

<b>Module Code</b>	CEU11E09
<b>Module Name</b>	Engineering Design I: Graphics and CAE
<b>ECTS Weighting<sup>1</sup></b>	5 ECTS
<b>Semester taught</b>	Semester 2
<b>Module Coordinator/s</b>	Assistant Prof. Bidisha Ghosh (bghosh@tcd.ie)
<b><u>Module Learning Outcomes</u> with reference to the <u>Graduate Attributes</u> and how they are developed in discipline</b>	<p>Learning outcomes</p> <p>Upon completion of this module, students will be able:</p> <p>LO1.To create, develop and draw two-dimensional images of objects by using projections using both hand-drawing &amp; CAD software;</p> <p>LO2.To identify and interpret dimensioned, two-dimensional representations of objects;</p> <p>LO3.To communicate a design idea using visualisation tools.</p> <p><b>Graduate Attributes: levels of attainment</b></p> <p>To act responsibly - Enhanced</p> <p>To think independently - Enhanced</p> <p>To develop continuously - Enhanced</p> <p>To communicate effectively - <b>Introduced</b></p> <ul style="list-style-type: none"> <li>• Appreciation of aesthetics &amp; creativity in engineering design</li> <li>• Multi-view Projection</li> <li>• Isometric Projection</li> <li>• Dimensioning</li> <li>• Reverse Engineering &amp; Assembly</li> <li>• Analysis of a chosen design object</li> </ul>

**Teaching and Learning Methods**

This module is taught using a combination of lectures, laboratories, individual and group assignments.

<b>Assessment Details<sup>2</sup></b> <b>Please include the following:</b> <ul style="list-style-type: none"> <li>• <b>Assessment Component</b></li> <li>• <b>Assessment description</b></li> <li>• <b>Learning Outcome(s) addressed</b></li> <li>• <b>% of total</b></li> <li>• <b>Assessment due date</b></li> </ul>	Assessment Component	Assessment Description	LO Addressed	% of total	Week due	
		Examination	Written examination	1,2	60%	Exam period
		Design laboratories	Hand-drawing & software laboratories	1,2	20%	Wk 3,4,5,6,9,10
		Engineering Design Portfolio	Assignment	3	20%	Wk 12

#### Reassessment Requirements

#### Contact Hours and Indicative Student Workload<sup>2</sup>

**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

Engineering Drawing and Computer Graphics, BL Davies and A Yarwood, Van Nostrand Reinhold (UK), 1986  
 Technical Draughtsmanship, Éanna O Broin, Gill and Macmillan (Ireland)1986  
 Technical Drawing 1: Plane and solid geometry, A Bankole and S Bland (England), 1991  
 100 CAD Exercises – Learn by Practicing!, Jason Artes

#### Module Pre-requisite

None

#### Module Co-requisite

None

#### Module Website

<https://www.tcd.ie/Engineering/undergraduate/baiyear1/modules/1E9.pdf>

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

#### Module Approval Date

#### Approved by

#### Academic Start Year

September 9<sup>th</sup> 2019

**Academic Year of Date**

2019/2020

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