

bachelor in computer engineering with honours (BCE)
FINAL YEAR PROJECT HANDBOOK

Revision History

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The information in this document is important and should be noted by all students undertaking the Bachelor of Computer Engineering with Honours

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# INTRODUCTION

Final-Year Project should preferably industry related and can provide one of the best means of introducing an investigative research-oriented approach to engineering studies. It is a requirement of the program to include a significant project after completing 70% of their subjects. The final-year project is required to seek individual analysis and judgement, capable of being assessed independently. The student among others is expected to develop techniques in literature review and information processing, as necessary with all research approaches. It is recommended that final-year projects should also provide opportunities to utilize appropriate modern technology in some aspects of the work, emphasizing the need for engineers to make use of computers and multimedia technology in everyday practice

Final Year Project (FYP) is a compulsory course to be taken by all registered final year undergraduate students of UNIMY and it is one of the conditions which need to be fulfilled for the purpose of graduation. The Final Year Project (FYP) course is being introduced in the Computer Engineering curriculum to prepare students for engineering practice. It is an important piece of work that requires the synthesis of the knowledge and skills acquired in earlier course work, some creativity, and original thinking to be wrapped up in a comprehensive communication skill both report writing and effective presentation

FYP is a two-semester course which is divided into two phase – CE491 Final Year Project 1 (FYP1) and CE492 Final Year Project 2 (FYP2) – respectively.

## BCE Program Educational Objective, Program Learning Outcome and Course Learning Outcome

* + 1. **Final Year Project I**

|  |  |
| --- | --- |
| **CODE:** | CE491 |
| **COURSE** | FINAL YEAR PROJECT 1 |
| **CREDIT** | 2 Credit Hours |
| Year | 4 | Semester | 7 |
| **Program Learning Outcome** |
| **PO1** | **Engineering Knowledge**– Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems. |
| **PO2** | **Problem Analysis**– Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences. |
| **PO5** | **Modern Tool Usage**– Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering problems with an understanding of the limitations. |
| **PO9** | **Communication**– Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. |
| **PO10** | **Individual and Teamwork –**Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings. |
| **Course Outcome (CLO)** |
| **CLO1** | To conduct an investigative research-oriented approach related to engineering studies |
| **CLO2** | Develop techniques in literature review and information processing, publish a comprehensive report on the final year research project in the format of a thesis.  |
| **CLO3** | Perform Individual analysis and judgement, to investigate, evaluate, implement and conclude and to propose or adopt an originality and significant solution or methodology of his/her work |
| **CLO4** | Develop capabilities of being assessed independently and work within constraints, good communication, planning and project management |
| **CLO5** | Provide opportunities to utilize appropriate modern technology (computer and IT) in some aspects of the work/ emphasizing the need for engineers and include a significant project to the society in its later stages.  |
| **CLO vs PLO Mapping** |
|

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | P10 | P11 | P12 |
| CLO1 | V |  |  |  |  |  |  |  |  |  |  |  |
| CLO2 |  | V |  |  |  |  |  |  |  |  |  |  |
| CLO3 |  |  |  |  | V |  |  |  |  |  |  |  |
| CLO4 |  |  |  |  |  |  |  |  |  | V |  |  |
| CLO5 |  |  |  |  |  |  |  |  | V |  |  |  |

 |

* + 1. **Final Year Project II**

|  |  |
| --- | --- |
| **CODE:** | CE492 |
| **COURSE** | FINAL YEAR PROJECT 2 |
| **CREDIT** | 4 Credit Hours |
| Year | 4 | Semester | 8 |
| **Program Learning Outcome** |
| **PO3** | **Design/Development of Solutions –** Design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations |
| **PO5** | **Modern Tool Usage (MT)** - Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering problems, with an understanding of the limitations |
| **PEO 9** | **Communication**– Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. |
| **PEO 10** | **Individual and Teamwork –**Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings. |
| **Course Outcome (CLO)** |
| **CLO1** | Perform the research based on the suitable methodology and observation method |
| **CLO2** | Evaluate and discuss critically the research outcome |
| **CLO3** | Produce the project finding scientifically through thesis writing  |
| **CLO4** | Produce the project finding scientifically through oral presentation |
| **CLO vs PLO Mapping** |
|

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | P10 | P11 | P12 |
| CLO1 |  |  | V |  |  |  |  |  |  |  |  |  |
| CLO2 |  |  |  |  | V |  |  |  |  |  |  |  |
| CLO3 |  |  |  |  |  |  |  |  |  | V |  |  |
| CLO4 |  |  |  |  |  |  |  |  | V |  |  |  |

 |

## Course Contents

Each student shall be required to undertake a project which is of academic value for a period of 2 Semester (FYP1 & FYP2). The project involves engineering problem solving using engineering theories and techniques through an investigative research-oriented approach. The student is expected to do a focused literature review, propose and implement solution to the problem, analyse and interpret data and communicate the results and finding through oral presentation and written report.  The student is to utilize appropriate modern technology in some aspects of the work.

* + 1. CE491 – FYP1 (2 credit hours):
* Identifying suitable and relevant topic which can be developed either through development or research activities and match the level expected of an undergraduate student. Identifying relevant information pertaining to project’s requirements from a variety of resources.
* Explaining and applying project development or research methodologies appropriate to the project.
* Plan, design and propose a feasible project based on the given timeline.
* Communicating project ideas and final product through technical report and presentation.

 At the end of the semester, the student is to present his/her progress at a FYP1 presentation.

* + 1. FYP2 – CE492 (4 credit hours)
* Develop the project in FYP1 according to the proposed plan and design.
* Verify and validate the developed projects against the proposed objectives goals.
* Proposing future improvement based on project outcomes.
* Communicating project ideas and final product through technical report and presentation.

At the end of the semester, it is expected that the student submits a completed written report and to present his/her work at a FYP2 presentation.

The Grade will be calculated in the CGPA of the semester 7 and 8 of the Year.

## Assessment

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Course | Pre-requisite | Credit Hours | Mode of Assessment | Examiner | Report (physical submission) |
| CE491 (FYP 1) | After completed 3rd year course as tabulated in BECE curriculum  | 2.0 | * Final Presentation (80%)
* Progress Report Evaluation (10%)
* Logbooks (10%)
 | * Supervisor
* Co-Supervisor
* Examiner
 | * Blue Tape Binding
* Logbooks
 |
| CE492 (FYP 2) | CE491 | 4.0 | * Final Presentation (80%)
* Progress Report Evaluation (10%)
* Logbooks (10%)
 | * Supervisor
* Co-Supervisor
* Examiner
 | * Hardbound
* Logbooks
* Progression report
* Product
 |

**1.4 FYP Management**

Faculty of Computer Engineering, UNIMY has appointed a coordinator to monitor, supervise and manage the implementation of FYP. The coordinator will assist the students by providing all the required information and materials required throughout the duration of FYP.

1. Latest news and announcement
2. FYP calendars
3. FYP presentation schedules
4. FYP related forms – supervisor selection, rubric and evaluation
5. The list of lecturers, their area of expertise and suggested topics for FYP.
6. FYP Handbook

Students **ARE STRONGLY ADVISED** to regularly check for updates and news from with the coordinator. Students can also meet any FYP coordinator for any questions or problems relating to FYP.

# PROJECT CATEGORIES

## 2.1 Background

###

Requirements from Engineering Accreditation Council (EAC) Malaysia:

1. An investigative research-oriented approach preferably industry related, correlated to engineering studies
2. A requirement of the program to include a significant project in its later stages.
3. Individual analysis and judgement, capable of being assessed independently.
4. Develop techniques in literature review and information processing, as necessary with all research approaches.
5. Provide opportunities to utilize appropriate modern technology in some aspects of the work, emphasizing the need for engineers to make use of computers and multimedia technology in everyday practice.

**2.2 Research-based FYP**

1. To conduct a focused literature review
* To understand the problem.
* To study previous related work
* Recent literature (latest 5 years) should be included
1. To propose or adopt a solution or methodology
* Originality: How your work is different from previous work in terms of idea, concept, approach, implementation
* Significance: How your work contributes to the advancement of knowledge and the betterment of society
1. To implement the solution or carry out the investigation
2. To evaluate the implementation or analyze the collected data with detail analysis and discussions
3. To compare with previous or known results
4. To conclude the investigation
5. To recommend future work

## 2.2 Project Domains

The research areas study under Computer Engineering are shown in Table 2.1. The list is not definite; thus, students can propose any topic or idea from other domain or field of study related to Computer Engineering.

At the same time, students are also encouraged to explore interdisciplinary topics, for example hybrid research that include the Computer Science study. However, the content and/or project development must not exceed 40% of total computer engineering project development.

Table 2.2 shows choices of interdisciplinary research area in Computer Science subject.

**Table 2.1: Topics under Computer Engineering**

|  |  |  |  |
| --- | --- | --- | --- |
| **Computer Communication and Networking** | **Microcontroller//Embedded System** | **Electronics Engineering**  | **Robotic / IOT**  |
| Network Technology,Communication Technology,Computer Hardware & System,Multimedia Networking,Data Communication,Network Transmission,Internet, wired and wireless technology,Computer & architecture Element  | Microprocessor, Microcontroller & Interface,Embedded System,Microchip Technology,Logic Circuit Programmable for Embedded System  | VLSI technology and design,High speed Circuit Technology,Integrated Circuit design and Simulation Based Project, Signals & Systems, Digital Signal Processing, PCB Design | Accelerate IoT Technology,Sensors technology, Interfacing technology and devices, IoT programming projects, Arduino-based projects, RFID |

**Table 2.2: Topics under Computer Science**

|  |  |  |  |
| --- | --- | --- | --- |
| **COMPUTER SCIENCE** | **INFORMATION SYSTEM** | **SOFTWARE ENGINEERING** | **BIO-COMPUTING** |
| Computer Security (Cryptography,Steganography, Access Control, SecurityTechnology)Grid/Parallel/DistributedMobile ComputingComputer NetworkingCollaborative virtual environmentEmbedded SystemsArtificial IntelligentOptimizationData analysisSystem Development | Information SystemsInformation Systems DevelopmentDecision Support SystemsProject managementDatabaseInformation RetrievalDecision Support System (DSS)Customer Relationship Management (CRM)Knowledge managementSystem Development | Soft computingSoftware System Development EvolutionSoftware Design/ ArchitectureSoftware QualitySoftware Modelling and ProcessSoftware TestingSoftware RequirementSoftware ReusabilityEmbedded Real-time Software,Requirement TraceabilityArtificial Intelligence (Neural network,Genetic Algorithm, Support Vector Machine,Fuzzy Logic, Speech Processing)Planning and SchedulingAutomata and Formal LanguageBusiness Rules and Design PatternWeb-based ApplicationHuman Computer Interaction (HCI)Expert SystemImage Processing and Pattern RecognitionHuman Computer InteractionComputer GamesVisualization\Object ModelingVirtual Environment- Artificial IntelligenceWeb Technology | Computational Systems BiologyHigh Performance Computing,Cancer classificationRemote Homology,Gene OntologyRemote Homology,Protein Structure PredictionProtein StructureBiological Modeling,Synthetic BiologyProtein DockingBiodiversity,Biological Science |

# FINAL YEAR PROJECT 1 (FYP1)

This section outlines the major procedures which need to be followed by the students, supervisors and evaluators. These procedures must be followed in ensuring the success of FYP1.

## 3.1 FYP1 Execution Procedure

 In general, FYP1 starts when the students register for the course at the beginning of the semester. This is then followed by supervisor selection process where students will discuss with his/her potential supervisor(s) on topic(s) that match the interest of both parties. After gaining the supervisor’s consent, the students will start to develop the initial proposal which then need to be submitted and approved by the FYP committee. Once the proposed topic is approved, students need to regularly meet and discuss with the supervisor(s) on matters related to the execution of the
project and get themselves ready for project presentation and evaluation at the end of
the semester. Figure 3.1 illustrates the overall procedures of FYP1.

### 3.1.1 Registration

 FYP1 can only be registered by final year students which have fulfil the minimum requirements of their 3rd year curriculums at their final year semester. Registration period is 2 weeks, starting from 1 week before the semester’s registration day until the end of Week 1 or as being informed by the registry department. Students must register the correct course code in order to proceed. The correct code for FYP1 is CE491 (Final Year Project I)

### 3.1.2 FYP1 Briefing

 In Week 1, a briefing session chaired by the FYP Coordinator will be held as introductory class for all registered students. The briefing session will explain the flow of process and procedures of FYP1, supervisor and topic selection, rules and regulations and other important matters related to FYP. Students’ attendance are compulsory. Any changes on the date will be informed accordingly by the coordinator

### 3.1.3 Appointment of Supervisor/Co-Supervisor

As mention in the EAC manual 2017, the supervisors of the Projects must be academic staff members or qualified Engineers from the industry. Thus, students are responsible to approach and find a potential supervisor who will assist and guide them in the implementation of the project. The appointed supervisor will supervise the students for both FYP1 and FYP2. The lists of lecturer expert’s area are available at UNIMY website.

Two approaches can be used in selecting the potential supervisor:

1. **Lecturers who have potential topics for FYP** are required to inform those topics and students may approach their potential supervisor based on the topics.
2. **Students may approach any lecturers with their own topics/ideas**

Each lecturer can only supervise a limited number of FYP students (no of FYP students varies from time to time base on teaching load or as approve by senate), therefore, students are encouraged to meet up with their potential supervisor as early as possible. The following tips could be used as guides in approaching the supervisor:

i. Have a discussion with a few lecturers before making the final selection. Factors to consider:

* A supervisor who has sufficient knowledge on the intended project.
* A supervisor who has the same interest on the intended project.
* Co-supervisor if the intended project is a cross discipline area (if necessary).

ii. **DO NOT** appoint a supervisor at the last minute. If possible, appoint one
before the semester opens.

1. Each student must get the supervisor’s agreement/consent to supervise them thru research proposal form

**Supervisor’s agreement /consent is using the Project Proposal Submission Form (please refer to Appendix)**

#### 3.1.3.1 Responsibilities of Supervisor

Supervisor plays important role in Final Year Project. In general, a supervisor is responsible to advice, guide and monitor a student’s progress in FYP. Besides that, in a good supervisor-student relationship, a supervisor also plays the role of a counselor and motivator. However, it is not advisable for the students to be too independent on his/her supervisor especially in developing the content for FYP.

 The following is a guideline on the responsibilities of the supervisor:

1. To give guidance on the nature of the project and the standard expected, the development of the Proposal, literature research, techniques, and methods selection, and about any problems of plagiarism (please refer to Section 4.4)
2. To ensure that the proposed project exhibits the appropriate attributes expected of a final year project on a computing degree
3. To hold regular weekly/bi-weekly meeting or discussion session with the student
4. To ensure that the logbook is kept up to date
5. To be accessible, within reason, at other times for giving advice to the student
6. To request evidence of progress and to ensure that the student is aware of any inadequacy of progress or of standards of work below those expected
7. To provide constructive criticism on any work presented
8. To encourage the student to produce early draft chapters of the project report, to comment on them critically and return them promptly. (However, it is the student’s responsibility to write draft material, and if they do not do so the student loses an opportunity for formative feedback)
9. To evaluate the logbook, the project proposal, the full report, the oral presentation and product demonstration

Students are required to meet the supervisor on regular basis with **minimum requirement of 6 (SIX) meeting** throughout the FYP1 timeframe. This is also applicable to FYP2. Supervisor shall regularly check and verify the student’s FYP Logbook. The logbook is one of the evaluation criteria at the end of the FYP. Logbook is available at Appendix

If the student could not manage to meet the supervisor in **4 (FOUR)** consecutive weeks, supervisor will have to contact the student to find out the current status of the student and report the situation to the University Academic Board Committee.

The procedure of FYP 1 is as systematize in the flowchart in Figure 3.1. However, any changes on the dates and activities will be informed accordingly by the coordinator.



**Figure 3.1: Procedure for FYP1**

#### 3.1.3.2 Co-Supervisor

Student with the permission of his/her supervisor is allowed to appoint a co-supervisor. Student **MUST INFORM** the FYP Committee/Coordinator of the appointment by stating the co-supervisor’s name on the Project Proposal Submission Form (Appendix).

Important notes on co-supervisor:

1. Co-supervisor’s responsibilities are but not limited to:
* Guide the students during the idea development
* Become the subject matter expert if the project’s domain is not within the expertise of the main supervisor.
* Introduce students to any other external organization which may assist the student in completing the project
1. Co-supervisor can be appointed among UNIMY academic staff, industry players or other external organizations related to the project.
	* If the student needs to appoint co-supervisor besides UNIMY academic staff, an official request to the FYP Committee/Coordinator has to be made before **week (FIVE) 5**. Committee will provide an official appointment letter to the respective co-supervisor if the relevant needs is present.
2. Co-supervisor **will not involve** in the assessment of the student’s FYP components.

### 3.1.4 Collaboration/Attachment with other External Organization

In some cases, projects span and involve other external organizations. Upon suggestion by the supervisor, if the student need to have a short period of attachment, an official request has to be made to FYP Committee/Coordinator for confirmation and approval. Please contact the committee for detail procedures.

### 3.1.5 Initial Project Proposal Submission

Once the student and the supervisor agreed on the topic, students must then starts developing initial proposal for the project. Initial proposal would require the students to do information search, identify the objectives, goals and scope of the projects. Initial proposal will give a general idea to the reader about the projects and the expected final product.

**Students are required to submit an initial proposal to the FYP committee/coordinator by using the Project Proposal Submission Form (please refer to Appendix) before deadline.**

### 3.1.6 Defense Research Proposal

The FYP Committee will organize an evaluation session to discuss and approve all the proposed topics for FYP1 as submitted. In general, all topics will be evaluated based on:

1. Ability to conduct an investigative research-oriented (preferably industry related) approach correlated to engineering studies through effective techniques in literature review and information prospecting
2. Complex engineering problem (CEP)
3. Ability to conduct an investigative research-oriented (preferably industry related) approach correlated to engineering studies through effective techniques in literature review and information prospecting
4. Assess societal, health, safety, legal and cultural issues

**Note to all students:**

* For rejected topic, student is required to propose a new topic within 1 week after the panel’s decision announced.
* Students are **not allowed to change his/her FYP topic once the topic is approved** by the FYP Committee. In situation where there is a need for such action, student must discuss the matter with the FYP Coordinator. If there is a need to change the topic student will have to fill up the FYP Change Topic Form and submit to the FYP committee/Coordinator. Change of topic is allowed until week 6 and my get the approval form the FYP committee latest by week 7.
* It is not advisable for the student to change supervisor. In situation where there is a need for such action, student must officially get a consent from his/her current supervisor, new supervisor and FYP Committee/Coordinator.

### 3.1.7 Supervision Meeting and Logbook

It is the responsibilities of the students to meet and discuss the progress of the project with his/her supervisor regularly. This will help the students to execute their project according to the Program Education Objective and EAC standards. Most important is the supervisor will be able to guide the students in achieving the objectives and goals of the projects.

 **Students are required to arrange for a minimum of 6 (SIX) formal meetings** with their supervisor before they are allowed to submit the final report and present the FYP1. All meetings must be recorded in a logbook (**refer to Appendix)** and supervisor’s signature of approval for each meeting is required.

### 3.1.8 FYP Class and Presentation Week Briefing

 A series of lectures will be conducted over a period of 5 or more weeks. These lectures will assist the students in the execution of the project especially in developing the content for the FYP1 report. Table 3.1 shows the proposed topics to be covered in the FYP classes.

**Table 3.1: FYP 1 Classes**

|  |  |
| --- | --- |
| **WEEK** | **TOPICS** |
| 1 | * Faculty level briefing
* Departmental project/research areas briefing
* Identifying problem statements, objectives, and scopes of the project.
* Project planning via logbook and Gantt chart
 |
| 2 | * Literature review skills
* Referencing techniques
 |
| 3 | * Project methodology
* Data collection
* User/system requirements analysis
 |
| 4 | * Project design
* Project implementation, coding, testing
 |
| 5 | * Project discussion and conclusions (last chapter)
* Project presentation (tips, do’s and don’ts)
 |

### 3.1.9 FYP1 Report Submission

 In Week 13, each student is required to submit their project report for evaluation. Supervisor’s approval is required before submitting the report to the FYP committee/coordinator. The submission must also include:

1. FYP1 report - 3 copies (blue front cover)
2. FYP Submission Form - 1 copy (please refer to Appendix)
3. FYP1 Evaluation Form – Supervisor - 1 copy (please refer to Appendix)
4. FYP1 Evaluation Form – Examiner - 1 copy (please refer to Appendix)
5. FYP1 Logbook - 1 copy (please refer to Appendix)

Late submission is totally prohibited. The FYP committee has the authority to reject any late submission and the student will not be allowed to present his FYP1.

### 3.1.10 FYP1 Presentation Week

 FYP presentation week is one the most important milestone in FYP1. In this week (Week 14), students will present their FYP1 outcome and will be evaluated by a panel of (at least an Examiner) appointed by the FYP Committee. The FYP committee will release the presentation schedule between Week 10-13 and all sessions are open for everyone to attend. Guidelines and procedures to FYP presentation are described in section 3.1.12.

* Presentation date is subject to change by the FYP Committee/Coordinator. The new date will be announced accordingly

### 3.1.11 FYP1 Report Correction

 At the end of the FYP presentation, students will receive a comment form from the examiners. Students are then required to do correction based on the comments. Students are urged to discuss all comments with their supervisor and take appropriate actions. If required, corrections made to the report must be endorsed by both supervisor and evaluators. The report correction form are available in the Appendix.

### 3.1.12 FYP1 Evaluation

 At the end of the semester, each student’s project will be evaluated and a **passing grade in FYP1 is a requirement for FYP2**. Details on the evaluation criteria are explained in section 3.3. FYP1 Evaluation form is available in the Appendix

### 3.1.13 FYP1 Presentation

**Thirty (30) minutes** is allocated to each student for presentation, with **20
minutes for slides presentation and 10 minutes for the question and answer (Q&A) session.**

It is advisable for the students to include only important points in the slide to ensure
that the presentation time is not exceeded. As a rule of thumb, one slide is equivalent
to one minute of presentation time.

However, the whole presentation should contain the following items:

1. An introduction to introduce presenter, the project title, as well as the
supervisor.
2. An overview of the overall presentation (i.e. structure of the presentation,
outline).
3. Project background, aim, objectives, and scopes of the project (this should be
enough to cover what has been written in Chapter 1 of the project’s report).
4. Summary of literature review (as explained in Chapter 2 of the project’s
report).
5. Summary of research/system development methodology. This may include
the data collection techniques such as survey, organization visits, etc. (Chapter 3 and Chapter 4).
6. List of software and hardware that are required to develop the project.
7. Summary of initial findings during FYP1. For instance, analysis of data
collected from survey, or perhaps initial interface design of the proposed
system (Chapter 5).
8. Discussion on FYP2 execution plan.
9. Conclusion of the presentation.

Students are advised to follow the subsequent good practices for their projects’ presentations:

1. Arrive early for the presentation.
2. Limit the use of text in slides and make sure there is no spelling error.
3. Include more figures, pictures, charts, etc.
4. Have eye contact with the audiences.
5. Dress according to the UNIMY’s student dress code.
6. Speak clearly. Do not mumble.
7. Manage the presentation time so that there is ample time for Q&A session.
8. Practice beforehand.
9. Do not forget to thank the audience for listening.

## 3.2 FYP1 Project Report

### 3.2.1 Introduction

###

Students undertaking FYP1 course must submit a written report at the end of the semester, according to the schedule prepared by the FYP Committee/Coordinator. The report is the result of the project work that has been conducted and will be assessed by panel of evaluators. For a more details description and guideline, please refer to the **Final Year Project Report Guideline** document.

### 3.2.2 FYP1 Report Structure

The basic FYP report structure is as follows:

1. Preliminary pages
2. List of contents titles, sub-titles, figures, tables, abbreviation and appendices
3. Report content (Chapter 1 – Chapter 5)
4. Appendices

#### 3.2.2.1 Preliminary Pages

 Preliminary pages are the early part of the report. These pages include:

1. Front page
2. Acknowledgement page (optional)
* Written in one page to acknowledge gratitude to contributing persons/parties.
1. Abstract
* In English only.
1. Content page
2. List of table page
3. List of figure page
* Figures include diagrams, photographs, screen shots, graphs, charts, code snippets, etc.
1. List of abbreviation page
2. List of terms page
3. List of appendices
* Each appendix must be name, e.g. Appendix A, Appendix B followed with specific titles.
* Listed in alphabetical order.

#### 3.2.2.2 Report Content / Body / Chapter

 FYP1 report **MUST CONSISTS** all of the following chapters:

1. Chapter 1 : Introduction
2. Chapter 2 : Literature Review
3. Chapter 3 : Methodology
4. Chapter 4 : Implementation of Design
* Project-based : Proposed System Design
* Research-based : Experimental Setup/Research Design / Research Procedure
1. Chapter 5 : Initial Result and Conclusion
2. Reference
3. Appendices
* FYP1 plan – use Gantt chart (compulsory)
* Initial plan for FYP2 – use Gantt chart (compulsory)
* Relevant appendices, example:
	+ Organizational chart, sample of interview, sample of questionnaire, use case diagram, sequence diagram, class diagram, database design diagram, test cases

### 3.2.3 FYP1 Report General Guideline

The general guideline for thesis writing is as follows:

1. Do not cut and paste information from original sources. Instead students must use their own words in restating statements from books or general/public information.
2. Write in a concise and clear manner that is easily understood. Refrain from
long running sentences.
3. Use words and sentences that convey exact meanings; and refrain from
ambiguous statements.
4. Every abbreviation must be written in its complete form in the abbreviation
list. In the text, the first usage of the group of words to be abbreviated must
be written clearly and in full, followed by the abbreviation in brackets as
shown in example below.

*The Unified Modeling Method (UML) is used …*

On subsequent usage, the abbreviation may be used on its own.

1. Sections and sub-sections should be written in a logical sequence.
2. Ensure continuity of sentences, paragraphs, sections and the overall report.
	1. Figures and tables are numbered in sequence following the chapters, not
	sections. Example, for Chapter 3:
		* Figures should be numbered starting with Figure 3.1, followed by Figure 3.2, Figure 3.3 and so on.
		* Tables for Chapter 3 will follow the same sequence, Table 3.1, Table 3.2, Table 3.3 and so on.
3. Main information and analysis are put in the body of the report, while
supportive information and analysis are added as appendix.
4. The maximum number of pages for the report, excluding appendix and initial pages:
* FYP1: minimum 50 pages
* FYP2: minimum 80 pages
* Permission must be granted by the FYP Committee/Coordinator for other issue on the numbers of pages.

To construct the title of a project:

1. Must mirror the content
2. Must reflect problem solution
3. Usage of technology name in title only needed if technology is novel

##

### 3.2.4 Plagiarism and Cheating

Plagiarism and cheating are regarded as very serious offences. In cases where cheating is confirmed, students shall be severely penalized, from losing all marks for an assignment, to facing disciplinary action at the university level.

In UNIMY, cheating means seeking to obtain an unfair advantage in any examination or any other written or practical work to be submitted or completed by a student for assessment. It includes the use of any means to gain an unfair advantage for any assessable work in the unit, where the means is contrary to the instructions for such work.

When you submit a dissertation, which consist of a program, a report, an essay, or other piece of work, under your name you are understood to be stating that this is your own work. If a submission is identical with, or similar to, someone else's work, an assumption of cheating may arise. If you are planning on working with another student, it is acceptable to undertake research together, and discuss problems, but it is not acceptable to jointly develop or share solutions unless this is specified by your lecturer.

Intentionally providing students with your solutions to assignments is classified as "assisting to cheat" and students who do this may be subject to disciplinary action. You should take reasonable care that your solution is not accidentally or deliberately obtained by other students. For example, do not leave copies of your work in progress on the hard drives of shared computers, and do not show your work to other students. If you believe this may have happened, please be sure to contact your lecturer as soon as possible.

Plagiarism is a form of dishonesty. Plagiarism involves the false representation of another person's ideas, or findings, as your own by either copying material or paraphrasing without citing the sources. All sources should be cited and all quotations from the works of other authors clearly identified as such. It is both professional and ethical to reference clearly the ideas and information that you have used from another writer. If the source is not identified, then you have plagiarized work of the other author.

### 3.2.5 FYP1 Report Binding

In Week 13, all students are required to submit three (3) copies of their FYP1 report to the committee for evaluation before deadline. The binding format for the report is as follows:

 i. The report cover page:

 a. Paper color : blue (advisable: the same blue as in UNIMY logo)

 b. Format : as shown in the in **Final Year Project Report Guideline**.

1. Binding : comb-bind

The report must be printed on A4-sized paper preferably using laser-jet printer. The two (2) copies report will not be returned, so it is advisable for the student to print an extra copy for self-reference.

## 3.3 FYP1 Project Evaluation

### 3.3.1 Introduction

###

This chapter outlines evaluation criteria for FYP1. Students must read the following evaluation criteria so that they are aware about the marking schemes and able to fulfill all the required assessment criteria. The evaluation criteria listed in this section is applicable to both type of FYP – development and research track.

### 3.3.2 FYP1 Evaluation Components

Evaluation of FYP1 is divided into 2 components – the supervisor and the examiners’ evaluation with each component carries 60% and 40% weightage respectively. In general, Table 3.2 shows the evaluation criteria for FYP1.

**Table 3.2: FYP1 Assessment Component**

|  |
| --- |
| **FYP1 Assessment Component** |
| **COMPONENT** | **CRITERIA** | **FULL MARK** | **TOTAL MARKS** | **WEIGHTAGE** |
| **Supervisor** | **SECTION A, B, C & D** | **80** | **100** | $$S=\frac{x}{Total Marks}X 60$$ |
| **SECTION E** | **20** |
| **Examiner 1** | **SECTION A, B, C & D** | **80** | **80** | $$E1=\frac{x}{Total Marks}X 20$$ |
| **Examiner 2** | **SECTION A, B, C & D** | **80** | **80** | $$E2=\frac{x}{Total Marks}X 20$$ |
| **TOTAL** | $S+E1+E2$  |

SECTION A (PO1), SECTION B (PO2), SECTION C (PO5), SECTION D (P010) and SECTION E (P09) are mapped to each POs accordingly.

Each criterion as mentioned in Table 3.2 will be assessed based on the identified sub-criteria. Each sub-criterion will be given point based on rubric assessment.

The details of the evaluation form for FYP 1 is available at Appendix. Students are encouraged to refer these evaluation forms as guideline throughout the implementation of FYP1.

**Note to supervisor and examiners:**

* The deadline for the evaluation form to be returned to the FYP Committee is 1 (ONE) week after FYP1 presentation is over.
* Once the forms have been submitted to FYP Committee/coordinator, supervisor and examiner has no right to re-check, re-calculate and change the marks. The permission to do so will be given if the valid reason is present.
* **Marks and grade are FINALIZED once it is approved and endorsed by the Senate.**

In situation where there is no answer that can be found from the handbook for any relevant issues that has arisen, the student, supervisor and evaluator can contact FYP committee to get the detail.

# FINAL YEAR PROJECT 2 (FYP2)

This section outlines the major procedures which need to be followed by the students, supervisors, and evaluators. These procedures must be followed in ensuring the success of FYP2.

## 4.1 FYP2 Execution Procedure

In general, FYP2 starts when the students register for the course at the beginning of the semester if they have successfully passed the FYP1 in the previous semester. Figure 4.1 illustrates the flowchart of FYP2.

### 4.1.1 Registration

It is important to mention here that students are not automatically registered to undertake FYP2 even though they have completed and passed FYP1. Normal registration procedure still needs to be done and the failure to register will result in disqualification to undertake FYP2.

### 4.1.2 FYP2 Briefing

In Week 1, a briefing session chaired by the FYP Coordinator will be held as introductory class for all registered students. The briefing session will explain the FYP2 calendar, flow of process and procedures of FYP2, and other important matters related to FYP2. Students’ attendance are compulsory.

### 4.1.3 FYP2 Project Progress Evaluation

Students are required to regularly demonstrate their project development updates to their supervisors. Project progress is compulsory and is evaluated as part of FYP2 grade between week 8-10. Student needs to address all issues highlighted by their supervisor during the evaluation progress (if any). The project progress evaluation form is available at Appendix.

Passed FYP1 AND Registered for FYP2

FYP2 Briefing

(W1)

Continuous Report Writing AND Discussion with Supervisor

(W1 – W14)

Project Progress Evaluation

(Between W8-10)

Submission of Draft Report/Draft report correction to Supervisor

(W11-W13)

FYP2 Presentation and Demo

(W15)

Submission of Report, Logbook and All Required Evaluation Forms

(W14)

Submission of Final Correction (W17)

Submission of Hardbound & CD

**Figure 4.1: Procedure for FYP2**

### 4.1.4 Supervision Meeting and Logbook

It is the responsibilities of the students to meet and discuss the progress of the project with his/her supervisor regularly. This will help the students to execute their project according to the faculty’s procedure and standards. Most important is the supervisor will be able to guide the students in achieving the objectives and goals of the projects.

 **Students are required to arrange for a minimum of 6 (SIX) formal meetings** with their supervisor before they are allowed to submit the final report and present the FYP2. All meetings must be recorded in a logbook (**refer to Appendix**) and supervisor’s signature of approval for each meeting is required.

### 4.1.5 FYP2 Report Submission

Each student is required to submit their project report for evaluation. Supervisor’s approval is required before submitting the report to the committee. The submission must also include:

1. FYP2 report - 3 copies
2. FYP Submission Form - 1 copy (please refer to Appendix)
3. FYP Logbook - 1 copy (please refer to Appendix)
4. FYP2 Project Progress Evaluation - 1 copy (please refer to Appendix)
5. FYP2 Evaluation Form – Supervisor - 1 copy (please refer to Appendix)
6. FYP2 Evaluation Form – Examiner - 1 copy (please refer to Appendix)
7. FYP2 Final Report Correction Form - 1 copy (please refer to Appendix)
8. FYP2 Thesis and CD Submission Form - 1 copy (please refer to Appendix)

(Hardbound)

Late submission is totally prohibited. The committee has the authority to reject any late submission and the student will not be allowed to present his/her FYP2.

### 4.1.6 FYP2 Presentation Week

FYP2 presentation week is one the most important milestone in FYP2. Students will present their FYP2 outcome and will be evaluated by a panel of at least 1 examiner appointed by the FYP Committee. The FYP committee will release the presentation schedule a week earlier (between week 11-13) and all sessions are open for everyone to attend. The guidelines and procedures for FYP2 presentation are detailed out in section 4.1.9.

### 4.1.7 FYP2 Report Correction by the supervisor

Students are required to do the correction based on the comments by supervisor within week 11 to week 13. These may take several time and drafts before the student can finalized the report. Then, at week 14, the report should be finalized, and to be submitted to committee.

### 4.1.8 FYP2 Evaluation

At the end of the semester, each student’s project will be evaluated in determining
that the objectives and scope are adequate and are aligned. Details on the evaluation criteria are explained in section 4.3.

### 4.1.9 FYP2 Presentation

Once the final report has been submitted, students need to prepare themselves for the presentation and demo day. The presentation for FYP2 is between 30-40 minutes (maximum 30 minutes for slides presentation (including project demo and 10 minutes for the question and answer session). The presentation should contain the following items:

1. An introduction to introduce presenter, the project title, as well as the supervisor.
2. An overview of the overall presentation (i.e. structure of the presentation, outline).
3. Project background, aim, objectives, and scopes of the project (Chapter 1).
4. Summary of literature review and methodology (Chapter 2 and Chapter 3).
5. An overview of design and implementation (Chapter 4).
6. Summary of results and discussions (Chapter 5).
7. Conclusion of the project (Chapter 6).

After the presentation, the students are required to demonstrate (demo) their projects. The aim of the demo is to evaluate the functionalities of the prototype for system-based project or to verify the findings of a research-based project.

## 4.2 FYP2 Project Report

The final report is essential to FYP2. The early chapters, Chapters 1, 2 and 3, are similar to FYP1. As part of their progress, students are required to submit drafts of Chapter 4 (Design and Implementation), Chapter 5 (Results and Discussion) and Chapter 6 (Conclusion) 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 ongoing report assessments. Regarding the draft of FYP2 report, the same report binding is applied as stated in section 3.2.5.

 **The final hard-bound thesis should be prepared before the presentation**. **The color of thesis cover page is black, and the font color is gold.** Please ensure that the endorsement forms are completed and submitted. Students must prepare at least three (3) copies of hard-bound thesis (1 each for student, supervisor and UNIMY library and three (3) sets of DVD/CDs. The DVD/CDs must contain the following items:

1. Thesis document (format: doc/docx and pdf)
2. Abstract (format: pdf)
3. Prototype
4. Source code
5. Technical Report (optional)

The failure to submit the thesis along with the DVD/CDs will result in the suspension of the students’ results.

## 4.3 FYP2 Project Evaluation

### 4.3.1 Introduction

###

This section outlines evaluation criteria for FYP2. Students must read the following evaluation criteria so that they are aware about the marking schemes and able to fulfill all the required assessment criteria. The evaluation criteria listed in this section is applicable to both type of FYP – development and research track.

### 4.3.2 FYP2 Evaluation Components

Evaluation of FYP2 is divided into 2 components – the supervisor and the evaluators with each component carries 50% and 50% weightage respectively. In general, Table 4.1 shows the evaluation criteria for FYP2.

**Table 4.1: FYP2 Assessment Component**

|  |
| --- |
| **FYP2 Assessment Component** |
| **COMPONENT** | **CRITERIA** | **FULL MARK****TOTAL MARKS** | **WEIGHTAGE** |
| **Supervisor** | **SECTION A, B, C, D** | **80%** | $$S=\frac{x}{Total Marks}X 30$$ |
| **SECTION E (progress report & logbook)** | **20%** | $$SE=\frac{x}{Total Marks}X 20$$ |
| **Examiner 1** | **SECTION A, B, C, D** | **80%** | $$E1=\frac{x}{Total Marks}X 25$$ |
| **Examiner 2** | **SECTION A, B, C, D** | **80%** | $$E2=\frac{x}{Total Marks}X 25$$ |
| **TOTAL** | $S+SE +E1+E2$  |

Each criteria as mentioned in Table 3.2 will be assessed based on the identified sub-criteria. Each sub-criteria will be given point based on non-uniform mark range assessment. Each point will then be normalized according to the mark stated in Table 4.1.

**Note to supervisor and evaluator:**

* The deadline for the evaluation form to be returned to the FYP Committee is ONE (1) week after FYP2 presentation is over.
* Once the form has been submitted to FYP Committee, supervisor and examiner has no right to re-check, re-calculate and change the marks. The permission to do so will be given if the valid reason is present.
* **Marks and grade are FINALIZED once it is approved and endorsed by the Senate.**

In situation where there is no answer that can be found from the handbook for any relevant issues that has arisen, the student, supervisor and evaluator can contact FYP committee to get the detail.

APPENDIX

|  |  |
| --- | --- |
| APPENDIX A | BCE-FPY-F1 PROPOSAL SUBMISSION FORM |
| APPENDIX B | BCE-FPY-F2 STUDENT LOGBOOK |
| APPENDIX C | BCE-FYP-F3-D - FYP1 PROPOSAL DEFENCE EVALUATION FORM |
| APPENDIX D | BCE-FYP-F4-E - FYP1 EVALUATION FORM - EXAMINER |
| APPENDIX E | BCE-FYP-F4-S - FYP1 EVALUATION FORM - SUPERVISOR |
| APPENDIX F | BCE-FYP-F5-E - FYP2 EVALUATION FORM - EXAMINER 4.0 |
| APPENDIX G | BCE-FYP-F5-S - FYP2 EVALUATION FORM - SUPERVISOR 4.0 |
| APPENDIX H | BCE-FYP-F6-PE - FYP2 PROJECT PROGRESS EVALUATION FORM - SUPERVISOR |
| APPENDIX I | BCE-FYP-F6-PR - PROGRESS REPORT SUBMISSION FORM |
| APPENDIX J | BCE-FYP-F7 - FINAL REPORT SUBMISSION FORM |
| APPENDIX K | BCE-FYP-F8 - FINAL REPORT CORRECTION FORM |
| APPENDIX L | BCE-FYP-F9 - THESIS AND CD SUBMISSION FORM |
| APPENDIX M | BCE-FYP-F10 – FYP1 CHANGE OF TOPIC/SUPERVISOR FORM |
| APPENDIX N | FYP I - Defense Research Proposal Evaluation Form |
| APPENDIX O | FYP - Thesis Hardbound Guidelines |
| APPENDIX p | IEEE-Reference-Guide |

SUMMARY

|  |  |  |
| --- | --- | --- |
| No | List of FYP Title / Students | Year/Sem |
| 1 | Smart Calling Doorbell Using GSM ModuleNur Yasmin Nisha Binti Shahrom | 2019/Sept |
| 2 | Smart Pill Dispenser with Monitoring System for Senior CitizensWan Mohd Fadhlullah Bin Wan Mohd Rosdi | 2019/Sept |
| 3 | Portable Real-Time BMI Nutritional AdviceAmirah Darwisyah Binti Ab Karim | 2019/Sept |
| 4 | Smart Pet Feeder System and Big Data Processing to Predict Pet Food ShortageMuhamad Kamal Bin Razali | 2019/Sept |
| 5 | Home Automation Door Lock for Home UseHazeem Ahmad Bin Taslim | 2019/Sept |
| 6 | Wireless Moving Safe Box Using Phone ControlledWong Hui Sin | 2020/May |
| 7 | Smart Shoe Rack with Sanitizing and Refreshing FunctionSurene Lee Qizhen | 2020/May |
| 8 | Marking Machine ProjectLim Ko Ji | 2020/May |