page.
- Avoid sections with one or two sentences. Either merge sections or elaborate with sufficient text to be a section.
- All equations should be numbered and cited in the text.
- Any diagrams, images that are not created by the author should have a citation to source in the figure, table caption. However such elements should be minimized in the report.
- Sub section numbering should not exceed three levels of hierarchy.
- It is necessary check consistency in the use of capital and simple in headings and captions of the figures, tables.
- You are advised to strictly follow the formatting guidelines such as line spacing, margins, font sizes etc.
- Motivation is not the author's personal motivation to learn some technology etc. It is the rationale behind the study or Significance/importance of the work. Author may cite statistics, references if necessary.
- Sentences should cite to source of reference in the correct place. It is a common mistake to cite references at the end of each paragraph throughout.
- Avoid making superficial claims in without proper understanding and without reference to literature.
- It is advised to see web on how to present aims and specific objectives
- It is important to avoid writing styles like simple essay writing, use of informal slang with marketing terms/claims.
- It is important to read the sources such as the following in order to understand the academic writing
 1. Writing for Computer Science, By J. Zobel
(pdf book available on <http://goo.gl/iqYryb>)
 2. Tips for Academic Writing and Other Formal Writing
<http://homepages.inf.ed.ac.uk/jbednar/writingtips.html>
 3. Advice on Academic Writing
<http://www.writing.utoronto.ca/advice>