

Module Title:	Design Specification	
Language of Instruction:	English	
Credits:	5	
NFQ Level:	6	
Module Delivered In	2 programme(s)	
Teaching & Learning Strategies:	A combination of lecture and demonstration introduce learners to more advanced feature-based, parametric solid-modelling. The focus of this module is on demonstrating the fundamental skills and concepts central to the successful use and integration of three-dimensional solid modelling with other course work. The module is designed around process or task-based training with particular emphasis on the process and procedures necessary to complete a distinct solid modelling task. Solid modelling skills are introduced by a series of interactive demonstrations and work examples. These work examples are followed by pedagogical - sequenced exercises designed to allow learners to practice the various skills that have been discussed and used in the work examples. Course-defined projects, such as the Re-Design Project, Group Project and Conceptual Project within Design Studio 2, will be set as submission requirements for this module. Students will prepare a suite of files to include one or more of the following elements: Solid Model Assembly (parts and assembly files), a General Assembly drawing with Bill of Materials, and detailed parts drawings, fully-dimensioned and annotated as required for fabrication.	
Module Aim:	The aim of this module is to further develop 3D modelling skills and 2D technical drawing skills to facilitate and support Design Studio (Design for Industry) work. Learners will be encouraged to consider design for manufacture, assembly and quality. This module is aligned with course work undertaken during the Live and Competition Projects. To ensure that students understand the stages required in the production of detailed engineering drawings that conform to recognized International standards. To demonstrate the sequences and criteria for preparing files for two-dimensional computer-aided prototyping and manufacture. To integrate more three-dimensional solid-modelling, computer-aided two-dimensional drawing and two dimensional rapid prototyping outputs (Laser cutting) for the student's other course work.	
Learning Outcomes		
On successful completion of this module the learner should be able to:		
LO1	Learners will apply knowledge to create a custom drawing template to display personal or company specific document information.	
LO2	Demonstrate and understanding and application of geometric dimensioning and tolerancing for defining nominal geometry and allowable variation for both design and process.	
Pre-requisite learning		
Module Recommendations		
This is prior learning (or a practical skill) that is recommended before enrolment in this module.		
No recommendations listed		
Incompatible Modules		
These are modules which have learning outcomes that are too similar to the learning outcomes of this module.		
No incompatible modules listed		
Co-requisite Modules		
9540	SKLS	Design Studio 2 (Design for Industry)
Requirements		
This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.		
No requirements listed		

Module Content & Assessment
Indicative Content
CAD Set Up and Process

Learners will be guided through the preparation and processes necessary to ensure that both 3D and 2D outputs match both final purpose and expectations.

Templates Generation

Learner will breakdown the structure of a drawing file, and then learn the steps of creating drawing templates and sheet formats. Learners will be shown how to correctly setup 3D CAD application to prepare and use proprietary templates for new drawings. The learner will become familiar with customising drawing sheet formats, covering title blocks, automatic border tools and table anchors.

Geometric Tolerancing and Dimensioning

Learners will receive an introduction to geometric tolerances and metrology techniques. Learners will be familiarised with dimensioning systems and symbols for defining and communicating engineering tolerances on engineering drawings and computer-generated three-dimensional solid models to explicitly describe nominal geometry and its allowable variation. An industry visit will be included to view coordinate measuring equipment in a production setting.

Parametric 3D Modelling and 2D Drawing

Learners will continue to develop their 3D modelling capabilities by adding more advanced modelling features to their repertoire. Learners will use 3D modelling skills as a support tool for form generation during the Live projects and Competition projects within Design Studio 3.

Triennial Talks

Learners will attend a triennial talk/conference in Year 2, Year 3 and Year 4. Each year the subject matter will be rotated to include presentations on: Design for Quality (Six Sigma/Lean Engineering), Design for Manufacture (Plastics- Injection Moulding/Toolmaking) and (Metal -CNC Sheet Metal/Fabrication/Machining/Casting).

Assessment Breakdown
%

Continuous Assessment

100.00%

Continuous Assessment

<i>Assessment Type</i>	<i>Assessment Description</i>	<i>Outcome addressed</i>	<i>% of total</i>	<i>Assessment Date</i>
Project	n/a	1,2	50.00	n/a
Project	n/a	1,2	50.00	n/a

No Project

No Practical

No End of Module Formal Examination

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Every Week	4.00
Total Hours		4.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_DHPDI_B	Bachelor of Arts (Honours) in Product Design Innovation	4	Mandatory
CW_DHIDE_D	Bachelor of Arts in Design	4	Mandatory