## Module Template for New and Revised Modules

<table>
<thead>
<tr>
<th>Module Code</th>
<th>CEU22E09</th>
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<tbody>
<tr>
<td>Module Name</td>
<td>Engineering Design III</td>
</tr>
<tr>
<td>ECTS Weighting</td>
<td>5 ECTS</td>
</tr>
<tr>
<td>Semester taught</td>
<td>Semester 1</td>
</tr>
<tr>
<td>Module Coordinator/s</td>
<td>Mr. Tom Grey</td>
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</tbody>
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### 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. Apply simple engineering theories to solve design problems.
- LO2. Interpret a design brief, define a design problem, and carry out a design process.
- LO3. Conduct analysis, calculations, and detailed design of a new structure.
- LO4. Construct simple prototype design models and use these to conduct experiments, analysis and refinement of a design.
- LO5. Apply basic thinking around the human-environment interaction and the ethical and environmental issues involved in designing the built environments, structures, or products.
- LO6. Keep a design journal as part of the research, analysis, and design process.
- LO7. Work effectively as an individual and as a team member.
- LO8. Clearly communicate a design/solution to experts and non-experts using design statements, engineering drawings, calculations, models, and other methods.

### Graduate Attributes: levels of attainment

To act responsibly - Introduced
To think independently - Introduced
To develop continuously - Enhanced
To communicate effectively - Enhanced

### Module Content

Engineering Design III (2E09) runs throughout the first semester and comprises of a research, design and prototype model building exercise. Students will have a one-hour online lecture coupled with a weekly two-hour design workshop (lab) where students work in existing laboratory groups. The module utilises engineering and environmental theory covered in modules 2E04 Solids and Structures and 2E07 Engineering and environment.

### Module aims

The aims of this module are as follows:

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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](#)
To promote independent inquiry led learning
To put engineering theory into practice
To understand and respond in design terms to how people interact through and with their physical environment
To understand the design process and implement design solutions in practice
To develop team building skills and understand both face-to-face and online teamwork.

Teaching and Learning Methods
Mixture of formal lectures, lab-based (design studio style) staff and student engagement, group interaction and peer-to-peer learning, independent inquiry led learning, and hands-on practical model making and embodied learning.

<table>
<thead>
<tr>
<th>Assessment Details</th>
<th>Assessment Component</th>
<th>Assessment Description</th>
<th>LO Addressed</th>
<th>% of total</th>
<th>Week due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please include the following:</td>
<td>Design Journal</td>
<td>Design journal in the form of physical sketchbook used by students as part of their design process i.e. to record research, and investigate/analyse key concepts, ideas and components in relation to their project.</td>
<td>LO6, 7</td>
<td>30</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Group report</td>
<td>Present the key research and design process undertaken by the group, and present the main results, outcomes and learning from the project.</td>
<td>LO1, 2,3,4,5,7,8</td>
<td>40</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Group prototype model</td>
<td>Provide a physical and working prototype scale model of the final design.</td>
<td>LO4, 8</td>
<td>30</td>
<td>16</td>
</tr>
</tbody>
</table>

Reassessment Requirements
Reassessment will be by examination only. Students must pass the examination element of the module to avoid the possibility of reassessment.

Contact Hours and Indicative Student Workload
Contact hours: 11 weeks x 4hrs per week = 44 hours (1x 1 hour weekly lecture and 1x3hour labs/studio session)

3 TEP Guidelines on Workload and Assessment
<table>
<thead>
<tr>
<th><strong>Independent Study (preparation for course and review of materials):</strong></th>
<th>30</th>
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</thead>
<tbody>
<tr>
<td><strong>Independent Study (preparation for assessment, incl. completion of assessment):</strong></td>
<td>40</td>
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**Recommended Reading List**

Further to the references on the 2E04 Solids and Structures and 2E08 Materials modules, the following texts and sources will be useful:

- The Field Guide to Human-Centered Design (IDEO) [https://www.designkit.org/resources/1](https://www.designkit.org/resources/1)
- Tony Hunts Second Sketch Book (Tony Hunt)
- Tony Hunts Structures Notebook (Tony Hunt)

**Module Pre-requisite**

None

**Module Co-requisite**

Not applicable

**Module Website**


**Are other Schools/Departments involved in the delivery of this module? If yes, please provide details.**

No other schools

**Module Approval Date**

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<tr>
<th>Approved by</th>
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<tbody>
<tr>
<td>Academic Start Year</td>
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<tr>
<td>Academic Year of Date</td>
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