### Module Template for New and Revised Modules

<table>
<thead>
<tr>
<th>Module Code</th>
<th>EE5E1</th>
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</thead>
<tbody>
<tr>
<td>Module Name</td>
<td>MAI ENGINEERING PROJECT</td>
</tr>
<tr>
<td>ECTS Weighting(^2)</td>
<td>30 ECTS - Derogation</td>
</tr>
<tr>
<td>Semester taught</td>
<td>Semester 1 &amp; 2</td>
</tr>
<tr>
<td>Module Coordinator/s</td>
<td>Associate Professor Naomi Harte</td>
</tr>
</tbody>
</table>

**Module Learning Outcomes with reference to the Graduate Attributes and how they are developed in discipline**

On successful completion of this module, students should be able to:

- **LO1.** Contribute individually to the development of scientific/technological knowledge in one or more areas of their stream of Engineering.
- **LO2.** Identify, assess and synthesize existing literature and research findings on an unfamiliar problem;
- **LO3.** Apply a range of standard and specialised research tools and techniques to provide innovative and appropriate solutions to engineering problems of significant complexity.
- **LO4.** Develop and apply theoretical, scientific and mathematical principles to effectively solve the research problem
- **LO5.** Design and conduct unsupervised experiments and to analyse and interpret data;
- **LO6.** Apply and develop software to model engineering systems;
- **LO7.** Discuss and critically evaluate the research findings and reflect on the strength and limitations of the research; Assess the implications of the project outcomes for engineering practice;
- **LO8.** Write a research dissertation to professional and academic standards using appropriate graphics and references;
- **LO9.** Present complex ideas and material to peers and respond effectively to questions and criticism.
- **LO10.** Outline a technical project for a non-technical audience
- **LO11.** Plan, organise and execute a substantial research project, and manage it, and also modify the plan as appropriate through regular appraisal.

**Graduate Attributes: levels of attainment**

To act responsibly - Attained

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1. [An Introduction to Module Design](#) from AISHE provides a great deal of information on designing and re-designing modules.
2. [TEP Glossary](#)
| Module Content | To think independently - Attained  
To develop continuously - Attained  
To communicate effectively - Attained |
|----------------|--------------------------------------------------------------------------------|
| This module allows the students to complete an individual research project on a topic of contemporary engineering research interest. The main objective of this module is to plan, execute and report on an individual engineering research project.  
A School-wide list of project titles is issued to students towards the end of the second semester of the Senior Sophister year. Students are asked to rank their project preferences from one to five and allocations will be confirmed by the end of June of that year. |
| Teaching and Learning Methods | Each individual project will be supervised by an academic staff member in the School of Engineering, and in some cases in the School of Computer Science and Statistics, and may be undertaken independently or in conjunction with a research group or in connection with industry or another university, where circumstances are appropriate. Whenever a project involves significant collaboration with an industrial or other external partner, an external co-supervisor may also be appointed.  
The students must meet their individual supervisor(s) in week 1, semester 1 or as soon as they are assigned a project title. There are no formal timetabled hours associated with the project but students are expected to spend the time it takes to make reasonable progress and to keep in regular contact with their supervisors. For a 30 ECTS project, this is approximately 25 hours per week over the two 12-week Semesters. It is recommended that students make a formal arrangement with their supervisors to meet on a regular basis. Note that the evolving COVID situation means much of those meetings may take place online. Note that students must take responsibility for their own engagement in the project.  
The dissertation is examined independently by the project supervisor and a second examiner; with a third examiner and the external examiner providing moderation when required. |
The following are the brief guidelines, which will be considered in assessing the final project reports:

1. **Presentation:** The project should be well structured, written in clear technical language with diagrams, well referenced and annotated.
2. **Research Work Completed:** This includes design and execution of experiments, development and/or application of software, development and application of numerical or analytical models or physical prototypes etc.
3. **Difficulty & Understanding:** This includes understanding of the research topic, existing research done in the field and identifying the scope of proposed research in the dissertation. Consideration will be given to the difficulty of the subject and the amount of study required outside the normal curriculum.
4. **Innovation, Discussion and Conclusions:** Discussion and Conclusions should be clearly and concisely set out and read directly from the work contained in the project. Innovative solutions and contributions to the research field will be taken into consideration.

Two copies of dissertation, prepared following the guidelines provided by the module Co-Ordinator, are required to be submitted.

The A copy is read and marked by the project supervisor, while a second marker marks the B copy. The marks from both are reported independently to the coordinator. The Examiners will then agree a joint mark. If the initial marks do not agree within limits set by the School, a third examiner may be asked to assess the project independently.

The performance in all aspects of the project will be taken into consideration while agreeing to an overall mark.
### Assessment Details

Please include the following:

- **Assessment Component**
- **Assessment description**
- **Learning Outcome(s) addressed**
- **% of total**
- **Assessment due date**

<table>
<thead>
<tr>
<th>Assessment Component</th>
<th>Assessment Description</th>
<th>LO Addressed</th>
<th>% of total</th>
<th>Week due</th>
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</thead>
<tbody>
<tr>
<td>Interim Report</td>
<td>Progress report in Sem1</td>
<td>1-6,11</td>
<td>10</td>
<td>Week 8 Sem1</td>
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<tr>
<td>Final Presentation</td>
<td>Presentation in Sem 2</td>
<td>7,9</td>
<td>10</td>
<td>Week 9 Sem2</td>
</tr>
<tr>
<td>Full Dissertation</td>
<td>Full report</td>
<td>All</td>
<td>80</td>
<td>Week 12 Sem2</td>
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</tbody>
</table>

### Reassessment Requirements

Based on report with option to call for interview.

### Contact Hours and Indicative Student Workload

**Contact hours:** Approximately 12-24 over the two Semesters hours is typical, depending on nature of the project, through meetings with supervisor.

**Independent Study** (preparation for course and review of materials; preparation for assessment, incl. completion of assessment):

A total student effort of 25 hours a week on average is expected for the 30 ECTS project, spread over the two 12-week Semesters.

### Recommended Reading List

**Required textbook**

https://www.tcd.ie/Graduate_Studies/currentstudents/admin/thesisregs/index.php

http://student-learning.tcd.ie/postgraduate/topics/writing/thesis/

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3 TEP Guidelines on Workload and Assessment
<table>
<thead>
<tr>
<th>Module Website</th>
<th>Blackboard</th>
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<tbody>
<tr>
<td>Are other Schools/Departments involved in the delivery of this module? If yes, please provide details.</td>
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<tr>
<td>Module Approval Date</td>
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<td>Approved by</td>
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<td>Academic Start Year</td>
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<tr>
<td>Academic Year of Date</td>
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