<table>
<thead>
<tr>
<th>Module Code</th>
<th>CEU11E09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module Name</td>
<td>Engineering Design I: Graphics and CAE</td>
</tr>
<tr>
<td>ECTS Weighting$^2$</td>
<td>5 ECTS</td>
</tr>
<tr>
<td>Semester taught</td>
<td>Semester 2</td>
</tr>
<tr>
<td>Module Coordinator/s</td>
<td>Assistant Prof. Bidisha Ghosh (<a href="mailto:bghosh@tcd.ie">bghosh@tcd.ie</a>)</td>
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### Module Learning Outcomes with reference to the Graduate Attributes and how they are developed in discipline

**Learning outcomes**

Upon completion of this module, students should be able to:

- **LO1.** Create, develop and draw two-dimensional images of objects by using projections using both hand-drawing & CAD software;
- **LO2.** Identify and interpret dimensioned, two-dimensional representations of objects;
- **LO3.** Communicate a design idea using visualisation tools.

**Graduate Attributes: levels of attainment**

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

### Module Content

- Appreciation of aesthetics & creativity in engineering design
- Multi-view Projection
- Isometric Projection
- Dimensioning
- Reverse Engineering & Assembly
- Analysis of a chosen design object

### Teaching and Learning Methods

This module is taught using a combination of lectures, laboratories, individual and group assignments.
### 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>
</tr>
</thead>
<tbody>
<tr>
<td>Examination</td>
<td>Written examination (3 hr)</td>
<td>LO1, LO2</td>
<td>60%</td>
<td>Exam period</td>
</tr>
<tr>
<td>Design laboratories</td>
<td>Hand-drawing &amp; software</td>
<td>LO1, LO2</td>
<td>20%</td>
<td>Wk 3,5,6,9,10</td>
</tr>
<tr>
<td>Engineering Design Portfolio</td>
<td>Assignment</td>
<td>LO3</td>
<td>20%</td>
<td>Wk 12</td>
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### Reassessment Requirements

Examination [3 hours]

### Contact Hours and Indicative Student Workload

- **Contact hours:** 40hrs (1 hr lecture + 3hrs lab per week)
- **Independent Study (preparation for course and review of materials):** 40 hrs
- **Independent Study (preparation for assessment, incl. completion of assessment):** 30 hrs

### Recommended Reading List

- *Technical Draughtsmanship* - Éanna O Broin, Gill and Macmillan (Ireland)1986
- *100 CAD Exercises – Learn by Practicing!*, Jason Artes

### Module Pre-requisite

None

### Module Co-requisite

None

### Module Website

None

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