Final Project Report

The report in general should have the following content.

- Introduction
- Problem definition and System Analysis
- System Design
- Development, Testing and Implementation
- Evaluation and Conclusions

Problem Definition and System Analysis

In this phase, there should be a description of the problem that is to be solved, the requirements of the users and how they were obtained. There should be a clear statement of the need.

- Define the problem and indicate end users
- Investigate the problem: using questionnaires, observations, past data reviews,
- Interviews, and working with available systems. This section should specify what the final system should do. Do not discuss implementation issues here.
- Record the findings
- Analyze the findings
- Identify problems/inefficiencies and strengths of current system
- Specify requirements: hardware, software and live ware
- Identify the current user activities and current data structures
- Identify scope with clear boundaries
- Analyze the data and tasks carried out by the user: using a suitable software process model
- Develop and document a clear, testable, verifiable Requirement Specification (use IEEE standards)
- Acceptance test criteria should be discussed here
- Intended benefits and alternatives e.g Business Systems Options (BSO)

System Design

This phase includes detailed system design including data structures, input-output formats and user interfaces. In this section students should discuss how he/she is going to implement the computer based solution. There should be clear design specifications:

- User interface design: design and document user interfaces for data capturing and data visualization
- Data structures/ system data model
- Specify any verification and validation required and interactive feedback required if there are any errors in the input
- Design and document using appropriate techniques where possible:
  Normalization, E-R (Entity Relationship) / EER (Enhanced Entity Relationship) models, data structures necessary to solve inefficiencies indicated in the requirement specification
- Task model: Design and document user task models in the form of task hierarchies, state transition diagrams or any other form of top down diagrams

Development, Testing, and Implementation

This phase will comprise of a software solution and comprehensive test plan that is developed from the design, which should show that the system works with all valid, invalid and extreme data. The test plan should be clearly cross-referenced to show that the system has been tested during development and implementation. It is equally important to test the user interface (navigation and displays etc.) as well as system functionality and accuracy of data.

- Software development: The solution may be implemented using one or more programming languages, application software packages, authoring and publishing tools. Brief description of any software used, together with reasons for their selection should be included in the report.
- Develop and document data structures of the design
- Produce detailed output from testing, cross referencing as appropriate to the test plan and select suitable test data and test actions/responses for the design
- Test the software solution with the user, providing documented evidence that the solution works and devise a strategy for its implementation

Structure of the Report

- Students are expected to introduce each chapter with its own mini-introduction. This will summarize how the chapter fits in to the whole report and, it should summarize what the previous chapter asserts and indicate how this chapter follows on.

- At the end of each chapter, students will summarize the contents of the chapter clearly. Again, students are expected to indicate how the chapter that follows will relate to the current one in the appropriate places.
- It is not enough in a project to do something and then report how it was done. In most cases students will be expected to justify why it was done.. Depending on the nature of the project, this evaluation may warrant a chapter on its own.
- The project report must have a conclusion chapter. In this final chapter, students are expected to draw together the themes and arguments presented in the body of the text. The initial paragraph should cover what the project was an outline its main objectives.
- In addition they are expected to emphasize the positive aspects of the work and show how one has dealt with the problems that arose during the course of the project. Where problems have proved insurmountable, the student should describe potential solutions to the problems and show how one worked around them.
- Students should comment on how they generally handled the project and if they are to redo the project, then how they would have approached it differently. They should comment on how the other academic modules taken for the degree have contributed to the project and how the project experience will help in one's future career development.

Length and Content

The body of the report should include tables, figures and illustrations and report writing should be clear and concise.

The report documentation specifications are listed as follows:

Paper Size	A4 (210mm x 297mm)
Font	Times New Roman 12pt
Spacing	1.5 line spacing for main text, single line spacing for footnotes

Margins	Left: 3.0cm
Right:	2.5cm
Top:	2.5cm
Bottom:	2.5cm

Title page

Title page template is shown in Appendix D. The "title page" must follow the institute approved format. Report such as proposal, interim report, final report should be shown appropriately.

Acknowledgments

The contents and phrasing of the acknowledgments will be the sole responsible of the report writer.

Declaration page

This is shown in Appendix A

Abstract

The abstract should be maximum 150 words and should contain key words of the report and brief explanation of the report contents.

Table of Contents

Template for the Table of Contents is given in Appendix B.

List of Figures, Tables and Abbreviations

List of abbreviations, illustrations, figures and tables should match the Table of Contents in style and layout.

Chapter Titles and Section Headings

The project report has to be written in passive voice. Chapter titles or section headings should give the reader a clear indication of the content that follows. Chapter titles should be centered and bold. Sections may be bold; first level must use title capitalization or ALL CAPS; second level will be in title or sentence capitalization- not all caps. Third level headings should be in sentence capitalization.

Appendix A

Chapter Title	Page No.
Title page	i
Declaration	ii
Acknowledgements	iii
Abstract	iv
Table of Contents	v

Introduction

- Description about the business organization and the business area chosen
- Business process
- Problem definition
- Aims and objectives
- Scope with clear boundaries
- Organization of the dissertation

System Analysis

- Facts gathering techniques used and the findings
    - Describe the user requirements using Use-Case diagrams and Use-Case descriptions (Current System)
    - Prepare Activity Diagrams to describe the functionality of the Use-Cases identified in the above Use-Case diagrams. Use swim lanes to show the role of actors involved with the process. Clearly indicate the activities to be computerized. These activity diagrams should not have a column for "system". Work only with the application domain.
    - Do a verb-noun analysis on use case descriptions and activity diagrams and identify the entity classes. Prepare a Class Diagram.
    - If necessary, prepare Sequence Diagrams and State Chart Diagrams for the Current System
- Software requirement specification
- Complete BSOs (At least three)
- Cost benefit analysis
- Selected BSO with a sound justification

System Design

- Describe the user requirements to be implemented in the proposed system using Use-Case diagrams and Use-Case description.
- Describe the functionality of the Use-Cases identified in the Use-Case diagram(s) using Activity Diagrams.

- Use swim-lanes to show the role of actors involved with the process. These activity diagrams should have a "system" column.
- Identify entity, boundary (interface) and control classes (define all the attributes and methods of each class) for the proposed system and prepare a Class Diagram. The class diagram should clearly describe the communication between classes. Realize all the Use- Cases identified using Sequence Diagrams. (Depending on your approach you may prepare Sequence Diagrams first and then the Class Diagram
- Normalized database design
- Design of data capturing interfaces and report layouts

Development

- Prepare State Chart Diagrams to describe the behavior of all the classes stated in the Class Diagram. Discuss the programming language properties required to implement the above Class Diagram and select programming language/languages.
- Data structures and algorithms
- Third party components / libraries used

Testing

Describe the testing strategy and test plan. Discuss whether the testing approach is Black box or White box and justify your selection.

List all the Test cases required for the system. If the list too long (for example, the list is longer than two A4 list only the important test cases in the body of the report and attached all the test cases as an appendix. The following information should also be available with the test cases:

- Running platform (ex. MS-Windows XP)
- Tester name
- Signature of the tester
- Date
- Test version (There can be more than one tests)

Test report and discussion on quality and reliability

Discuss severity of the error / bug identified and possible solutions (Catastrophic, Serious, Moderate,

Tolerable or Insignificant: Refer to the text "Software Engineering" by Prof. Ian Sommerville for more information)

Implementation

- Installation guide
- User guide
- Backup procedures / cycles
- Security procedures

Evaluation & Conclusion

- Degree of objectives met
- Usability, accessibility, reliability and friendliness
- User's response
- Limitations and drawbacks
- Future modifications, improvements and extensions possible

References

Use any accepted referencing style under the guidance of your supervisor.