Subject Description Form

Subject Code	EE4006 / EE4006A / EE4006B
Subject Title	Individual Project
Credit Value	6
Level	4
Pre-requisite/ Co-requisite/ Exclusion	Pre-requisite: The student should have completed most of the subjects required in previous years of the programme before taking this subject.
Objectives	To provide an opportunity for students: 1. to apply specialized professional engineering knowledge independently in the creative design, implementation, managing and evaluation of an engineering project, and 2. to identify key engineering problems, to solve them and to communicate the findings in an oral and written report format.
Subject Intended Learning Outcomes	Upon completion of the subject, students will be able: a. To apply specialized knowledge independently. b. To identify key engineering problems, to solve them and to communicate what is achieved orally and in a written report. c. To develop a project which is creative, rich in intellectual content and sufficiently challenging. d. To monitor the progress of a project from concept to final implementation and testing, through problem definition and the selection of alternative solutions. e. To synthesize and apply their knowledge and analytical skills gained in various engineering domains. f. To build self confidence, demonstrate independence, and develop professionalism by successfully completing the project in a competent manner.
Subject Synopsis/ Indicative Syllabus	**Choice of Project** Projects are proposed by staff or by an industrial partner. Projects may also be jointly proposed by student and staff. Industrial experience, research and consultancy activities are fertile ground for ideas. **Project Plan** At the beginning of the project, students are required to submit a clear project proposal. The plan should not be too long but should cover such items as: – an abstract – problem statement and objectives – brief literature research – initial problem identification – preliminary suggestion on methodology – preliminary time schedule and milestones of the project – cost estimate and references **Interim Progress Report and Presentation** At about the midpoint of the project, students should have executed their projects for a few months and they need to submit an Interim Progress Report and carry out a presentation to summarize their progress. This gives the supervisor and an assessor a formal opportunity than at discussions to indicate his/her assessment of student's progress and to eliminate discrepancies if necessary.

Final Project Report

A good project schedule includes adequate time for preparing a report of an appropriate standard. The final report should be submitted in Week 10 of the Second Semester. This will be given to the Assessment Panel (see Assessment below) for understanding of the student's work and for assessment purpose. To ensure that the project report is prepared properly and with appropriate standard, students must first submit a draft of the report to the supervisor for comments before its final submission.

At the end of the project, each project is assessed by an Assessment Panel with three members, including two examiners and the project Supervisor.

The Project Supervisor will provide information on students' progress, initiative and ability to work independently. The Supervisor will also be in a position to contribute views on the student's technical achievement. All members of the Assessment Panel will grade the project report. Other assessors will also mark the presentation that includes the following activities::

- listening to the student's presentation (can be a video clip),
- examining the student during the poster presentation, and
- evaluate the project's outcome based on the demonstration (can be a video clip).

Assessment

In assessing the project, the assessors will typically consider the following aspects:
a. Intellectual achievement;
b. In-depth understanding of the topic and other related topics;
c. Quantity and quality of work done, including design and construction of equipment, experimentation, mathematical models, program writing, verification;
d. Presentation including the written report, presentation and response to questions.

Examiners will ensure that all aspects of the project are thoroughly considered before arriving at the grade to be awarded to the project. In arriving at their decision, the examiners should bear in mind their experiences in respect of the achievements of other projects in the Department in the current and previous years.

Method of Assessment: 100% continuous assessment

(I)   Formal Project Proposal

Students are required to submit a formal project proposal. **This will contribute to 5% of the final grade.**

The contents of the proposal should include:
A.   An abstract and objectives of the project
B.   Proposed specifications of the product
C.   Summary of the literature search
D.   Proposed approach/methodology to be used
E.   Some brief descriptions on the theory of the approach/methodology
F.   Schedule and milestones of the project
G.   References

Assessment Criteria

1.   *Literature research.*
2.   *Project plan*
3.   *Problem definition and methodology.*
4.   *Writing quality.*

(II) The Interim Progress Report

Students are required to submit an interim progress report at about the middle of project duration. **This will contribute to 10% of the final grade.**

The contents of the progress report should include:
A.   A summary and objectives of the project.
B.   A brief outline of the theory.
C.   Work that has been carried out up to the date.
D.   The system design and the block diagram of the system, plus some brief descriptions on the theory.
E.   Difficulties encountered and the measures taken to solve them.
F.   Proposed timetable / schedule for the rest of the work up to the end of the project.

G.   Difficulties expected in the coming period.
H.   References
Assessment Criteria
1.   Abstract and introduction
2.   Methodology
3.   Preliminary results
4.   Project management and overall presentation of the report

(III) Mid-term progress presentation
Student is required to present the progress to an assessor after the submission of the Interim Progress Report. **The presentation will contribute to 10% of the final grade.**
Assessment Criteria
1.   Technical concept/knowledge/application
2.   Up-to-date progress and preliminary results
3.   Response to questions
4.   Presentation skill and language competence.

(IV)   The Final Report
The final project report should contain all works carried out by the student in the project. The length of the main body of the final report should be **at least 45 pages** in standard report format. Students are advised to form a framework for the report first, and then proceed to the formation of the titles of the chapters. The titles and structure of the sections within each chapter are then decided. Continuing the process, each section may be further expanded into appropriate sub-sections, divisions and sub-divisions etc., until a complete framework is formed. **The final report will contribute to 40% of the final grade.**
The content of the final report includes:
A.   An abstract of the project.
B.   Objectives of the project (especially any change from the original aims).
C.   The motivation behind the project and a brief outline of the project work.
D.   A summary of work done or developed in the project.
E.   The system design and the block diagram of the system, plus some brief descriptions on the theory.
F.   Results and discussion
G.   Difficulties encountered and the measures taken to solve them.
H.   The achievement of the project, the conclusions from the work and suggestions for further work.
I.   A list of the references referred to the source of information in the report. This is compulsory.
J.   Materials which are closely related to the contents of the report, and which are themselves self-contained, may be included in the report as appendixes.
Assessment Criteria
1.   Abstract and introduction
2.   Literature review and background
3.   Methodology and technical skills
4.   Results, discussions and conclusion
5.   Overall presentation and organization of the report

(V)   The Presentation and Demonstration
The student should keep the presentation concise and interesting through good use of visual aids and multimedia, logic flow of ideas, and appropriate control of the pace. Show good mastering of topics and avoid undue pauses. The student should be able to elaborate on technical details in answering questions during the poster presentation. Good pronunciation and intonation are desirable. Be courteous during the presentation. Hardware must be neatly built and laid out and there is good engineering sense in hardware implementation. Circuits and software should function properly, and experiments should be able to support fulfillment of project objectives.
The student should show good mastering of topics during the question session of the Poster presentation by providing satisfactory answers to questions.

The presentation and demonstration will contribute to 25% of the final grade.

Assessment Criteria
1. Technical concept/knowledge/application
2. Intellectual level, response to questions
3. Demonstration and engineering accomplishment
4. Presentation skill and language competence.

(VI) Continuous Assessment
The supervisor of the project will assess the student's overall performance based on the following items. **This will contribute to 10% of the final grade.**
1. Motivation and perseverance
2. Originality and innovation of the project
3. Execution and problem solving skills
4. Communication
5. Self-discipline and time management
6. Milestone reports
Note 1: Each student has to submit/carry out all five components (I to V) before he/she is considered to have completed the FYP.
Note 2: The final grade for the FYP will be calculated by taking the weighted average of the grades from the above six components.

Teaching/Learning Methodology						
	Outcomes					
	a	b	c	d	e	f
Discussion with the project Supervisor	✓		✓			
Writing of the project proposal	✓	✓	✓		✓	
Writing of the interim report	✓	✓	✓	✓	✓	
Writing of the final report	✓	✓	✓	✓	✓	✓
Presentation and demonstration		✓				✓

Teaching/Learning Methodology

As the nature of the subject implies, there will not be formal lecture in the subject, other than a few hours of briefings on general information, some procedures in project administration and some techniques on information/components searching. Students learn the technical contents by a substantial number of individual discussions with their project supervisors and a large number of hours of self-learning. The planning of the project will be conducted under the direction of the supervisor. Through the execution of the project plan with guidance from the supervisor, the student should be able to achieve the learning outcomes.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed					
		a	b	c	d	e	f
1. Formal project proposal	5%		✓	✓			
2. Interim progress report	10%		✓	✓	✓		
3. Mid-term presentation	10%		✓		✓		✓
4. Final report	40%	✓	✓	✓	✓	✓	✓
5. Presentation and demonstration	25%	✓	✓				✓
6. Continuous assessment	10%	✓			✓		✓
Total	100%						

	Assessment criteria for each of the above assessment methods are as listed in one of above sections.	
Student Study Effort Expected	Class contact:	
	▪ Briefings	3 Hrs.
	▪ Individual discussions with supervisor	36 Hrs.
	Other student study effort:	
	▪ Information search, self study, execution of the project, report writing, preparation of presentation	171 Hrs.
	Total student study effort	210 Hrs.
Reading List and References	To be advised by supervisor	

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