FINAL YEAR PROJECT
GUIDELINES

2016
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CHAPTER ONE
PROJECT IMPLEMENTATION

1.1 INTRODUCTION

The final year project (FYP) is one of the primary mechanisms used by the university to provide students with an opportunity to gain experience in the practical and effective application of what students have studied for the past several years. Naturally, student will continue to gain engineering experience after graduating but the final year project will be the first exposure to the engineering practice. It is essential that students learn from this exposure and practice all of the engineering methodologies involved. It is particularly important that students learn not just to apply what they know, but also to be judgmental and selective, with the ability to assess what they are doing and to be critical of it. FYP is also partial requirement in awarding the students with a Bachelor in Chemical Engineering (Environment) with Honors from Universiti Teknologi MARA Pulau Pinang.

The FYP guideline is designed to guide the undergraduate students in conducting their research/project before submitting it to the Faculty of Chemical Engineering, Universiti Teknologi MARA Pulau Pinang. This guideline is intended to give students the exposure on how to conduct research, produce proper technical and report writing within the standard requirements which have been practiced by international universities.

The FYP is conducted in the last two semesters of the student’s study period i.e. semester 7 (course code: CEV 651) and semester 8 (course code: CEV 652). The project can be in the form of laboratory experiment, computer programming, modelling and simulation. The FYP must also exhibit some elements of originality, which would indicate the maturity level for a final year bachelor degree program project. Students must frequently meet up with the supervisors enquiring about the topics and making clarification on problem statement, scope of research and literature review.

The students are expected to finish their research proposal in the early of semester 7. The students must start their research work by conducting preliminary experimental work, field works and embarking on data collection. Students need to present their proposal report in front of supervisor and co-supervisor. In semester 8, the students should make analysis on the data obtained and prepare the final version of project report. They are also required to prepare a technical paper as a summary of their final year project works and findings. Finally, the students need to present their final year project findings in front of two panels/examiners. This is to train the students in expounding statements of facts and defending such statement in front of audiences. It is a good practice for the students to pursue their career as a chemical or environmental engineer in the future.

Supervisors are advised to ascertain the standard and quality of the projects carried out by their students. Supervisors will assess the progress of the project and the two panels/examiners will be appointed by the Final Year Project Coordinator to evaluate the report and presentation of the students. The activities, duration, credit hours and mode of assessment in executing FYP courses which include CEV 651 and CEV 652 are shown in Table 1.1.
Table 1.1: Activities of Final Year Project Students

<table>
<thead>
<tr>
<th>Activities</th>
<th>Duration</th>
<th>Credit Hours</th>
<th>Mode of Assessment</th>
<th>Examiner</th>
<th>Report Bindings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CEV 651</strong></td>
<td>6 months (Semester 7)</td>
<td>3.0</td>
<td>Proposal Report (10%) Proposal Presentation (20%) Plagiarism Assessment (10%) Student Attitude (10%)</td>
<td>Supervisor, Co-Supervisor, and panels (1 panel academic)</td>
<td>Tape Binding</td>
</tr>
<tr>
<td>- Writing Research Proposal - Introduction - Problem Statement - Objectives - Scope of Work - Literature Review - Methodology - Expected Findings - Gantt Chart - References Report</td>
<td>6 months (Semester 8)</td>
<td>3.0</td>
<td>Final Report (40%) Poster Presentation (10%) Technical Paper (10%) Plagiarism Assessment (10%) Lab Conduct (30%)</td>
<td>Supervisor, Co-Supervisor, and panels (2 panels academic)</td>
<td>Hardbound</td>
</tr>
<tr>
<td><strong>CEV 652</strong></td>
<td>6 months (Semester 8)</td>
<td>3.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Data Analysis - Interpretation of Results - Report Writing - Technical Paper - Poster Presentation - Submission of Report *Pre-Requisite - CEV 651</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1.2 PROJECT ORGANIZATION

The people who are involved in Final Year Project organization are:

1. Advisory Committee
2. Final Year Project Coordinator
3. Project Supervisors
4. Panel of Examiners
5. Laboratory Staffs
6. Administrative Staffs
7. Final Year Students

1.2.1 Advisory Committee

The advisory committee members are currently the Program Coordinator and Senior Lecturers. The responsibilities of this committee are including but not limited to:

- produce the FYP guidelines for students
- specify the nature of project, in case of any dispute arise
- set a benchmark to maintain high standard of FYP
- hear and attend appeal cases
- approve panel of examiners appointed for both CEV 651 and CEV 652 presentations
- approve supervisors appointed for both CEV 651 and CEV 652
- monitor the quality of evaluations and assessments by supervisors and panels
- analyze, validate and endorse marks given by panels and supervisors before submitting them to JAC (Jawatankuasa Akademik Cawangan) for approval

1.2.2 **Final Year Project Coordinator**

The implementation and coordination of FYP is led by a Final Year Project Coordinator. The responsibilities of final year project coordinator include:

- chair the FYP committee meeting
- briefing to the final year students on the implementation of FYP in the first week of every semester
- collect titles, topic and scope of project from supervisors a week prior the beginning of the semester
- approve and assigning supervisors
- registration and displaying FYP topic at week 2 of the semester
- submission and evaluation forms from students and supervisors
- updating database on completed FYP
- preparing a FYP presentation schedule with appointed panels
- managing and organizing the facilities for day of presentation
- organizing research methodologies workshop with relevant speakers, hands on, literature search and facilities touring to supervisors and students
- submitting names of students who are absent during FYP workshop to their respective main supervisors
- submitting names of examiners who are absent during student presentation to the Program Coordinator
- preparing LE15 of CEV651 and CEV652

1.2.3 **Project Main Supervisors**

Lecturers who are going to supervise FYP student must have at least graduated with a Masters Degree and he/she should become the main supervisor. Lecturers who are in study leave or in intention to go for industrial training are not allowed to supervise students. The project main supervisors are given the trust and duty to guide the students upon the completion of FYP. Each main supervisor shall be limited to *two (2) prospective candidates only per semester to maintain quality of students’ supervised and FYP project. The role and responsibilities of project supervisor includes:

- providing sufficient project topics and scope of research to the supervision students
- explaining the objectives and scope of project to the students and setting regular meetings with them
- reminding students on the issues of plagiarism and its consequences
- originality of the work and report should be emphasized at the beginning of semester
- guiding, supervising, encouraging, monitoring and motivating the student from the commencing until the completion of FYP
- checking and endorsing student’s logbook and ensuring that they follow the schedule closely as planned earlier
- evaluating research proposal report prepared by students from CEV651 based on rubric provided
- evaluating and correcting the final report submitted by student from CEV651 and CEV652 based on rubric provided
monitoring percentage of similarity of the final reports through Turnitin
compiling student evaluation forms (Rubric forms) from co-supervisor and panel examiners
submitting the softcopy of Template Final Marks for each student to FYP Coordinator in the fourteenth week
work closely with the laboratory staffs in purchasing the consumable items

*numbers of students’ supervision per lecturer may subject to change

1.2.4 Project Co-Supervisors

The main supervisors will appoint lecturers from Faculty of Chemical Engineering or others faculty as the co-supervisors for their students according to the area of specialization. Their duties are to:

- evaluate research proposal report prepared by students from CEV 651 based on rubric provided
- evaluate final report submitted by student from CEV 651 and CEV652 based on rubric provided
- evaluate proposal and final presentation by student from CEV 651 based on rubric provided
- submit all students’ marks (Rubric form) to the main supervisor.

1.2.5 Panels of Examiners

Qualified Panel of examiners are appointed by the Program Coordinator according to the area of specialization. For CEV651 there is only one (1) internal examiner among the faculty’s members will be appointed whereas two (2) internal examiners for CEV 652. Their duties are to:

- evaluate students’ final report and final/poster presentation (CEV651 and CEV652) based on criteria listed in evaluation form (panels) according to rubrics provided
- attend during project presentation, in case of an emergency, replacement should be named in a timely manner
- give and write constructive feedback during project presentation
- instruct students to make corrections after their presentation
- submit all students’ marks within stipulate time to the main supervisor

1.2.6 Final Year Students

All final year undergraduates are mandatory to take FYP as the requirements for the award of the Bachelor of Chemical Engineering (Environment) with Honors from Universiti Teknologi MARA Pulau Pinang. The detail of the activities and submission document can be referred in Figure 1.1. Their responsibilities are including but not limited to:

- consult and seeking opinion from a prospective supervisor as earlier as in semester 6
- deciding on a research topic preferably based on area of student’s interest
- proposing research topics to Final Year Project Coordinator (if any)
- submit registration form to Final Year Project coordinator
- plan the work properly and prepare work schedule for one year with the guidance of the supervisors
- follow strictly to the work schedule so that the project can be completed within the stipulated time frame
- meet up with their supervisor regularly at least once a week so that the progress of their work can be monitored closely
1.2.7 Administrative Staffs

The administrative/supporting staffs of the HEA (Hal Ehwal Akademik), UiTM is headed by an Assistant Registrar and assisted by the Executive Officers. Their duties are to:

- collect the proposal report and final report (CEV651 and CEV652) from the students
- perform some clerical works related to FYP

1.2.8 Laboratory Staffs

Laboratory staffs duties are to:

- assist and advise the students in conducting experimental work in the laboratory
- assist and advise the students in operating the machines, testing equipment, calibrating instruments and any other related facilities as well as in handling and purchasing consumable/usable materials for the FYP students

1.3 CREDIT HOURS

<table>
<thead>
<tr>
<th>Semester 07</th>
<th>CODE</th>
<th>: CEV 651</th>
</tr>
</thead>
<tbody>
<tr>
<td>COURSE</td>
<td>: FINAL YEAR PROJECT I</td>
<td></td>
</tr>
<tr>
<td>CREDIT HOURS</td>
<td>: 3.0</td>
<td></td>
</tr>
<tr>
<td>GRADE</td>
<td>: A, B, C, D, E OR F</td>
<td></td>
</tr>
<tr>
<td>PASSING MARK</td>
<td>: C (50%)</td>
<td></td>
</tr>
</tbody>
</table>

For CEV651, 53% of the total marks will be awarded by the respective main supervisor based on student’s proposal report, final report, proposal presentation, plagiarism assessment and student attitude. Another 22% marks will be assessed from proposal report, final report and proposal presentation by co-supervisor and another 25% marks will be evaluated from final report by internal examiner.

<table>
<thead>
<tr>
<th>Semester 08</th>
<th>CODE</th>
<th>: CEV 652</th>
</tr>
</thead>
<tbody>
<tr>
<td>COURSE</td>
<td>: FINAL YEAR PROJECT II</td>
<td></td>
</tr>
<tr>
<td>CREDIT HOURS</td>
<td>: 3.0</td>
<td></td>
</tr>
<tr>
<td>GRADE</td>
<td>: A, B, C, D, E OR F</td>
<td></td>
</tr>
<tr>
<td>PASSING MARK</td>
<td>: C (50%)</td>
<td></td>
</tr>
</tbody>
</table>

For CEV652, 56.75% of the total marks will be awarded by the respective main supervisor based on student’s final report, manuscript (technical paper), plagiarism assessment and lab conduct. Another 13.25% marks will be assessed from final report and technical paper by co-supervisor, 25% marks will be assessed from final report and poster presentation by internal examiner 1 and another 5% marks will be assessed from poster presentation by internal examiner 2.
1.4 PROJECT EVALUATION

The appraisal of final year project CEV 651 and CEV 652 will be based on proposal report, final report, proposal presentation, poster presentation, plagiarism assessment, technical paper, student attitude and lab conduct. Each candidate must submit their final report in the thirteenth week and presentation will be performed in the fourteenth week. If the students do not present, they will be awarded with grade TL (Tidak Lengkap) and they are required to complete it next semester even though they have already submitted the report.

The breakdown marks for the evaluation of CEV 651 by main supervisor, co-supervisor and internal examiner are illustrated in Table 1.2 while Table 1.3 illustrates the distribution of marks for the main supervisor, co-supervisor and two internal examiners for CEV 652.

1.5 TITLE PROPOSAL FOR FYP

- The main supervisor must provide FYP title that related to Chemical Engineering (Environment) studies/works.
- The scope and limitation of the project should be suitable for Undergraduate Level in fulfilling the partial requirement of FYP. It should consider time, budget, issues and restriction the students could face during the implementation of project.
- Students must register the topics they have chosen by filling the registration form (FYP - 01) and submitted to Final Year Project coordinator by the end of second week in Semester 7 for documentation purpose.

Table 1.2: Project evaluation for CEV651

<table>
<thead>
<tr>
<th></th>
<th>Main Supervisor</th>
<th>Co-Supervisor</th>
<th>Examiner 1</th>
<th>Examiner 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. PROPOSAL REPORT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proposal (CO4, PO11)</td>
<td>7%</td>
<td>3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>7%</td>
<td>3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B. FINAL REPORT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction (CO4, PO11)</td>
<td>4%</td>
<td>3.5%</td>
<td>7.5%</td>
<td></td>
</tr>
<tr>
<td>Literature Review (CO4, PO11)</td>
<td>4%</td>
<td>3.5%</td>
<td>7.5%</td>
<td></td>
</tr>
<tr>
<td>Research Methodology (CO4, PO11)</td>
<td>4%</td>
<td>3.5%</td>
<td>7.5%</td>
<td></td>
</tr>
<tr>
<td>General (CO4, PO11)</td>
<td>2%</td>
<td>0.5%</td>
<td>2.5%</td>
<td></td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>14%</td>
<td>11%</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td><strong>C. PROPOSAL PRESENTATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proposal Presentation (CO2, PO9)</td>
<td>12%</td>
<td>8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>12%</td>
<td>8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>D. PLAGIARISM ASSESSMENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of similarity (CO1, PO8)</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>E. STUDENT ATTITUDE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Attitude (CO2, PO10)</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>53%</td>
<td>22%</td>
<td>25%</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL MARKS FOR CEV 651**

Main Supervisor (53%) + Co-Supervisor (22%) + Examiner 1 (25%) = 100%
### Table 1.3: Project evaluation for CEV652

<table>
<thead>
<tr>
<th></th>
<th>Main Supervisor</th>
<th>Co-Supervisor</th>
<th>Examiner 1</th>
<th>Examiner 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. FINAL REPORT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction (CO4, PO11)</td>
<td>2%</td>
<td>1.5%</td>
<td>3.5%</td>
<td></td>
</tr>
<tr>
<td>Literature Review (CO4, PO11)</td>
<td>2%</td>
<td>1.5%</td>
<td>3.5%</td>
<td></td>
</tr>
<tr>
<td>Research Methodology (CO4, PO11)</td>
<td>2%</td>
<td>1.5%</td>
<td>3.5%</td>
<td></td>
</tr>
<tr>
<td>Result and Discussion (CO4, PO11)</td>
<td>2%</td>
<td>1%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Conclusion and Recommendation (CO4, PO11)</td>
<td>2%</td>
<td>1%</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>12%</td>
<td>8%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td><strong>B. MANUSCRIPT (TECHNICAL PAPER)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content (CO4, PO11)</td>
<td>3.75%</td>
<td>1.25%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General (CO4, PO11)</td>
<td>3.75%</td>
<td>1.25%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>5%</td>
<td>5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C. PRESENTATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poster Presentation (CO3, PO9)</td>
<td></td>
<td>5%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td></td>
<td></td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td><strong>D. PLAGIARISM ASSESSMENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of similarity (CO2, PO8)</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td></td>
<td></td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td><strong>E. STUDENT ATTITUDE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lab Conduct (CO1, PO4)</td>
<td>30%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td></td>
<td></td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td>57%</td>
<td>13%</td>
</tr>
<tr>
<td><strong>TOTAL MARKS FOR CEV 651</strong></td>
<td>Main Supervisor (57%) + Co-Supervisor (13%) + Examiner 1 (25%) + Examiner 2 (5%) = 100%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- Any changes/amendments of topics must be informed to the Final Year Project coordinator one month before project presentation of semester 8.
- If students cannot complete the project on time, supervisors are required to inform the coordinator in the eleventh week of semester 8.

### 1.6 IMPLEMENTATION AND MONITORING PROCEDURES

An effective time management and a well-planned schedule are the key factors for the completion and success of the project. All the activities and time duration involved in the project should be scheduled using a Gantt chart. All students are required to prepare this type of chart for one year duration in their research proposal and must be endorsed by their supervisors.

In monitoring process, each student is required to keep proper logbook documentation so that he/she can record any work done on a weekly basis. The logbook must follow the format as given in the meeting document form made available in the Appendix (FYP-02). Supervisor is required to comment on the student’s work progress in the logbook. A Weekly meeting between student and supervisor is very important for monitoring purposes. Students in CEV 651 must submit their proposal report in the nine week of semester to their supervisor for reviewing purposes. This will give the supervisor an ample time for justification of scope either it is sufficient, too broad or narrow.

The proposal report for the course, CEV 651 should contain introduction, problem statement, research objectives, scope of work, literature review, research methodology, expected findings, gantt chart and references. The final report CEV 651 should contain introduction (Chapter 1), literature review (Chapter
2), research methodology (Chapter 3) which is the extended from the proposal report. On the other hand, the final report CEV 652 should contain introduction (Chapter 1), literature review (Chapter 2), research methodology (Chapter 3), result and discussion (Chapter 4) and conclusion and recommendation (Chapter 5). Chapter 1-3 in the final report CEV652 should be improvised from time to time based on the findings obtained from data analysis, result and discussion. These final reports (CEV 651 and CEV 652) must be submitted one or two week before presentation for the panels to evaluate the report.

Students in CEV651 and CEV 652 must also submit the Monitoring Record Form (FYP-03) and Correction Approval Form (FYP-04) together with the final reports on the fourteen week of corresponding semester to Final Year Project Coordinator. The forms will act as evident, in case any dispute should arise between the respective supervisor and student.

Figure 1.1 and Figure 1.2 show the procedure in implementing FYP I CEV 651 ad FYP II CEV 652, respectively with specific forms to be filled in by the students. The students are advised to follow closely the process flow given so that they can accomplish FYP on time without delaying it and by doing so, they will certainly excel.
Figure 1.1 Process flow for CEV 651
Figure 1.2 Process flow for CEV 652
1.7 RESEARCH ETHICS

Research ethics is one of the important elements to be strictly adhered to by the FYP students. All final year students should be familiar with the basic ethical principles and have up-to-date knowledge about policies and procedures designed to ensure the originality of research subjects and to prevent sloppy or irresponsible research. Therefore, final year students must fully understand the policies and theories designed to guarantee outstanding research practices. Research is a public trust that must be ethically conducted, trustworthy, original and socially responsible if the results are to be valuable. All parts of a research project from the project designed for submission to the results for panels/examiners have to be outstanding in order to be considered ethically. When even one part of a research project is questionable or conducted unethically, the integrity of the entire project is called into question.

For the plagiarism assessments, students must submit the progress of final report Chapter 1-3 (CEV651) and Chapter 4-5 (CEV652) to Turnitin account given by the main supervisor to analyse the percentage of similarity of the reports. The objective of this assessment is to monitor the originality of the FYP reports where at the end of the assessment the percentage of similarity should be less than 30% (refer Appendix 4 and Appendix 9).

1.8 FORMS

Final year project (FYP) coordinator will keep the list of research title given by the main supervisors in a database. Students shall choose a research title that posted by the FYP coordinator at the notice board faculty in week 1 of the semester 7. They can choose the research title as first come first served basis and have to submit the form FYP -01 (FYP Title Form) to the FYP coordinator.

For CEV 651
1. Students need to bring and fill up the weekly meeting form FYP – 02 and monitoring record for FYP I form FYP – 03 every time the students meet their supervisor for the submission of draft reports (Week 2-12).
2. Before the end of semester (week 14), the main supervisor will give the students correction approval form for FYP I form *FYP – 04 as a guidance to make relevant corrections and amendments for the final reports Chapter 1-3.

For CEV 652
1. Students need to bring and fill up the weekly meeting form FYP – 02 and monitoring record for FYP II form FYP – 05 every time the students meet their supervisor for the submission of draft reports (Week 2-12).
2. Students need to fill up the Aku Janji Penggunaan Makmal Kejuruteraan Kimia Form (FYP – 07), HIRARC Form (Chemical) (FYP – 08), HIRARC Form (Equipment) (FYP – 09) and FKK Safety Acknowledgement Form (FYP – 10) before doing experimental works in the laboratory.
3. Before the end of semester (week 14), the main supervisor will give the students correction approval form for FYP II form *FYP – 06 as a guidance to make relevant corrections and amendments for the final reports Chapter 1-5.
4. After the corrections, students have to submit the final report (3 hard bound copies and 2 soft copies (CD)) together with submission form FYP-07.

*Note
- Form FYP – 04 and FYP – 06 will be filled up by the main supervisor. Students should receive the form before the end of semester (week 14).
- HIRARC forms FYP – 08 and FYP – 09 should be approved by main supervisor and FKK lab manager/OSHA representative and then submit to the respective lab assistant.
- FKK Safety Acknowledgement Form FYP – 10 should be signed by the students after attended the FKK Laboratory Safety Orientation and have gone through the FKK Safety Handbook, Chemical and Physical Hazards and Personal Protective Equipment (PPE) as well as have taken the exam in the i-learn and passed with minimum 80%.
1.9 IMPLEMENTATION OF OUTCOME BASED EDUCATION (OBE)

In implementing Outcome Based Education (OBE), the development of Program Educational Objectives (PEO) and Program Outcome (PO) are deemed important in addition to a solid foundation of engineering program as required by Engineering Accreditation Council (EAC). Therefore, the faculty has underlined Program Educational Objectives (PEO) for all students to achieve within 3 to 5 years upon graduation and Program Outcome (PO) upon students graduation to ensure all generic skills in becoming professional engineer are acquired by students. The relevance of final year project has been recognized in any engineering program due to its close relationship with the professional activities of engineers. For this reason, university courses on engineering have traditionally ended with the students carrying out a project, usually named “Final Year Project (FYP)”. As one of the requirements imposed by the Engineering Accreditation Council (EAC), the faculty is offering this course which is embedded with all generic skills required by students in preparing them to become a professional engineer.

Consistent with the Vision and Mission of the university, our programme aims and hope to produces with the following PEO;

PEO 1 : Demonstrate professional competencies in chemical and environmental engineering fields / organization.
PEO 2 : Engage in effective communication, team work and leadership across organization or surrounding community.
PEO 3 : Engage in lifelong learning through professional career development and/or advanced studies.

Upon the students’ graduation, the students should acquire the following Program Outcome (PO);

PO1: Ability to apply knowledge of mathematics, science, engineering fundamentals to solve complex engineering problems in chemical and environmental engineering.
PO2: Ability to identify, formulate, analyze and solve complex chemical and environmental engineering problems using the principles of mathematics, applied science and engineering.
PO3: Ability to design component, system and process for complex chemical and environmental engineering problems with an appropriate consideration on health, safety, society and environment.
PO4: Ability to conduct complex chemical and environmental investigation using research-based knowledge and method including design of experiment, analysis and interpretation of data to provide valid conclusion.
PO5: Ability to utilize modern science, engineering or IT tools and systems to solve complex chemical and environmental engineering problems.
PO6: Ability to assess safety, health, legal and cultural issues in engineering scenarios that affect society.
PO7: Ability to demonstrate professional engineering solution in societal and environmental contexts for sustainable development.
PO8: Ability to recognize the ethical principles and apply the professional conducts in engineering practice.
PO9: Ability to communicate effectively not only with engineers but also with the community at large.
PO10: Ability to function effectively as an individual as well as in a group with the capacity to be a resourceful person, leader and an effective team member.
PO11: Ability to engage in independent and life-long learning.
PO12: Ability to manage projects related to chemical and environmental engineering, and/or entrepreneurial business that involve multidisciplinary roles.

The Course Outcomes for Final Year Project I CEV 651 are as follows:
CO1: Propose a final report in compliance to the professional ethical standard using suitable software (A3).
CO2: Explain the findings of research works in oral presentations (A4).
CO3: Demonstrate effective engagement in the research works and activities (A3).
CO4: Explain the research proposal and activities in the form of reports with proper organization (C6).

The Course Outcomes for Final Year Project II CEV 652 are as follows:
CO1: Adapt experiments/simulation using suitable research tools based on standard laboratory/simulation practices (P6).
CO2: Propose a final report in compliance to the professional ethical standard using suitable software (A5).
CO3: Interpret the findings of research works in oral presentation (A5).
CO4: Prepare a final report and manuscript based on the research findings with proper organization (C6).

The Program Outcome which addresses the course outcomes of CEV 651 are PO8, PO9, PO10 and PO11 whereas for CEV 652 are PO4, PO8, PO9 and PO11. The CO-PO matrix is developed based on the Course Outcomes and Program Outcomes for these courses. From CO-PO matrix, performance criteria are assessed according to the students’ abilities to achieve the standard which is categorized using the domain as specified in Bloom’s Taxonomy. The direct instrument such as report writing, research proposal, manuscript (technical paper), plagiarism assessment and presentations are used to evaluate the students’ performance. All rubric and assessment criteria prepared as a guideline in assessing students grade in this course are all referred to Bloom’s Taxonomy Domain with specific Course Outcome (CO) and Program Outcome (PO) chosen for this course.

Students are required to meet supervisor every week and weekly meeting forms must be commented by supervisor to indicate that they have already fulfilled the attendance sheets and progress work. Students are also advised to record the works in log book and schedule the activities properly using a Gantt Chart. The comparison can be made between the actual work done and the planned activities so that students will know whether they are ahead of the schedule or behind the schedule.

The overall assessment of FYP can be conducted based on research proposal, final report, manuscript (technical paper), plagiarism assessments and presentations. At the end of CEV 652 course, students are required to present their work in front of two different sets of panel examiners. Prior to final submission, students are required to submit their report to the supervisors to check for contents, flow of sentences, organization and presentation of final thesis. Panels will assess the students’ report and presentation based on the contents, communication skills, presentation skills, discussion (Question and Answer), objectives, scope of work, problem statement, literature review, methodology, data collection, analysis and interpretation of results, discussion, conclusion and recommendations.
CHAPTER TWO
REPORT WRITING GUIDELINES

2.1 GENERAL TECHNICAL SPECIFICATIONS

2.1.1 Length of Thesis

As a general guideline, the length of a:

- Proposal report should be in between 10 to 20 pages only (excluding References)
- Final Year Project I report (Chapter 1-3) which is the word count should not exceed 6000 words. *(excluding appendices, references, tables, figures, acknowledgment)
- Final Year Project II report (Chapter 1-5) which is the word count should not exceed 18000 words. *(excluding appendices, references, tables, figures, acknowledgment)

2.1.2 Typing and Printing

Microsoft Word software program should be used for typing.

For writing style, candidates can use the IEEE citation style. The proposal, FYP I and FYP II reports should only use one citation style that is generally accepted and suits its norm in the field of study and should be used consistently throughout the dissertation. Candidates are advised to refer to the latest conventions of writing from websites.

The reports should be printed on blank A4 quality paper preferably using a laser printer.

2.1.3 Typeface, Typing Quality and Font Size

The entire text of the report including headings and page numbers must be within the same font or typeface. “Times New Roman” font should consistently be used throughout the report.

2.1.3.1 Font size
- Text: Times New Roman 12. Text should not be scripted or italicized except for:
  - Scientific names, terms in a different language, and quotation.

2.1.3.2 Footnotes
- Footnotes for tables/figures should not be less than 9 points. Script or lettering produced by dot matrix printer or typewriters, or by hand is not acceptable.

Bold prints of 12 point may be used for headings and subheadings within the chapter. Crossing-out of letters or words is not permitted. Any form of patching is not allowed. The report must be clean and not stained by any pen markings.
2.1.4 Margins

The margins for the general text are as follows:

- **Top edge**: 2.5cm
- **Right side**: 2.5cm
- **Left side**: 4.0cm
- **Bottom edge**: 2.5cm

All information namely the text heading, footnotes, illustration and figures should be within these margins.

**Note:** It is imperative that the page set-up is formatted accordingly prior to the drafting of the report.

2.1.5 Paragraph

Every paragraph should be indented (one tab or 0.5 inch).

A new paragraph at the bottom of a page must have at least two full lines of text. If not, it should begin on the next page.

All paragraphs should be “justified”.

2.1.6 Spacing

Use double spacing between lines and paragraphs with exceptions of the following which have triple spacing:

- Between Headings and Text.
- Text and Headings
- Text and Equations
- Text and Tables
- Text and Figures

2.1.7 Pagination

All pages in the preliminary section such as Acknowledgements, Table of Contents etc. should be numbered in consecutive lower case Roman numerals (i, ii, iii, iv, etc.), except for the Title page which is suppressed.

All pages of the main text including the references or bibliography, appendices, tables and figures should be numbered consecutively in Arabic numerals (1, 2, 3, etc.).

Page numbers must not be punctuated, bracketed, hyphenated nor accompanied by any decorative symbols and should be bottom centered. The position of the page number must be consistent throughout the dissertation.
2.1.8 Headings and Subheadings

All headings (except Level 1 heading) and subheadings should be numbered and bold. The following table illustrates the format of the heading and subheadings.

<table>
<thead>
<tr>
<th>Table 2.1: Format of headings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Headings</strong></td>
</tr>
<tr>
<td>Numbered, Bold, Aligned Left, Uppercase Heading</td>
</tr>
<tr>
<td>e.g. 5.0 LITERATURE REVIEW</td>
</tr>
<tr>
<td>Numbered, Bold, Aligned Left, Capitalise Each Word Heading</td>
</tr>
<tr>
<td>e.g. 5.1 Textile Industry</td>
</tr>
<tr>
<td>Indented, Bold, Aligned Left, Capitalise Each Word Heading</td>
</tr>
<tr>
<td>e.g. 5.1.1 Textile Industry in Malaysia</td>
</tr>
<tr>
<td>Indented, Bold, Aligned Left, Sentence Case Heading</td>
</tr>
<tr>
<td>e.g. 5.1.1.1 Types of Dyes</td>
</tr>
</tbody>
</table>

2.1.9 Tables and Figures

Tables must be centered within the prescribed margins. Each table must bear a reference number (in Arabic numerals) and a caption. They should be numbered consecutively and grouped according to chapter. For example, tables in section 1.0 Introduction should be numbered as Table 1.1, Table 1.2, and so on. The first number indicates tables in that chapter. The caption should appear above the table.

<table>
<thead>
<tr>
<th>Table 2.2: Experimental Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specimen Label</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>SC(G1-1)</td>
</tr>
<tr>
<td>SC(G1-2)</td>
</tr>
<tr>
<td>ST75(G1-1)</td>
</tr>
<tr>
<td>ST75(G1-2)</td>
</tr>
<tr>
<td>ST100(G1-1)</td>
</tr>
<tr>
<td>ST100(G1-2)</td>
</tr>
<tr>
<td>ST150(G1-1)</td>
</tr>
<tr>
<td>ST150(G1-2)</td>
</tr>
</tbody>
</table>
Figures may be in the form of illustrations, graphs, maps, charts and diagrams. They should be numbered in sequence in the same manner as for the tables. Title for Figure is placed below that figure. If the table and/or figure are reproduced from other works, the reference must be cited accordingly.

2.1.10 Equations and Formulas

Every equation should be numbered according to the section where it appears. For example, the first equation in section 1.0 Introduction should be numbered as:

\[ \sigma = E \varepsilon \]  \hspace{1cm} (1.1)

2.1.11 Paper and Duplication

A quality plain white paper (80 gm) of A4 size should be used for all copies of the proposal report. Print text or illustrations only on one side of each sheet. Only the original copy is acceptable.

2.1.12 Binding and Submission

2.1.12.1 Proposal Report

Two (2) copies of tape bound of the proposal report should be submitted to the administrative staff of the HEA, Pn. Nurhasyikin Azmi in the **eight week** of semester 7.
2.1.12.2 Final Year Project I (Chapter 1-3)

After the proposal presentation, three (3) copies of tape bound of the final report (Chapter 1-3) should be submitted to the administrative staffs of the HEA, Pn. Nurhasyikin Azmi in fourteen week of semester 7. The reports should be signed by the Main Supervisor and Co-Supervisor before submission.

2.1.12.3 Final Year Project II (Chapter 1-5)

Prior to submission, three (3) copies of tape bound of the final report (Chapter 1-5) should be submitted to the administrative staffs of the HEA, Pn. Nurhasyikin Azmi in twelve week of semester 8. After poster presentation, three (3) copies of corrected report should be submitted in the form of hard bind copy and also in the form of two (2) soft copies (CD) in fourteen week of semester 8. The folder in the CD is organized into 3, namely the preliminary (contains title page, content, acknowledgement etc), Main body, such as Chapter 1, Chapter 2 etc, and lastly References and Appendices.
2.2 LAYOUT AND ARRANGEMENT OF CONTENTS

Basically, a proposal report consists of nine main sections:

- 1.0 Introduction
- 2.0 Problem Statement
- 3.0 Research Objectives
- 4.0 Scope of Work
- 5.0 Literature Review
- 6.0 Research Methodology
- 7.0 Expected Findings
- 8.0 Gantt Chart
- 9.0 References

Thesis (final report FYP I and FYP II) consists of three parts:

- the preliminary section
- the text or main body, usually divided into chapters and sections
- the reference materials, usually consisting of references or bibliography and appendices

The contents of each part should be arranged in a logical order using heading and sub-headings, all correctly numbered (see 2.1.8).

The following section is an example of how various sections in a thesis are arranged. It is recommended that this sequencing be used as a guide; not every thesis includes all the items suggested.

2.2.1 Preliminary Section

The suggested layout for preliminary section has been illustrated in Table 2.3.

Table 2.3 Suggestion of Content Arrangement

<table>
<thead>
<tr>
<th>Item</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 Preliminary Section</td>
<td></td>
</tr>
<tr>
<td>Blank leaf</td>
<td></td>
</tr>
<tr>
<td>Title page</td>
<td>Not paginated but counted as 'i'</td>
</tr>
<tr>
<td>Author’s Declaration</td>
<td>Paginated as ii</td>
</tr>
<tr>
<td>Abstract</td>
<td>Paginated as iii (continuing lower case Roman numeral on preceding page pagination); listed in Table of Contents</td>
</tr>
<tr>
<td>Acknowledgement</td>
<td>Paginated; listed in Table of Contents</td>
</tr>
<tr>
<td>Table of Contents</td>
<td></td>
</tr>
<tr>
<td>List of Tables</td>
<td>Paginated (continuing lower case Roman numeral on preceding page pagination); listed in Table of Contents</td>
</tr>
<tr>
<td>List of Figures</td>
<td></td>
</tr>
<tr>
<td>List of Plates</td>
<td></td>
</tr>
<tr>
<td>List of Abbreviations/Symbols</td>
<td>Paginated (continuing lower case Roman numeral on preceding page pagination); listed in Table of Contents</td>
</tr>
<tr>
<td>2.0 Text</td>
<td></td>
</tr>
<tr>
<td>Main body (Chapters)</td>
<td>Paginated beginning with page 1 (Arabic numerals)</td>
</tr>
</tbody>
</table>
2.2.1.1 Proposal Cover

Figure 2.2 shows the sample of proposal report cover.

Titles of main sections, headings, subheadings must be listed in Table of Contents and must be worded exactly as they appear in the body of the proposal report.

2.2.1.2 Thesis Cover

Figure 2.3 shows the sample of thesis cover. Thesis cover should contain the following information:

a) Binding : Hard Bound buckrum

b) Colour : Black

c) Cover : All words should using 18 point GOLD BLOCK FONT and bold with this particulars:  
- Title of Thesis - must be capitalized  
- Name of Candidate - must be capitalized  
- Degree for which the thesis is submitted - must be capitalized  
- Name of university - must be capitalized  
- Year of Submission - must be capitalized

d) Spine : All words should using 16 point GOLD BLOCK FONT and bold with this particulars:  
- Degree for which the thesis is submitted - must be capitalized  
- Name of Candidate - must be capitalized  
- Month and Year of submission (e.g: JAN 2017) - must be capitalized

2.2.1.3 Title Page

Figure 2.4 shows the sample of thesis title page. The title page of thesis should contain the following information:

a) Title of Thesis : should reflect the content of the thesis and omitting words such as ‘An Investigation…”, “An analysis…”, “A study of…”.
- Should be centered, capitalized, bold and single-spaced

b) Name of Candidate : must be capitalized and bold
c) The Degree for which the thesis is submitted must be capitalized and bold.

d) The name of university spelt out in full, bold, capitalized and centered:
   UNIVERSITI TEKNOLOGI MARA

e) The month and year in which thesis is submitted. 
   - e.g: Jan 2017
   - must be capitalized and bold
   - stated below the university name

2.2.1.4 Declaration

The candidate should include a signed author’s declaration stating the material presented for examination is her/his own work or how far the work contained in the dissertation was the candidate’s own work, and stating that the dissertation is not being submitted for any other academic award. Figure 2.5 shows the sample of declaration sheet by candidate.

2.2.1.5 Certification

A report to be submitted for the purpose of examination must obtain prior declaration by the supervisor and final year project coordinator on the standard and quality of the project report. Figure 2.6 and Figure 2.7 show the sample of certification sheet by the supervisors (Main and Co) and final year project coordinator, respectively.

2.2.1.6 Acknowledgement

A brief statement of appreciation in recognition of any special assistance rendered to the candidate during the period of research should be included. It should be typed in single spacing and should not exceed one page in length. Figure 2.8 show the sample of acknowledgement.

2.2.1.7 Table of Contents

The Table of Contents page must start on a new page. It should list all sections, chapters and subheadings. The titles must be written using the same words as those written in the text. Examples can be seen in Figure 2.9.

2.2.1.8 List of Tables

This page should list all the tables according to the title that is written in the text of the report. The page number of the table must also be included. The table numbers should be arranged according to the chapters. See example in Figure 2.10.

2.2.1.9 List of Figures

Drawings, sketch, graphs and charts are included as figures. The list should be written similar as the List of Tables. See example in Figure 2.11.
2.2.1.10 List of Plates

A plate is normally a photograph or a direct copy of an original drawing made by a machine. The list should be written similar as the List of Tables. See example in Figure 2.12.

2.2.1.11 List of Symbols

All symbols found in the text should be listed on this page. See example in Figure 2.13. They are listed in the following order:
- Roman letters - alphabetical order
- Greek letters - alphabetical order
- Superscripts - alphabetical order
- Subscripts - alphabetical order

2.2.1.12 List of Abbreviations

All abbreviations found in the text should be listed on this page. See example in Figure 2.14. They are listed in the following order:
- Roman letters - alphabetical order
- Greek letters - alphabetical order
- Superscripts - alphabetical order
- Subscripts - alphabetical order

2.2.1.13 Abstract

It should states the field of study, problem definition, methodology adopted, results obtained and conclusion of the research. The abstract can be written using single spacing. The abstract should be brief, written in one paragraph and not exceed 300 words. An example can be seen in Figure 2.15.

2.2.2 Text or Main Body of Thesis

The text is made up of a number of chapters. The major chapters of the dissertation should include but not limited to the following:

a) Chapter 1: Introduction
   This section contains the details of the background, the problem statement, significance and objectives of the study. It should also give the outline of research as correct and extremely concise as possible.

b) Chapter 2: Literature Review
   This section includes a fully-referenced review and discussion of previous studies which are relevant to the research. It should include the subject area background information, theoretical background and should be a critical review of others.
c) Chapter 3: Research Methodology
This section contains the detailed description of the research methods and instruments/materials used. The research methods should include experimental design, the number of subjects, apparatus, proposed analysis and etc.

d) Chapter 4: Results and Discussion
This chapter provides the result and analysis of data. The result obtained can be presented as a series of figures, tables, etc., with descriptive texts and discussions. The discussion of the results related to the hypotheses or the research questions. It highlights the main findings, their significance and implications. The strengths and weaknesses of the results should be discussed.

e) Chapter 5: Conclusion and Recommendation
This chapter contains summary of the main findings. It also highlights the contributions of the findings to new knowledge/applications. It should also discuss the limitations faced in carrying out the research and the recommendations for the future research based on current finding.

Candidates may make changes to the above structure of the thesis according to the nature of their research. See sample of main chapter and sub-chapter format in Figure 2.16 and Figure 2.17, respectively.

Tables in the Text - All tables must be numbered using Arabic numeric. A caption should be positioned at the top of the table. If the caption is written in a single line, it should be centered. If the caption is written more than one line, it should be align to the left. Tables must be numbered with respect to the chapter. For example, Table 4.3 is the third table that appears in chapter 4. A table should be positioned after it is being cited for the first time in the text. All tables in the chapter can also be grouped together and positioned at an appropriate location. All tables must be listed in the List of Tables page.

Figures in the Text - Illustrations such as charts, graphs, drawings and diagrams are referred as figures. All figures must be clear and of high quality. Figures must be numbered using Arabic numeric. A caption should be located at the bottom of the figure. If the caption is written in a single line, it should be centered. If the caption is written in more than one line, it should be align to the left. Figures are numbered with respect to the chapter. For example, Figure 4.3 is the third figure that appears in chapter 4.

Illustrations in the form of CD’s, slides, and others should be placed in specially made pockets glued to the inner side of the back cover. Oversized illustrations in the form of plans, maps, charts, graphs, and others should be reduced to fit a single page unless the oversized materials are absolutely necessary for clarity and understanding. For illustrations other than above, please refer to the following guidelines;

(a) Photographs
Photographs should be digitally embedded in the text unless absolutely impossible.

(b) Newspaper Cuttings or Similar Materials
Copies of newspaper cuttings or similar materials should be of high quality.

(c) Maps and Aerial Photographs
Maps and aerial photographs to be included in the thesis should have a written approval by Ketua Pengarah Pemetaan Negara. It is advisable to scan all illustration materials using a scanner and printing them using a high quality colour printer.
Figure 2.2: Cover of the Proposal Report
SYNTHESIS AND CHARACTERIZATION OF NANOPARTICLES
(capital and centered, 18-point font, bold, Times New Roman)

AHMAD ABDULLAH
(capital centered, 18-point font, bold, Times New Roman)

BACHELOR OF CHEMICAL ENGINEERING (ENVIRONMENT) WITH HONOURS
UNIVERSITI TEKNOLOGI MARA
2017
(capital centered, 18-point font, bold, Times New Roman)

Figure 2.3: Sample of Spine and Cover of the Report
SYNTHESIS AND CHARACTERIZATION OF NANOPARTICLES
(capital and centered, 14-point font, bold, Times New Roman)

By

AHMAD ABDULLAH
(capital centered, 12-point font, bold, Times New Roman)

This report is submitted in partial fulfillment of the requirements needed for the award of Bachelor of Chemical Engineering (Environment) with Honours
(capital centered, 12-point font, bold, Times New Roman)

FACULTY OF CHEMICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA

JAN 2017
(capital centered, 12-point font, bold, Times New Roman)

Figure 2.4: Sample of Title Page
AUTHOR’S DECLARATION
(capital and centered, 14-point font, bold, Times New Roman)
3 x 1.5 spacing

I declare that the work in the thesis was carried out in accordance with the regulation of Universiti Teknologi MARA. It is original and is the results of my own, unless otherwise indicated or acknowledge as reference work.

I, hereby acknowledge that I have been supplied with the Academic Rules and Regulations, Universiti Teknologi MARA, regulating the conduct of my study and research.

(spacing 1.5, font 12, Times New Roman)

Signed : .................................
Date : .................................

Ahmad Abdullah
Student ID : 2014123976

(Bold)

Figure 2.5: Sample of Author’s Declaration
SUPERVISOR’S CERTIFICATION
(capital and centered, 14-point font, bold, Times New Roman)

We declared that we read this thesis and in our point of view this thesis is qualified in terms of scope and quality for the purpose of awarding the Bachelor of Chemical Engineering (Environment) with Honours.

Main Supervisor
Dr. Nor Aida Zubir
Faculty of Chemical Engineering
Universiti Teknologi MARA
Cawangan Pulau Pinang
13500 Permatang Pauh
Pulau Pinang

Co-Supervisor
Nur Fadzeelah Abu Kassim
Faculty of Chemical Engineering
Universiti Teknologi MARA
Cawangan Pulau Pinang
13500 Permatang Pauh
Pulau Pinang

Figure 2.6: Sample of Supervisor’s Certification
Figure 2.7: Sample of Coordinator’s Certification
ACKNOWLEDGEMENT

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.

Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum. Et harum und lookum like Greek to me, dereud facilis est er expedit distinct. Nam liber te conscient to factor tum poen legum odioque civiuda. Et tam neque pecun modut est neque nonor et imper ned libidig met, consectetur adipiscing elit, sed ut labore et dolore magna aliquam makes one wonder who would ever read this stuff? Bis nostrud exercitation ullam mmodo consequat. Duis aute in voluptate velit esse cillum dolore eu fugiat nulla pariatur. At vver eos et accusam dignissum qui blandit est praesent luptatum delenit aigue excepteur sint occae.

Et harumd dereud facilis est er expedit distinct. Nam libre soluta nobis eligent optio est congue nihil impedit doming id Lorem ipsum dolor sit amet, consectetur adipiscing elit, set eiusmod tempor incidunt et labore et dolore magna aliquam. Ut enim ad minim veniam, quis nostrud exerc. Irure dolor in reprehend incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

(Single spacing, font 12, Times New Roman)

Figure 2.8: Sample of Acknowledgement
TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTHOR’S DECLARATION</td>
<td>i</td>
</tr>
<tr>
<td>SUPERVISOR’S CERTIFICATION</td>
<td>ii</td>
</tr>
<tr>
<td>COORDINATOR’S CERTIFICATION</td>
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**LIST OF SYMBOLS**

(Font 14, Times New Roman, Bold, Upper case)

2 x 1.5 spacing

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\rho$</td>
<td>Density</td>
<td>kg/m$^3$</td>
</tr>
<tr>
<td>D</td>
<td>Diameter</td>
<td>m</td>
</tr>
</tbody>
</table>

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Figure 2.13: Sample of List of Symbols
### LIST OF ABBREVIATION

(Font 14, Times New Roman, Bold, Upper case)

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS</td>
<td>Absorbance</td>
</tr>
<tr>
<td>MB</td>
<td>Methylene Blue</td>
</tr>
<tr>
<td>CFC</td>
<td>Chlorofluorocarbon</td>
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Figure 2.14: Sample of List of Abbreviations
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CHAPTER 1

INTRODUCTION

1.1 LOREM IPSUM DOLOR SIT AMET

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2.2.3 Reference Materials

2.2.3.1 Reference List Format

It is recommended that candidates use the IEEE citation style. A thesis should only use one citation style that is generally accepted and suits its norm in the field of study. The selected citation style should be used consistently.

Example of Citation

Polymer material has been applied various electronic application or devices such as electronics and optoelectronics like electrochromic cells, light emitting electrochemical cells and photoconducting devices, solar cells such as photovoltaic and photoelectrochemical (PEC) cells [1]. The properties of polymer material such as light weight, high flexibility and also can be process at low temperature has be advantage if compare to inorganic material [2]. There are many polymer material have been studied to be used as insulator or dielectric layer in organic thin film transistor (OTFT) and organic field effect transistor (OFET) because some polymer material has good insulating properties which is similar and comparable with silicon dioxide (SiO2) [3].

Example of Referencing Style  Font size 12, Times New Roman and 1.5 spacing


2.2.4 Appendices

Appendices are supplementary information that can be included as part of the report. All forms including questionnaire, coding form, etc that are related to the project can be accompanied as appendices. List of appendices must begin on a new page. Appendix can be named as Appendix A, Appendix B, and so on, depends on types and quantity to be included. Specific titles can also be given.
REFERENCES


2. Yee Hooi Min, Clotilda Petrus and Ruqayyah Ismail (2014), Final Year Project Guidelines, UiTM Penang, Malaysia.
