

# MASTER OF SCIENCE (INFORMATION ASSURANCE)



**MASTER PROJECT HANDBOOK**

# ABOUT

In the process of completing a postgraduate programme in the Universiti Teknologi Malaysia and being awarded the degree, a candidate may be required to submit either a research report, a dissertation or a thesis, depending on the requirements of the specific programme. These guidelines will assist candidates to meet the minimal format requirements set by the University to complete the final form of a research report, dissertation or thesis. This program handbook is about guideline for student Master project Msc(Information Assurance) students course for MANA1015 (Project 1) and MANA2027 (Project 2).

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# PART 1 : INTRODUCTION

## 1.1. Introduction

The Project 1 (MANA1015) and Project 2 (MANA2027) are part of the academic module for ***Masters of Science (Information Assurance) in Razak Faculty of Technology and Informatics (RFTI)***, Universiti Teknologi Malaysia. Students are required to complete these courses for the eligibility of being awarded with ***Masters of Science (Information Assurance)***.

Details of this program as per shown below:

**Course Code** : MANA1015

**Semester** : Semester 2 of Year 1 (FT), Semester 3 of Year 2 (PT)

**Course Name** : Project 1

**Credit Hours** : 5

**Course Code** : MANA2027

**Semester** : Semester 3 of Year 2 (FT), Semester 4 of Year 2 (PT)

**Course Name** : Project 2

**Credit Hours** : 7

## 1.2. COURSE OBJECTIVES

- a) To educate students in research methods and techniques, develop critical evaluation skills appropriate to their project topic, and provide project management experience.
- b) To orient the students to understand the major steps of the scientific approach (research design) or decision analysis and the successful application of these steps to information assurance related

- c) To nurture ability in demonstrating critical thinking about business/organizational problem and the application of information assurance techniques in solving that problem
- d) To provide experience in both writing a scientific paper or technical report and giving an oral seminar to peers on the process and results of the study

### **1.3. EXPECTATION UPON COURSE COMPLETION**

- a) Be gain professional knowledge and experience in information assurance and cybersecurity area.
- b) Be able to critically review current literature relevant to a proposed project
- c) Be able to work independently and able to meet datelines
- d) Be able to apply the appropriate software tools or code development related to information assurance and cyber security to obtain reliable results from the experimental or simulation work.
- e) Be able to produce a high quality master's project report detailing the project and all aspects of the work undertaken to achieve the results related on information assurance and cybersecurity
- f) Be able to communicate the results of the project verbally in the form of oral presentation/seminar

### **1.4. GRADUATES ATTRIBUTES TO BE DEVELOPED**

Upon the completion of the courses, it is hope that the graduate will achieve as follows:

- a) Ability to apply knowledge of information assurance and cyber security fundamentals;
- b) Ability to evaluate the problem and hypothesis during the process of the development of the project;
- c) Ability to construct the system or solution for the project successfully and can be implemented in the related industry;
- d) Ability to practice the ethical attitude while doing the project;

- e) Ability to display clearly the proposed solution by adhering to the UTM Thesis Writing Guideline.
- f) Ability to influence the method or solution proposed in the project

## **1.5. SCOPE OF MASTER'S PROJECT**

In general, the scope of the project should be equivalent to master's level. The topic of the research project will be agreed upon by discussion between the project supervisor and the student. Topics for the MSc Information Assurance Master's project can be ranging in the area of:

- Data Quality Assurance
- Access Control
- Applied Cryptography
- Biometrics Security and Privacy
- Critical Infrastructure Protection
- Data Integrity and Data Protection
- Database Security and Privacy
- Digital Forensics
- Digital Rights Management
- Ethical and Legal Implications of Security and Privacy
- Human Factors and Human Behavior in Security and Privacy
- Identification, Authentication and Non-Repudiation
- Identity Management
- Information Hiding
- Information Systems Auditing
- Insider Threats and Countermeasures
- Intellectual Property Protection
- Intrusion Detection & Prevention
- Management of Computing Security
- Network Security
- Organizational Security Policies
- Peer-to-Peer Security

- Personal Data Protection for Information Systems
- Privacy
- Reliability and Dependability
- Risk Management/Assessment
- Secure Software Development Methodologies
- Security and Privacy Policies
- Security Information Systems Architecture
- Security Management ,Metrics and Measurement, Protocols, Requirements, Verification and Validation
- Sensor and Mobile Ad Hoc Network Security
- Wireless Network Security

and many more, as long as it is significance in the area of ***information assurance and cyber security*** area.

RESOURCES OF RELATED MATERIALS : <http://razak.utm.my/master-project/>



# PART 2: RULES AND REGULATIONS

## 2.1 INTRODUCTION

This rules apply to students who are registering for MANA1015 and MANA2027

## 2.2 PREREQUISITE

Students need to pass the Research Methodology course (UANP0013) before register Project 1 (MANA 1015)

## 2.3 SUPERVISOR

Supervisor will be decided by the Programme Coordinator through the agreement of the lecturer involved in the MSc Information Assurance programme. The supervisor is selected basically from UTM advanced informatics department of lecturers with significance background related to the proposed area.

## 2.4 STUDENT

- a) Student should understand and fulfil all of the conditions contained in the letter of offer, rules and regulations applicable to the program
- b) Students should interact with the supervisor at least two (2) times per month either face to face or online
- c) Students shall record meetings and discussions on their research each time they meet with the supervisor.
- d) Students should have a good working relationship with the supervisor.
- e) Students must plan the project schedule and comply with the maximum period of study.

- f) Students should discuss and agree with the supervisor on consultation times.
- g) Students must submit thesis as specified without falsifying the research outcome and is free of plagiarism.
- h) Students must notify their supervisor of any problems that may interfere with the research.
- i) Students shall engage in academic activities organized by the department or the faculty.
- j) Students must plan and ensure sufficient time to do the research and write the thesis.
- k) Students are solely responsible for the content, the presentation of thesis and viva-voce presentation.
- l) Students are responsible for ensuring that corrections are made in a given period after the presentations

## **2.5 CHANGE OF SUPERVISOR**

Change of supervisor can be implemented as follows:

- (a) If there is strong justification and excuse, the candidate may apply to change the supervisor, not more than once during the period of candidature.
- (b) If there is a supervisor who did not perform the supervisory duties satisfactorily, the Director may appoint any other qualified academic staff to replace the said supervisor

## **2.6 PLAGIARISM**

As an enrolled student and member of the University Teknologi Malaysia, students are expected to produce original academic work. Failure to acknowledge the work of others in their work means the candidate is guilty of plagiarism. A candidate who is found to have plagiarized his assignments or any written work that is part of the assessment in a course or programme may be subjected to disciplinary action.

Students are advised to check their work for originality by using the Turnitin software. Details on Turnitin software can be accessed at <https://library.utm.my/research/research-tools/>.

Students are required to attach the result of Turnitin report with less than **20% similarity**.

## **2.7 OTHERS**

- a) If the student have a medical leave it should be informed immediately to programme coordinator.
- b) Student **MUST** follow the timeline for any deferment/withdrawing process
- c) All cost during the implementation of the Master project and producing report writing is under student's load and responsibility. Students may use the facilities at UTM Razak Faculty such as computers lab during the implementation of the Masters project. If the students require certain software, the student may send a request to programme coordinator which later forward to CICT UTM.

***\*\*These rules are subject to change.***

# PART 3: ASSESSMENT

## 3.1 INTRODUCTION

The Master's Project (Project 1 and Project 2) evaluation is intended to measure the student's performance, work quality and accessing their generic skills development during period of project implementation.

There are two major evaluations will be made throughout the Master's Project and each consists of different components:

ITEMS	Report (Supervisor)	Report (Examiner)	Progress Report	Presentation (Supervisor and Examiner)
<b>Project 1 (MANA1015)</b>	45%	20%	15%	20%
<b>Project 2 (MANA2027)</b>	45%	20%	15%	20%

## 3.2 PROJECT PRESENTATION

There will be two oral presentations throughout the project; namely the Project 1 presentation and Project 2 presentation. The presentation is schedule on the Week 12 or Week 13 of the academic session.

The appointed examiners shall assess the oral presentation according to the following criteria:

- a. Style and presentation
- b. Precision and clarity
- c. Understanding of the project
- d. Confidence

- e. Q&A handling session
- f. Result and achievement of objectives (Project 2)
- g. Preparation

### **3.3 ASSESSMENT FORM**

The sample of assessment form for Project 1 (MANA A015) and Project 2 (MANA 2027) is attached as an Appendix.

### **3.4 CONSENT FORM**

Students need to fill in the consent form before they want to present the project. The consent form can be download from [razak.utm.my](http://razak.utm.my) website.

### **3.5 SUBMISSION OF REPORTS**

Student must follow the following guideline to prepare reports for Project 1 (MANA 1015) and Project 2 (MANA 2027). <http://sps.utm.my/thesis-formatting-2018/>

For Project 1 (MANA1015), you must amend your reports based on the comment from examiner and submit to your supervisor or examiner by the deadline given by your project coordinator.

For Project 2 (MANA2027), you MUST do the following:

- Please check your comments from the reports received and amend accordingly
- Use table of correction file for checking purposes
- Submit turnitin report for whole report (less than 20%)
- Submit your printed final version(comb binding) after verification from your supervisor to Miss Atikah admin Level 7, for formatting verification purposes.
- Your submission to admin must include:
  - Two cd
  - One hardbound <http://sps.utm.my/thesis-formatting-2018/>
  - Turniton report
  - Table of correction (must be verified by your supervisor /examiner)

# **PART 4 : PROJECT 1(MANA1015) REPORT PREPARATION**

## **4.1 INTRODUCTION**

There are two reports need to be prepared for Project 1 (MANA 1015) and Project 2 (MANA 2027). For Project 2 reports it is compulsory to follow the UTM Theses formatting. The detail about these reports is as follows:

### **(a) Project 1 Report – MANA 1015 REPORT**

– reporting about the project proposal

– To be submitted on Week 12 or Week 13 (refer to the Project Planning) of Semester 2 Year 1 for Full Time and Semester 1 Year 2 for Part Time

### **(b) Project 2 Report – MANA 2027 REPORT**

– reporting the outcome of the project

– To be submitted on Week 12 or Week 13 (refer to the Project Planning) of Semester 1 Year 2 for Full Time and Semester 2 Year 2 for Part Time

## **4.2 PROJECT 1 (MANA 1015) REPORTING GUIDELINES**

The main point from the report for Project 1 is to describe the proposal of the Master's Project. The proposed chapters as below is modifiable depend on the information of the project. The contents are:

- Front page cover
- Table of contents
- List of Figures (if necessary)
- List of Tables (if necessary)

- List of Abbreviation (if necessary) Appendices (i.e: Gant Chart)

## **4.3 CHAPTER 1 : INTRODUCTION**

Suggestion of section as following:

### **4.3.1 Overview of Study**

Brief description about the overall chapter 1.

### **4.3.2 Problem Background**

Problem background of the proposed project.

### **4.3.3 Problem Statement**

Problem statement – indicate the main problem which derives the purpose of the project

### **4.3.4 Research Aim**

The main purpose of the research

### **4.3.5 Research Question**

A research question is a clear, focused, concise, complex and arguable question around which you center your research. You should ask a question about an issue that you are genuinely curious about. Use what/why/how to construct your research question.

### **4.3.6 Research Objective**

The objective of research project summarizes what is to be achieved by the study. The research objectives are the specific accomplishments the researcher hopes to achieve by the study. The objectives include obtaining answers to research questions stated.

### **4.3.7 Research Scope**

The scope of the study basically means all those things that will be covered in the research project. It defines clearly the extent of content that will be covered by the means of the research in order to come to more logical conclusions and give conclusive and satisfactory answers to the research.

### **4.3.8 Research Significant**

It should determine who benefits from the study and how that specific audience will benefit from its findings. The significance of the study could be simply reflected by the following two questions: Why should my study be published? What significant scientific contribution is my study making to my field of research.

### **4.3.9 Expected Output**

Deliverables / products at the end of the project

### **4.3.10 Project Plan**

Propose your gantt chart for project 1 and project (include month and year) and milestone if necessary.

### **4.3.11 Chapter Organisation**

Description of the overall chapter in our reports.

## **4.4 CHAPTER 2 : LITERATURE REVIEW**

In the literature review chapter, clear and up to date citation should be provided in the content. Students are encouraged to use Harvard author-date citation formatting, for example (Huda et. al, 2017). In overall, the literature review chapter should include:

### **4.4.1 Background study of existing system**

Discuss the pros and cons. Study on other existing systems that have the same purpose but using different approach (if any)

### **4.4.2 Comparison study with any related system**

(in term of pros and cons, techniques, features, technology etc)

### **4.4.3 Comparison study with any related existing method**

Indication of its strength and limitation.

The literature review chapter should have critical analysis of related works and the references should be five (5) from recent years. The number of references should at



least 30 references. The total length of Literature Review chapter should be between 20 to 25% of the overall pages.

#### **4.5 CHAPTER 3: PROJECT METHODOLOGY**

In this chapter, students should describe the method used to conduct the project. It should describe the procedures and processes of how this research is conducted via the illustration of research design. Each of the phases should be explained in detail and should indicate the expected deliverables.

#### **4.6 CHAPTER 4: INITIAL FINDINGS**

Report and discuss any initial findings or progress of Project 1 that has been done in Week 1 to Week 12 of the semester. The initial findings may include the works on data pre-processing, the initial setup of the simulation/experiment or the initial design of the system to be developed or enhanced.

#### **4.7 CHAPTER 5: CONCLUSION**

The chapter should share what you expect to get during the Project 2. The project constraints and assumption should also be explained in this chapter.

#### **4.8 OTHERS**

Appendix (documents delivered, company details and any related material, etc)

References

# **PART 5 : PROJECT 2(MANA2027) REPORT PREPARATION**

## **5.1 INTRODUCTION**

The report should STRICTLY follow the UTM Thesis format. The format is based on the “Panduan Menulis Thesis” prepared by Sekolah Pengajian Siswazah, Universiti Teknologi Malaysia. For updated version, please refer to [http: http://www.sps.utm.my/](http://www.sps.utm.my/).

Below are the thesis contents for Project 2 report:

- Blank paper
- Approval Form (Complete the form before binding your thesis) Supervisor’s approval
- Project Title Page
- Student’s admission
- Dedication
- Acknowledgement
- Abstract (In English and Malay)
- Table of Contents
- List of Tables
- List of Figures
- List of Acronyms
- List of Appendix

The following chapters are required. You may add new chapters after discussing with your academic mentor and getting his/her approval. The sub-sections under each chapter are also subjected to necessity but it is recommended that you divide your chapters into sections and sub-sections.

## **5.2 CHAPTER 1 : INTRODUCTION**

This chapter is concerned with similar concerns to the abstract and should provide an overview of the project with more detail. It sets the scene by describing the general

area that the project work addresses and also identifies the need for the specific work that the student has carried out.

### **5.2.1 Introduction**

This section should provide an overview of the project and must coincide with the title chosen.

### **5.2.2 Background of the problem**

This section should describe brief description of the existing problems as a justification to conduct the project.

### **5.2.3 Problem Statement**

This section should describe the main problem as a justification to conduct the project.

### **5.2.4 Research Aims**

This section should describe the aim of the research/work

### **5.2.5 Research Question**

This section should describe the research question of the research/work

### **5.2.6 Research Objectives**

This chapter should describe the objective of the project that must be specific, measurable, achievable/attainable, and realistic and time factor (SMART), such as:

- (a) To study ...*
- (b) To analyze and design ...*
- (c) To develop ...*
- (d) To formulate ... (policy/framework)*
- (e) To evaluate ....*

It is advice to have at least Three (3) research objectives in the study.

### **5.2.7 Research Scopes**

This should define the boundary of the project in terms of the core functionality system, data, software, hardware, platform, features or user or type of testing/evaluation and etc.

### **5.2.8 Importance of the project**

This chapter should describe on potential benefits to the organization; or new contribution to the field of study

### **5.2.9 Chapter summary**

This chapter should present conclusions about the investigation and outline further work. The chapter should re-outline what has been done in the investigation, and been shown in the report. The lessons learned from the overall investigation should be presented with appropriate examples.

## **5.3 CHAPTER 2 : LITERATURE REVIEW**

This chapter is concerned with presenting a survey of background relevant to the area of investigation, leading to an evaluation of pre- existing implementations or designs and of candidate re-usable components. The selection of what to review should be guided by a clear understanding of the aims and requirements of the project. The source for the background is published material, in general, journal and conference papers, theses, research monographs, textbooks, web sites and product information. Remember to acknowledge all work that is quoted. See the UTM Thesis Manual for further details.

### **5.3.1 Introduction**

This chapter should provide an overview of a literature review framework made by student.

### **5.3.2 Literature review content**

This section should concern with various literatures related to the topic chosen:

- a. It could be an extension of a certain research/study/project; or
- b. Other studies such as similar applications, techniques existing in the current market, models, similar business process, features of similar system, similar studies, system development strategies on similar projects

Ensure to quote references to reviews made according to UTM Thesis Manual. All sources used should be cited in the text; if any words are copied directly then they should be placed between quotes and the source acknowledged.

### **5.(n+1) Section**

This chapter should conclude what has been done in the investigation with he/she own analytical analysis of the reviews, as part of the justification for nay method that he/she would choose later, or as a direct benefit to continue their project; or on how the review helps the project.

### **5.(n+..) Section summary**

The chapter should re-outline what has been done in the investigation, and been shown in the report.

- Background study of existing system – discuss the pros and cons.
- Study on other existing systems that have the same purpose but using different approach (if any)
- Study on problem solving techniques.
- Comparison study with any related system (in term of pros and cons, techniques, features, technology etc)

The literature review chapter should have critical analysis of related works and the references should be five (5) from recent years. The number of references should at least 30 references. The total length of Literature Review chapter should in between 20% to 25% of the overall pages.

## **5.4 CHAPTER 3: PROJECT METHODOLOGY**

This chapter focuses on the research methodology used for the project, which are the project methodology or software development methodology.

### **5.4.1 Introduction**

This section should describe brief description of the research methodology used for the project.

### **5.4.2 Project Methodology**

This section should describe brief description of the methodology used for the development of the project. The research design should be explained in detail accordingly each phases of the project implementation

#### 5.4.3 Chapter summary

The section should re-outline what project methodology been used, system development methodology been used and project schedule.

### 5.5 CHAPTER 4: ANALYSIS

The chapter should discuss the implementation of the project including its input and output from the implementation. The discussion should be in detail on how the development/analysis/simulation is developed or conducted.

### 5.6 CHAPTER 5: CONCLUSION

This chapter should summarize the following:

- Lesson learnt from the project conducted;
- Reflection from each of the objectives derived;
- Challenges;
- Recommendation on the future work.

Appendix (documents delivered, company details and any related material, etc)

References

### 5.7 OTHERS

- Total number of thesis pages should between 70 pages (minimum) to maximum of 150 pages excluding appendix.
- If you have a bundle of other documents in appendix, it is suggested that you burn them into a CD, put it in a CD pocket and paste it at the hard cover at the back of your thesis.
- Get the approval from Academic Supervisor before you bind your thesis.
- Follow all the standard of writing as mentioned in 'Panduan Menulis Thesis'.

Please note that, this chapter outlines the guideline for writing your report. The final content or chapter/sub-chapter headings are subject to the nature of your project and the agreement between you and your academic supervisor.

# **LIST OF APPENDICES**

**APPENDIX 1: MANA 1015 ASSESSMENT FORM**

**APPENDIX 2: MANA 2027 ASSESSMENT FORM**

