### Subject Description Form

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>EIE433</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Title</td>
<td>Honours Project</td>
</tr>
<tr>
<td>Credit Value</td>
<td>6</td>
</tr>
<tr>
<td>Level</td>
<td>4</td>
</tr>
<tr>
<td>Pre-requisite/Co-requisite/Exclusion</td>
<td>Nil</td>
</tr>
</tbody>
</table>

#### Objectives

Engineering is the science of applying scientific principles and technology to improve human life. This may take the form of invention, design, implementation, so on and so forth. The objective is to come up with solutions to existing problems while considering various constraints. Hence the students studying in a curriculum will be most benefited from doing a project in order to have the chance to practise hands-on application of the knowledge the student has learned throughout the curriculum, while producing something useful or valuable. Against this background, there is a final year project (FYP) component in the curriculum with the objectives:

1. To provide the opportunity to the student so that he/she can apply what he/she has learnt in previous stages in a real-life engineering context.
2. To enable the student to acquire and practise project management skills and discipline while pursuing the FYP.
3. To enable the student to apply engineering knowledge in analysis of problems and synthesis of solution while considering various constraints.

#### Intended Subject Learning Outcomes

Upon completion of the subject, students will be able to:

**Category A: Professional/academic knowledge and skills**

1. Understand, take up, and master the basic knowledge and skills related to the specific project.
2. Understand the background, the requirements, objectives, and deliverables to be produced.
3. Integrate and apply knowledge learnt in present and previous stages (vertical integration) and across different subjects (horizontal integration).
4. Apply various professional skills in electronic and information engineering to achieve the objectives of the project.
5. Learn to use new tools and facilities, and to gather new information, for the conduction of the project.

**Category B: Attributes for all-roundedness**

6. Work under the guidance of a supervisor while exercising self-discipline to manage the project.
7. Review critically the student’s own achievement and other related works.
8. Communicate effectively with related parties (supervisor, peers, vendors).
9. Work with others (team partners, outsource company, technical support staff) collaboratively.
10. Realize different constraints, and to make appropriate compromise, when designing a solution to an engineering problem.
11. Disseminate effectively the results and knowledge learnt in the project.
12. Transfer the knowledge and skills learnt in the project.

#### Contribution of the Subject to the Attainment of the Programme Outcomes

**Programme Outcomes:**

**Category A: Professional/academic knowledge and skills**

- Programme Outcomes 1, 2, 3, 5, 6, 8, 11, and 12: In working through the final-year project, the students will learn how to apply knowledge of mathematics, science, and engineering in designing engineering solutions to a problems with consideration of professionalism and realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability.
and sustainability factors. They also will learn how to make use of appropriate computer/IT tools with an understanding of their processes and limitations in the course of the conducting the project.

- Programme Outcome 4: In the final-year project, the student will learn how to work with others (supervisor, other students, other teaching staff, technicians, vendors, industrialists...etc.) to accomplish the project tasks and to produce the deliverables. S/he will need to communicate/consult people in other disciplines, cooperate with others in the use or acquiring of resources. S/he needs to exercise leadership and taking initiative when working with others.
- Programme Outcome 7: In this subject, the students will learn how to conduct effective written or verbal communication with various parties. They will use different media such as texts, mathematics, graphics, images, video, animation...etc. They will learn how to use different communication tools such as log book, project proposal, final-year project report, presentation, and demonstration to communicate their ideas, the project design, the underlying theory, and the project results to various audiences in the suitable context.
- Programme Outcome 9 and 10: In this subject, the students will learn how to gather information about the background or frontier of their projects and related subject matters. They will learn how to stay abreast of contemporary issues by reading and information gathering. They will recognize the need for life-long learning.

**Category B: Attributes for all-roundedness**

- Programme Outcome 13: The students will be given the chance to exercise creativity and innovation by designing something new (a new software, a new hardware, a new process, a new method) to solve a given problem as required by the project.
- Programme Outcome 14: The students will be given the chance to learn how to exercise leadership when working in a team project or group project that requires collaboration among different students.

### Subject Synopsis/Indicative Syllabus

**Syllabus:**

The progression of the project will be guided by a framework, which consists of the following indicative stages. The specific details will vary from project to project.

**Project Specification**

In this stage, the student will work in conjunction with the project supervisor to draw up a concrete project plan specifying at least the following:

1. Background of the project
2. Aims and objectives
3. Deliverables
4. Methodology to be adopted
5. Schedule

**Project Execution**

This is the major part of the project. After the specification is done, the project will be pursued so that the objectives are to be met; the deliverables are to be produced in accordance with the schedule. The student and the project supervisor will meet constantly to discuss the progress. In particular the following should be demonstrated:

1. Adherence to the schedule
2. Achievement of objectives by the student’s work
3. Initiatives of the students to work, design, and to solve problems
4. Inquisitiveness of the student (e.g. to probe into different phenomena or to try different approaches)
5. Diligence of the students to spend sufficient effort on the project
6. Systematic documentation of data, design, results, …etc. during the process of working out the project

**Project Report**

After the project is finished, it is important that the student is competent in
disseminating the results for others to review. Through this dissemination process, project achievements can be communicated, experience can be shared, knowledge and skills learnt can be retained and transferred. The following elements will be important as evidence of students’ achievement:

1. Project log book (documenting the work done over the year)
2. Project report (hardcopy and softcopy)
3. Presentation
4. Performance in a Question-and-Answer session
5. Demonstration

<table>
<thead>
<tr>
<th>Specific Assessment Methods/Task</th>
<th>% Weighting</th>
<th>Intended Subject Learning Outcomes to be Assessed (Please tick as appropriate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous Assessment</td>
<td>100%</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
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**Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:**

<table>
<thead>
<tr>
<th>Specific Assessment Methods/Tasks</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous assessment</td>
<td>The assessment of the project work is done continuously throughout the whole project period. The evidence of students’ achievement will be documented in log book and the reports submitted in various stages. The student will be required to give a presentation and demonstration so the he/she can communicate with other parties about the project achievement.</td>
</tr>
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**Student Study Effort Expected**

<table>
<thead>
<tr>
<th>Class contact (time-tabled):</th>
<th></th>
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<tbody>
<tr>
<td>Structured Study</td>
<td>84 Hours</td>
</tr>
<tr>
<td>Self-work/ Guided Study</td>
<td>84 Hours</td>
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</table>

<table>
<thead>
<tr>
<th>Other student study effort:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reports</td>
<td>30 Hours</td>
</tr>
<tr>
<td>Presentation and demonstration</td>
<td>12 Hours</td>
</tr>
</tbody>
</table>

**Total student study effort:** 210 Hours

**Reading List and References**

**Reference Books:**

*To be specified by the project supervisor for each project.*