SOUTHERN
UNIVERSITY COLLEGE
南方大學學院

# Final Year Project Handbook

**Bachelor (Hons) of Software Engineering**

## Oct 2021

**Department of Computer Science**
**Faculty of Engineering and Information Technology**

Table of Contents

# Chapter 1 Introduction to Final Year Project

## 1.1 Project 1 Execution Procedure

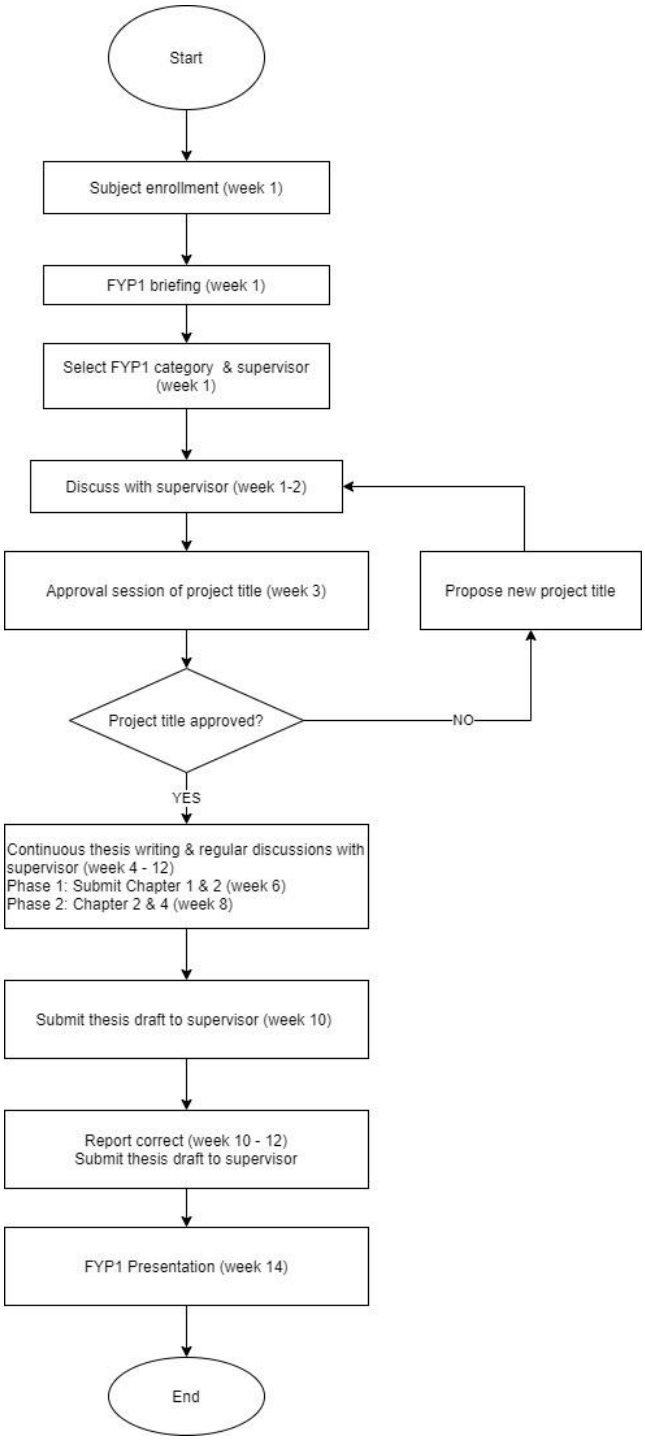


*Figure 1 FYP1 procedure*

### 1.1.1 Subject enrolment

Only final year students can enrol Project 1.

| **Bachelor's degree** | **Subject Code** |
|---|---|
| Bachelor's in software engineering | BTIS3103 |
| | BTIS3102 |

### 1.1.2 Project / Research Category Briefing

At the beginning of the semester, Final Year Project coordinator will brief the students on suitable topic areas. The briefing will include lecturers' areas of interests, which could be very useful for students in the process of selecting the project title ad supervisor.

### 1.1.3 Supervisor appointment

Students are responsible to find a supervisor. The appointed supervisor will supervise the student's project for both Final Year Project 1 and FYP2. Students, in appointing a supervisor, could use the following tips.

Have a discussion with a few lecturers before appointing, to identify:

i. A supervisor who has sufficient knowledge on the intended project.
ii. A supervisor who has the same interest on the intended project.
iii. Check the list of DCS lecturers and their area of interest at the SUC directory. The link: https://www.southern.edu.my/SUCdirectory/main.php?dept=23&name=&search=Search&view=1


*Figure 2 Lecturers' curriculum vitae (updated 6 Oct 2021)*

### 1.1.4 Final Year Project 1 (FYP1)

This section outlines the execution procedure of FYP1. It also highlights some of the important deliverables or outputs need to be presented by students to the supervisors as well as the evaluators to get a good grade.

#### *1.1.4.1 Project Proposal Submission*

Project topics can be a product of students own ideas or it can be a suggestion from a prospective supervisor. Upon finding a title that suits you, put together a basic information search, discuss with your supervisor and prepare a basic proposal. An online project proposal form will be distributed and completed by students.

#### *1.1.4.2 Project Proposal Approval*

Upon the submission of the project proposal, project proposal will be reviewed to ensure that:

i. There is no duplication with previous projects in terms of the objectives and scopes for a particular problem domain.
ii. Students are clear on the objectives and scopes of their projects
iii. Students meet the minimum requirements in terms of technologies to be applied in their projects.

Review sessions are held in the third week of the semester. Students with rejected proposals must submit another proposal within 3 days of receiving the review result.

#### *1.1.4.3 Weekly Supervision Meeting And Logbook*

Regular review from supervisors will ensure that students execute their project according to the faculty's procedure and standards, as well as the project objectives and aims. Student

must arrange a minimum of six (6) formal meetings with their supervisors before receiving permission to submit and present their project. However, students are strongly advised to arrange a weekly meeting with the supervisors to address issues related to project execution. All meetings must be recorded in a logbook and the supervisor's signature of approval of each meeting is required. The logbook form is available at eLearning portal. Microsoft Teams is the current platform.

#### *1.1.4.4 FYP1 Report Submission*

Towards the end of FYP1 cycle, each student is required to submit their project report for evaluation. Students must get their supervisors' approval before submitting the report softcopy. A designated submission link will be given by week 11 of semester.

#### *1.1.4.5 Presentation Week*

Students are required to present their FYP1 progress and results achieved for evaluation. The presentation session will be evaluated by student's supervisor.

#### *1.1.4.6 FYP1 Report Correction*

Students are required to do correction based on the comments given by the supervisors in the coming FYP2.

#### *1.1.4.7 FYP1 Evaluation*

At the end of the semester, each student's project is evaluated to determine that the objectives and scope are adequate and are aligned with project aim. A passing grade in FYP1 is a requirement for FYP2. Evaluation rubric can be view in 1-Project Rubrics (Phase 1 BoSE and DipIT) (SUC)

#### *1.1.4.8 Project Presentation*

Twenty (20) minutes is allocated to each student for presentation. 15 minutes for slides presentation and prototype demonstration. 5 minutes for question-and-answer session. The presentation should contain the following items:

i. An introduction on presenter, project title and supervisor
ii. An overview of the presentation / presentation outline
iii. Project background, aim, objectives and scope of the project
iv. Summary of literature review
v. Summary of research / system development methodology
vi. List of software and hardware that are required to develop the project
vii. Summary of initial findings during FYP1.
viii. Discussion on FYP2 execution plan
ix. Conclusion of the presentation

Students are advised to follow the subsequent good practices for their project's presentations:

i. Arrive / prepare early for the presentation
ii. Limit the use of text in slides
iii. No spelling errors
iv. Include more figures, pictures, charts, and system screen capture.

v. Have eye contact with audience / switch on web camera
vi. Dress formally
vii. Speak clearly
viii. Manage the presentation time within time frame
ix. Thank the audience for listening

## 1.2 Introduction to FYP2

This section outlines the execution procedure of FYP2. It also highlights some of the important deliverables or outputs need to be presented by students to the supervisors as well as the evaluators to get a good grade.

### 1.2.1 Subject Enrolment

Only final year students passed FYP1 can enrol FYP2

| **Bachelor's degree** | **Subject Code** |
|---|---|
| Bachelor's in software engineering | BTIS3204 |

### 1.2.2 FYP2 Procedure

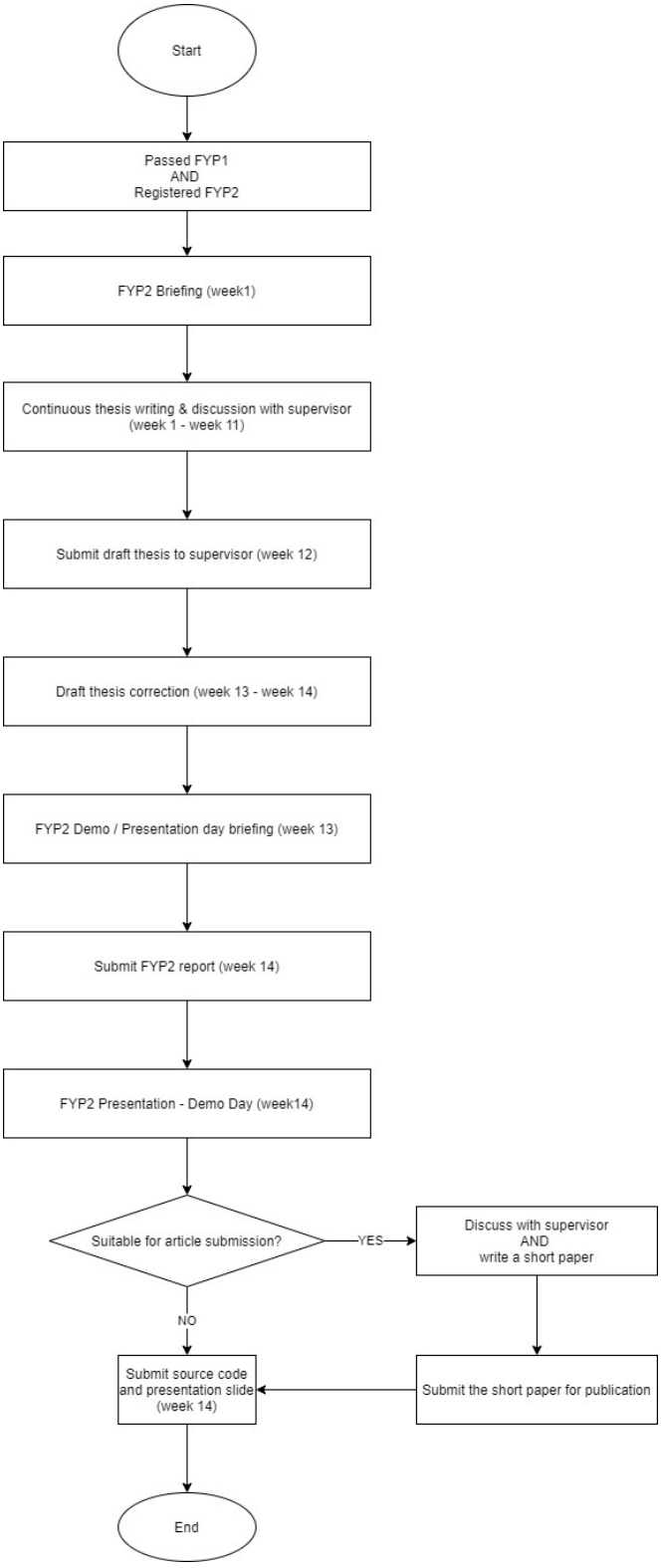


*Figure 3 FYP2 procedure*

### 1.2.3 FYP2 Pre-Assessment

Students are required to regularly demonstrate their project development updates to their supervisors. These demonstrations act as a benchmark for the supervisor to decide whether the students will proceed with the final presentation.

### 1.2.4 Final Report

The final report is essential to FYP2. The early chapters, Chapters 1,2 and 3 are like FYP1. It must be reminded that the tenses in Chapter 3 must be changed. In FYP1, Chapter 3 presents the plan, while in FYP2 it presents actions already taken. Consequently, the past tense must be used in FYP2.

As part of their progress, students are required to submit drafts of Chapter 4 and 5 to their supervisors for evaluation. Corrections must be done as required. It is hoped that the quality of the student's project report is improved by having the on-going report assessments.

### 1.2.5 Presentation/ Demo Day

Once the final report has been submitted, students need to prepare themselves for the presentation and demo day.

The presentation for FYP1 is only 20 minutes (15 minutes for slides presentation and 5 minutes for the question-and-answer session). The important points must be included in the slide. The presentation should contain the following items:

i. An introduction on presenter, project tile and supervisor.
ii. Presentation outline
iii. Project background, aim, objectives and scopes of the project (Chapter 1)
iv. Summary of literature review and research/ system development methodology (Chapter 2 and 3)
v. An overview of requirement analysis and design (for system-based projects) / research development and implementation (for research-based projects)
vi. Summary of system implementation and testing (for system-based projects) / result and analysis (for research-based projects) (Chapter 5)
vii. Conclusion of the project (Chapter 6)

### 1.2.6 Report Submission

Students must save thesis report as the required filename and format.

| Document | File Name format | Example | File Format |
|---|---|---|---|
| Thesis document | <subject code>_<academic year>_<studentID> | BTIS3204_2021C_B170111B | DOCX |
| Thesis document | <subject code>_<academic year>_<studentID> | BTIS3204_2021C_B170111B | PDF |
| Abstract | <subject code>_<academic year>_abstract_<studentID> | BTIS3204_2021C_abstract_B170111B | PDF |
| Source Code | GitHub link | https://github.com/lerlerchan/testing2.git | link |
| Source Code | <subject code>_<academic year>_<studentID> | BTIS3204_2021C_B170111B | ZIP |

Designated submission link will be given to students on Week 12. Failure to adhere instruction will result in the suspension of students' results.

# Chapter 2 Project Categories

## 2.1 Introduction

There are 2 types of project which are system development and research based

| Categories | System development | Research-based |
|---|---|---|
| Description | • It is based on developing an application, software, or embedded systems.<br>• The undertaken project must include programming elements with appropriate users' complexity and meet FYP scope. | • It is based on a research application that includes data analysis, comparative studies or enhancement of techniques or algorithms<br>• Programming elements must be included in the research project<br>• It emphasizes on analysis as well as technical writing of the report<br>• Students are expected to read a few technical papers and able to digest with the help from the appointed supervisors. |
| Aim | It gives the students an opportunity to conduct exercise as project developer in computer science, information technology and software engineering | It aims at guiding the students with research skills in computer networking, computer security, artificial intelligence, and embedded system. |
| Examples | • Web based application<br>• RFID-based project<br>• Mobile application<br>• Firmware application | • Application of statistical technique in analysing network data<br>• New technique in cryptography<br>• Image processing<br>• Implementation of soft computing technique in solving security and network problems |
| Future career | • Programmer<br>• Software engineer | • Researchers<br>• Academic professionals |

| | | |
|---|---|---|
| Sample | • Cryptography teaching tools<br>• Anti-copy software protection tools<br>• Game-based learning tools | • Comparative study n IDS performance<br>• Malware detection analysis<br>• EdTech AI analysis |

# Chapter 3 Report Writing and Format

## 3.1 Preliminary pages for both FYP1 and FYP2 reports

| FYP1 | FYP2 |
|---|---|
| Front Page Format<br>Cover page<br><br>Title page<br><br>Abstract<br><br>Acknowledgment page | Front Page Format<br>Cover page<br><br>Title page<br><br>Abstract<br><br>Acknowledgment page |

## 3.2 List structure

| | |
|---|---|
| Content page | Title and page number must be equivalent to thesis text |
| List of tables page | Includes title of all tables and page numbers |
| List of figures page | Figures include diagrams, photographs, screen capture, graphs, charts, code snippets and others<br>Include titles of all figures and page numbers |
| List of abbreviations page | Lists of abbreviations used within the report<br>Listed in alphabetical order |
| List of terms page | Lists of terminologies used within the text<br>Listed in alphabetical order |
| List of appendices page | Listed all appendices used within the text.<br>Appendices are given names such as Appendix A: Context diagram<br>Appendix B: Source Code<br>Listed in alphabetical order |

## 3.3 Project Content Structure

| FYP1 | FYP2 |
|---|---|
| **Chapter 1: Introduction** | **Chapter 1: Introduction** |
| **Chapter 2: Literature Review** | **Chapter 2: Literature Review** |
| **Chapter 3: Methodology** | **Chapter 3: Methodology** |

<table>
<tr>
<td>Chapter 4:
<table>
<tr><td>Project Categories</td><td>Title</td></tr>
<tr><td>System Development</td><td>Design</td></tr>
<tr><td>Research based</td><td>Experimental Setup</td></tr>
</table>
</td>
<td>Chapter 4:
<table>
<tr><td>Project Categories</td><td>Title</td></tr>
<tr><td>System Development</td><td>Proposed system design</td></tr>
<tr><td>Research based</td><td>Experimental Setup</td></tr>
</table>
</td>
</tr>
<tr>
<td rowspan="2">Chapter 5: Implementation</td>
<td>Chapter 5: Implementation</td>
</tr>
<tr>
<td>Chapter 6:
<table>
<tr><td>Project Categories</td><td>Title</td></tr>
<tr><td>System Development</td><td>Testing, Result and discussion</td></tr>
<tr><td>Research based</td><td>Results, analysis, and discussion</td></tr>
</table>
</td>
</tr>
<tr>
<td></td>
<td>Chapter 7: Evaluation</td>
</tr>
<tr>
<td>Chapter 6: Conclusion</td>
<td>Chapter 8: Conclusion</td>
</tr>
<tr>
<td>References</td>
<td>References</td>
</tr>
<tr>
<td>Appendixes<br>Source Code / GitHub Link<br>Similarity Report<br><br>Any of these can be included accordingly:<br>• Organizational Chart<br>• Sample of Interview<br>• Sample of Questionnaire<br>• Functions recording link<br><br>Every appendix must have a title</td>
<td>Appendixes<br>Source Code / GitHub Link<br>Similarity Report<br><br>Any of these can be included accordingly:<br>• Organizational Chart<br>• Sample of Interview<br>• Sample of Questionnaire<br>• Functions recording link<br>• User manual<br><br>Every appendix must have a title</td>
</tr>
</table>

## 3.4 Reference Format

The project is an essential component of the program. It is important that detection of any form of plagiarism in project work will be taken very seriously. The references can be written

by using American Psychological Association, APA referencing style. Student may refer to SUC library for assistance Or https://library.sc.edu.my/files/Quick%20Reference%20Guide_APA_24%20May%202021.pdf

# Chapter 4 Chapter Detail

Students must discuss with supervisors regarding their report writing. Supervisors has the right to add or eliminate some minor topic.

## 4.1 Outline of Chapter 1

Applicable to FYP1 and FYP2.

| System Development Based | Research Based |
|---|---|
| Chapter 1: Introduction<br>1.1 Background Research<br>1.2 Objectives<br>1.3 Scope<br>1.4 Summary | Chapter 1: Introduction<br>1.1 Background Research<br>1.2 Objectives<br>1.3 Scope<br>1.4 Research Contribution<br>1.5 Summary |

## 4.2 Outline of Chapter 2

Applicable to FYP1 and FYP2.

| System Development Based | Research Based |
|---|---|
| Chapter 2: Literature Review<br>2.1 Introduction<br>2.2 Inter-organisation case study (if any)<br>2.3 Current system analysis<br>2.4 Compare between 3 existing systems<br>2.5 Literature review on technology used<br>2.6 Summary | Chapter 2: Literature Review<br>2.1 Introduction to case study<br>2.2 Problem formulation<br>2.3 Suggestions to solve identified problems<br>2.4 summary |

## 4.3 Outline of Chapter 3

Applicable to FYP1 and FYP2

| System Development Based | Research Based |
|---|---|
| Chapter 3: Methodology<br>3.1 Introduction<br>3.2 Methodology choice and justification<br>3.3 Phases within the chosen methodology / Planning<br>3.4 Technology / Tools used<br>3.5 System requirement analysis: hardware and software | Chapter 3: Methodology<br>3.1 Introduction<br>3.2 Operational Framework / Research Workflow<br>3.3 Justification<br>3.3.1 Tools<br>3.3.2 Data<br>3.3.3 Techniques<br>3.4 Performance measurement |

| | |
|---|---|
| 3.6 Gantt Chart<br>3.7 Financial Justification<br>3.8 Summary | 3.5 Gantt Chart<br>3.6 Summary |

## 4.4 Outline of Chapter 4

Applicable to FYP1 and FYP2.

| System Development Based | Research Based |
|---|---|
| Chapter 4: Design / Proposed System Design<br>4.1 Introduction<br>4.2 Data Flow Diagram (DFD)<br>4.3 Entity Relationship Diagram (ERD)<br>4.4 Use Case Diagram<br>4.5 Use Case Description<br>4.6 Class Diagram<br>4.7 Activity Diagram<br>4.8 Sequence Diagram<br>4.9 Summary | Chapter 4 Experimental Setup<br>4.1 Introduction<br>4.2 Proposed Solution<br>4.3 Experiment design<br>4.4 Parameter and testing methods<br>4.5 Summary |

## 4.5 Outline of Chapter 5

Applicable to FYP2 Only

| System Development Based | Research Based |
|---|---|
| Chapter 5: Implementation<br>5.1 Introduction<br>5.2 Content design / Wireframe<br>5.3 Prototype<br>5.4 Summary | Chapter 5: Implementation<br>5.1 Introduction<br>5.2 Experiment implementation<br>5.3 Summary |

## 4.6 Outline of Chapter 6

Applicable to FYP1 and 2

| System Development Based | Research Based |
|---|---|
| Chapter 6: Testing<br>6.1 Introduction<br>6.2 Testing<br>6.2.1 Black box testing<br>6.2.2 White box testing<br>6.2.3 User Testing<br>6.3 Summary | Chapter 6: Results, Analysis and Discussion<br>6.1 Introduction<br>6.2 Research results and analysis<br>• Discussion<br>• Table / Graph<br>6.3 Summary |

| | |
|---|---|
| | |

## 4.7 Outline of Chapter 7

Applicable to FYP1 and FYP2. Evaluation is not necessary in research-based project.

| System Development Based | Research Based |
|---|---|
| Chapter 7: Evaluation<br>7.1 Introduction<br>7.2 User Interface Satisfaction Result<br>7.3 Summary | |

## 4.8 Outline of Chapter 8

Conclusion is in FYP1's Chapter 5 while chapter 8 in FYP2.

| Project Phase | System Development Based | Research Based |
|---|---|---|
| FYP1 | Chapter 8 Conclusion<br>5.1 Introduction<br>5.2 Achievements<br>5.3 Suggested plan for FYP2 | Chapter 8 Conclusion<br>5.1 Introduction<br>5.2 Achievement / milestone achieved<br>5.3 Suggested plan for FYP2 |
| FYP2 | Chapter 8 Conclusion<br>8.1 Introduction<br>8.2 Achievement of project objectives<br>8.3 Recommendation | Chapter 7: Conclusion<br>7.1 Introduction<br>7.2 Achievement of project objectives<br>7.2 Research Contribution<br>7.3 Recommendation for improvement and future works |

## 4.9 Outline of Presentation

FYP1: 15 minutes presentation and 5 minutes question and answer session

| System Development Based | Research Based |
|---|---|
| • Introduction<br>• Overview of presentation<br>• Project background, objectives, and scopes<br>• Summary of literature review / Methodology<br>• Overview of requirement analysis and design<br>• List of software and hardware | • Introduction<br>• Overview of presentation<br>• Project background, objectives, and scopes<br>• Summary of literature review / methodology<br>• List of software and hardware |

| | |
|---|---|
| • Summary of initial finding during FYP1 (EG: analysis of data collected from survey)<br>• Discussion on FYP2 execution plan<br>• Conclusion<br><br>Question and answer session | • Summary of initial finding during FYP1 (EG: analysis of data collected from survey)<br>• Discussion on FYP2 execution plan<br>• Conclusion<br><br>Question and answer session |

FYP2: 15 minutes presentation and 5 minutes question and answer session

| System Development Based | Research Based |
|---|---|
| • Introduction<br>• Overview of presentation<br>• Project background, objectives, and scopes<br>• Summary of literature review / Methodology<br>• Overview of requirement analysis and design<br>• Summary of system implementation<br>• Prototype demonstration<br>• Conclusion<br><br>Question and answer session | • Introduction<br>• Overview of presentation<br>• Project background, objectives, and scopes<br>• Summary of literature review / methodology<br>• Research development and implementation<br>• Result and analysis<br>• Conclusion<br><br>Question and answer session |

## Chapter 5 Project Evaluation

Project evaluation rubric can be referring to the current rubric.

_____0000_____