Module Code	CEU11E09
Module Name	Engineering Design I: Graphics and CAE
ECTS credit weighting	5 ECTS
Semester taught	Semester 2
Module Coordinator/s	Dr Adam Coyne (adam.coyne@tcd.ie)
Module Learning Outcomes with embedded Graduate Attributes	On successful completion of this module, students should be able to: LO1. Produce two-dimensional images of three-dimensional objects using hand drawn projections LO2. Communicate design ideas via hand sketches LO3. Produce two-dimensional images of three-dimensional objects using CAD software LO4. Interpret and extract information from two-dimensional representations of three-dimensional objects
Module Content	This module aims to introduce students to the basic concepts of engineering drawing. It is envisaged that upon completion of the module students should be able to both produce and interpret engineering drawings to a standard used in professional practice. While Drawings are a key part of the work of many engineers' work, this is a part of engineering practice that has changed fundamentally in recent decades with the widespread availability of computers and CAD packages. In light of this, the module aims to teach students the basics rules of engineering drawing, how to effectively produce quick sketches by hand and how to produce detailed drawings using CAD Software. Students complete a series of workbooks, which introduce key concepts and place a strong emphasis on hand sketching. Students are then taught to produce formal engineering drawings using industry-standard CAD packages.
Teaching and Learning Methods	This module is taught using a combination of lectures, laboratories, individual and group assignments.

Assessment Details[1]
Please include the following:

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

Assessment Component	Assessment Description	LO Addressed	% of total	Week due
Examination	Written examination	1,2,4	50%	Exam Period
Drawing Laboratories	Hand drawing workbooks	1,2,4	20%	Week 1-12
CAD Laboratories	Software Laboratories	3	10%	Week 1-12
Engineering Drawing Exercise	Assignment	1,2,3	20%	Week 12

Reassessment Requirements

100% written examination

Contact Hours and Indicative Student Workload[2]

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

Indicative Reading List

Slade, Ron. *Sketching for Engineers and Architects.* Routledge, 2016.

Module Pre-requisite

None

Module Co-requisite

None

Module Website

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

[1] https://www.tcd.ie/CAPSL/resources/assessment
[2] TEP Guidelines on Workload and Assessment