1. **INTRODUCTION**

As part of NTU's curriculum, all final year students of the School of EEE are required to undertake a project, supervised by one faculty member. This project involves an in-depth study, investigation, construction of hardware and/or development of software and testing in any areas of specialized courses offered in a final year option group, and spread over four academic years in the 4th and 5th years of studies. Students are required to submit a formal report, carry out a project demonstration and also give an oral presentation upon completion of project.

The Final Year Project Committee of the School is entrusted with the task of overseeing the coordination of all final year projects. The Committee has prepared this set of guidelines so that all students are aware of the various project requirements in terms of project schedule, project report and presentation.

1.1 **Eligibility for FYP**

An invitation email regarding project selection will be sent to students who are eligible for FYP.

1.2 **Project Duration**

Students are allocated 3 hours per week in each semester of their 4th and 5th years of studies. In practice, students spend more times than this, especially during the recess weeks and the vacation.

1.3 **Project Proposals**

Faculty members propose projects and act as supervisors. Every project proposed will contain details of various aspects of the project, including a 50-word summary of the scope, objectives etc.

The Final Year Project Committee will compile a final list of all projects, indicating the titles, name(s) of supervisor(s) and project summary, which will then be distributed to all students.

1.4 **Project Selection and Allocation**

Eligible students can select EEE FYP projects once per academic year around the end of Semester 1 (April/May).

Two methods are used for the FYP project allocation. The first method is defined as Selection-by-supervisor and the second method is Allocation by Computer.

1.4.1 **Selection-by-supervisor**
Students pick their preferred projects from the list of proposed projects in the FYP web and approach the respective project supervisors for discussion. During the project selection period, if the supervisor decides to offer a project to a particular student, the main supervisor will go through StaffLink and select the allocation option to pull the project for the student. Once this has been done, the student will be allocated to that particular project and the database will then be updated to keep the other students informed. The project will only be allocated after the supervisor has completed the selection-by-supervisor process. **Students are advised to discuss with supervisors and select their projects carefully during this phase since allocated students are not allowed to drop out after this phase.**

1.4.2 **Allocation by Computer**

A student can select up to 10 projects. The program allocates projects based on the order of preference from students from their 1st to 10th preferences. If a project is chosen by only one student as the first preference, it will be assigned straight away to the respective student. If there is more than one student choosing a particular project as the first preference, the program will give preference to the student who put in more choices. If all the students put in 10 choices then a random number will be generated. This random number ranges from 1 to the total number of students choosing that project as the first choice. That particular project will be temporarily assigned to a particular student to the generated random number. After processing the first preferences of all the students, the same method is repeated for all the remaining unassigned students starting from their 2nd preference up to the 10th preference. At the end of this allocation cycle, the configuration of the project assignment and the number of the unassigned students are recorded.

A subsequent allocation cycle is repeated in exactly the same way as the previous cycle. A new project assignment together with the new number of the unassigned students are obtained and compared with the number of the unassigned students in the previous cycle. The program always keeps the configuration of project assignment that has a lower number of the unassigned students. Through processing of more than a thousand allocation cycles, the project assignment which has the minimum number of unassigned students is thus obtained. For the remaining unassigned students a second round list containing all the remaining projects is then listed on Web and the unassigned students will be invited to select another 10 choices. Allocation is again made on the basis of the preferences and the same allocation process is repeated. In the second round processing, all the students will be allocated a project of their choices.

1.5 **Laboratory Allocation for Projects**

Lab will be allocated to FYP students. Faculty members could indicate whether their project proposals have some special requests.

2. **PROJECT ASSESSMENT**

There are two components for the assessment of a project: 1) Interim Assessment and 2) Main Assessment. An interim assessment of the project is done at the end of 2nd semester of 4th year by supervisor and examiner when the project is about half way through. The Main Assessment, which consists of Report, Demonstration, Oral Presentation and Final Assessment, is done at the end of 2nd semester of 5th year. To have an independent examination in the Interim and Main Assessment, the School will appoint an examiner for each project. Both the supervisor and the examiner will perform an independent evaluation.

2.1 **Interim Assessment**

The interim assessment is done by supervisor and examiner and is based on a Project Plan/Strategy, its implementation and an interim report about the project progress and results obtained. The supervisor and examiner will then grade each student to gauge his or her progress and performance at the end of 2nd semester of 4th year.
2.1.1 Project Plan/Strategy

During the course of the project, each student’s progress will be closely monitored by his/her supervisor through meetings and/or progress reports. A short project plan/strategy report (2-3 pages) is required from student about six weeks from the start of the project. This may be a summary describing the main objectives of the project, student's proposed way of carrying out the project and a proposed weekly schedule in a chart form.

2.1.2 Interim Report

It is compulsory for each student to submit a short interim report at the end of 2nd semester of 4th year. The report should highlight the progress made, achievement, effort put in and contribution and should normally contain 4-5 A4 pages. Students have to submit the Interim report to Turnitin service to check for plagiarism.

2.2 Main Assessment

The Main Assessment of FYP is conducted at the end of 2nd semester of 5th year. It has two components: (a) assessment of Final Report and Oral Presentation, which are assessed independently by both the supervisor and the examiner, (b) assessment of Demonstration by examiner only and Final Assessment by the supervisor only.

2.2.1 Final Report of Project

A formal, type-written final report in one-and-a-half spacing is required from each student. The main body of the report should normally contain 40 - 60 pages. If this guideline is not complied with, students may be asked to resubmit the report. Students have to submit the draft report to Turnitin service to check for plagiarism.

Detailed guidelines on report format and other requirements are attached in Appendix A.

2.2.2 Project Demonstration

Immediately after submitting the final report, it is compulsory for students to make arrangement with examiner to view a project demonstration. For those projects which are research oriented or exploratory in nature, for which project demonstration may not be possible, examiners will interview students to gauge how well they have understood their work.

2.2.3 Final Assessment

This assessment is done only by the supervisor on the student's initiative, responsibility, ability and independence, effort and contribution to project, planning, execution of plans, updating supervisor of progress regularly, level of achievement and outcome.

2.2.4 Oral Presentation

Oral presentation is compulsory in which each student is to give a presentation. Supervisor and examiner will attend and assess the presentation. The time for an oral presentation is 25 minutes, consisting of 15 minutes of presentation and 10 minutes of question/answer session. Questions will be asked to assess students’ understanding and knowledge of the project.

Students who have valid reasons or official leave during the oral presentation period must contact their supervisor and examiner well before the oral presentation.

2.3 Assessment Summary
A summary of the various assessments made by supervisor and examiner is shown in the Table below.

<table>
<thead>
<tr>
<th>Component</th>
<th>Assessor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Interim Assessment</td>
<td>Supervisor &amp; Examiner</td>
</tr>
<tr>
<td>2. Report and Final Assessment</td>
<td>Supervisor</td>
</tr>
<tr>
<td>3. Oral Presentation</td>
<td>Supervisor &amp; Examiner</td>
</tr>
<tr>
<td>4. Final Report &amp; Demonstration</td>
<td>Examiner</td>
</tr>
</tbody>
</table>

The assessment criteria for the various assessments are given in Appendix B.

2.4 **FYP Schedule**

Please refer to the [FYP website](http://www3.ntu.edu.sg/eee/fyp/ptfyp/faq_pt.asp) for FYP schedule. Students should adhere to the given schedule.

3. **CHANGE OF PROJECT TITLE/SUMMARY/SUPERVISOR**

In some cases, it may be necessary to modify/change the project title/summary. Supervisor can do so on-line an the Stafflink from week 3 to week 8 but changes cannot be made once the FYP committee has called for selection of projects for examination. After the supervisor has submitted the changes, the system will automatically send a notification email to student of the affected project.

The FYP Committee does not encourage the change of supervisor. For special case where the change of supervisor is necessary, the existing and new supervisor as well as the student must all agree with the change. In such a case, a request for change of supervisor must be submitted by the new supervisor with an email to A/P Zhu Lei, who is in charge of Part-time FYP, before the recess week of 2nd semester of 5th year and copied to the existing supervisor and the student involved.

4. **FULL TEXT REPORT TO LIBRARY**

For instruction to submit Full Text Report (softcopy) to library through Digital Repository @ NTU, please go to the link [http://repository.ntu.edu.sg/dmntu/procedure.htm](http://repository.ntu.edu.sg/dmntu/procedure.htm)

5. **FREQUENTLY ASKED QUESTIONS (FAQs)**

APPENDIX A - GUIDELINES ON REPORT FORMAT AND OTHER REQUIREMENTS

1. The main body of the report (excluding charts, diagrams, appendices, tables, references, etc.) should normally contain 40 - 60 pages. You may have to resubmit a condensed version of your report if you exceed this limit.

2. Your report should meet these typing and layout requirements:

<table>
<thead>
<tr>
<th>Component</th>
<th>Assessor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page</td>
<td>White A4 size bond paper of at least 80g/m2.</td>
</tr>
<tr>
<td>Text</td>
<td>Times New Roman, font size 12</td>
</tr>
<tr>
<td>Margins</td>
<td>35mm margin on the left hand side and 30mm on the top, bottom and right hand sides of each page.</td>
</tr>
<tr>
<td>Typing</td>
<td>The same font and pitch for the whole report except when highlighting important matters.</td>
</tr>
<tr>
<td>Spacing</td>
<td>One-and-a-half spacing.</td>
</tr>
</tbody>
</table>

3. To maintain consistency, you are required to follow the same format when preparing final reports. The contents of the report should be in this order:

   (a) Cover page
   (b) Table of contents
   (c) Abstract (not more than one page)
   (d) Acknowledgements to give recognition of any advisory or financial assistance received in the course of the work on which the report is based (optional)
   (e) Acronyms (optional)
   (f) Symbols (optional)
   (g) List of Figures
   (h) List of Tables
   (i) Main chapters (Chapter 1, Chapter 2………)
   (j) **Discussions/Conclusion
   (k) References
   (l) Appendix (optional)

** Include, as many as it is possible, the following topics (outcomes), how you

- Use the techniques, skills, and modern engineering tools necessary for engineering practice with appropriate considerations for public health and safety, cultural, societal, and environmental constraints;
- Understand the impact of engineering solutions in a societal context and to be able to respond effectively to the needs for sustainable development;
- Function effectively within multi-disciplinary teams and understand the fundamental precepts of effective project management.

[Click here](#) for the report template file.

4. The Standard International System of Units (SI) should be used

5. Each reference, be it from a journal, text book or conference proceedings, should be listed consistently, as in the example below.

   (c) Hata, M Kinoshita, K, and Hirade, K, 'Evaluation of diversity effects on mobile radio system design', The Transactions of IECE of Japan, Vol. 64, No 5, May, pp 31-33, 1981.


6. The Final Year Project Report is an important component in the assessment of the Final Year Project. It is written for the supervisor and the examiner. The examiner is an independent party appointed by the School to assess the project. Very often the project report is the main instrument the examiner uses to judge the project. He/she may not be aware of the many hours you may have spent on the project. The credit given to you will be based mainly on their understanding of concepts and knowledge shown in each report. So a poorly or carelessly written report, presented after months of hard work by each student, may not be received well by an examiner.

In a project report, one generally looks for the following:

(a) a clear idea of the scope, objectives and background of the project.
(b) analysis of all factors in the project, noting dependency of constraints. A clear and concise presentation of any theory required must be made.
(c) use of references which is evident that students have read about the related subject. A list of references alone is insufficient. Any work not done by the students but included in the report must be duly referenced. It is to be noted that plagiarism is a serious violation.
(d) results, discussions and suggestions for further work to assess the understanding of technical concepts and the perception value of work done. Results must be appropriately presented with tables, graphs, charts, etc., wherever possible and must be linked to the objectives of the project. Interpretation and discussion of results must be put into context of the work.
(e) a logical organization of report to allow readers to grasp the contents readily. It is not always necessary that information be organized chronologically. You should put effort into thinking of the best way to present the information for the convenience of readers. There must be a logical sequence of chapters, link between chapters and within chapter.
(f) a good standard of written English, proper format and layout of the report.

7. For more information on project report writing, it is suggested that you refer to the following:


8. You are required to submit a softcopy (a pdf file) of final report to your supervisor and examiner unless he/she prefers in hardcopy (double sided, ring bound) for which you will be told at least 3 days in advance.

9. After the oral presentation and if requested, you have to submit a softcopy (a pdf file) or hardcopy (double sided, ring bound or hard-cover bound) of the final/revised final report to your supervisor in his/her preference.

10. For hard-cover bound, the binding should be in dark blue with gold lettering. The use of NTU logo is recommended. Click here for the SAMPLE COVER PAGE.
APPENDIX B - ASSESSMENT CRITERIA

1. Interim Assessment (by supervisor and examiner)
   1.1 Planning and Strategy
   1.2 Interim Report, Results and Achievement

2. Main Assessment
   2.1 Project Final Report (by supervisor and examiner)
      2.1.1 Presentation of the report, proper acknowledgement of other people’s works
      2.1.2 Theory, design and implementation
      2.1.3 Introduction, indication of research through relevant literature review, comparison with relevant work, detailed discussion and substantiated conclusions
      2.1.4 Results, quality of work and level of complexity

   2.2 Project Demonstration/ Interview (by examiner only)

   2.3 Final Assessment (by supervisor only)
      2.3.1 Initiative and Responsibility
      2.3.2 Ability and Independence
      2.3.3 Updating supervisor of progress regularly
      2.3.4 Effort, contribution to project, planning, execution of plans
      2.3.5 Outcome and overall level of achievement

   2.4 Oral Presentation (by supervisor and examiner)
      2.4.1 Contents and Organisation
      2.4.2 Effective Presentation
      2.4.3 Accurate rebuttals to questions

APPENDIX C – FYP SCHEDULE

<table>
<thead>
<tr>
<th>Scheduled Task</th>
<th>* Tentative Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>During the 1st semester of the project, Year 4</strong></td>
<td></td>
</tr>
<tr>
<td>Project plan/strategy</td>
<td>Week 6</td>
</tr>
<tr>
<td><strong>During the 2nd semester of the project, Year 4</strong></td>
<td></td>
</tr>
<tr>
<td>Appointment of examiners</td>
<td>Week 8 - week 10</td>
</tr>
<tr>
<td>Interim report</td>
<td>Week 13</td>
</tr>
<tr>
<td><strong>During the 2nd semester of the project, Year 5</strong></td>
<td></td>
</tr>
<tr>
<td>Change of project title/summary</td>
<td>Until week 8</td>
</tr>
<tr>
<td>Draft final report</td>
<td>End of week 10</td>
</tr>
<tr>
<td>† Final report to supervisor and examiner</td>
<td>End of week 12</td>
</tr>
<tr>
<td>Project Demo</td>
<td>Week 13</td>
</tr>
<tr>
<td>Announcement of oral presentation schedule</td>
<td>Week 13</td>
</tr>
<tr>
<td>Oral presentation</td>
<td>The week after exam</td>
</tr>
<tr>
<td>Full-Text report of your project (soft copy) to the library through Digital Repository @ NTU.</td>
<td>Within 1 month after the oral presentation</td>
</tr>
<tr>
<td>†† Final report if requested by supervisor</td>
<td>1 week after oral presentation</td>
</tr>
</tbody>
</table>

† Final report should be in softcopy (a pdf file) unless supervisor or examiner prefers in hardcopy (double sided, ring bound) for which students will be told at least 3 days in advance.
†† If requested, students have to submit a softcopy (a pdf file) or hardcopy (double sided, ring bound or hard-cover bound) of the final/revised final report to their supervisor in his/her preference.

* The exact schedule will be given by email and in the FYP website in due course.