

## Module Template for New and Revised Modules

<b>Module Code</b>	ME7B18
<b>Module Name</b>	Design and Innovation
<b>ECTS Weighting</b>	10 ECTS
<b>Semester taught</b>	Semester 2
<b>Module Coordinator/s</b>	Prof. Michael Monaghan/Prof. David Hoey
<b>Module Learning Outcomes with reference to the Graduate Attributes and how they are developed in discipline</b>	<p>On successful completion of this module, students should be able to:</p> <p>LO1. Create and interpret a brief and to make competent judgements and decisions at the design level.</p> <p>LO2. Perceive the nature of problems in depth, and to pursue innovative and creative solutions to design problems.</p> <p>LO3. Communicate design and research concepts through multiple mediums both, visually and orally to multi-disciplinary teams.</p> <p>LO4. Understand the relevance of individual research in society and the potential impact on individuals, groups and society</p> <p>LO5. Possess skills ranging from concept through realization to produce high quality functional product prototypes using 3D printing technologies.</p> <p>LO6. Communicate effectively with fellow peers and experts from unrelated fields in order to grasp a societal need and address it when part of a multidisciplinary team.</p> <p><b>Graduate Attributes: levels of attainment</b></p> <p>To act responsibly - Attained</p> <p>To think independently - Attained</p> <p>To develop continuously - Attained</p> <p>To communicate effectively - Attained</p>
<b>Module Content</b>	<p>This module introduces students to tools and topics within the clinical engineering environment. This module will provide students with an introduction to working within multidisciplinary project teams and provide the opportunity to apply learned knowledge to real world problems within group project work to develop functional prototypes using rapid prototyping technology. The content is split across two initiatives:</p> <ul style="list-style-type: none"> <li>• Introduction to industrial design run by National College of Art &amp; Design (NCAD)</li> </ul>

- Group project involving the development of device prototypes using rapid prototyping technology; engagement with healthcare and non-profit organisations, and demonstration of projects through public outreach at local science fairs, school-demonstrations, media outlets and social platforms.

### **Teaching and Learning Methods**

The module is taught using a combination of seminars, lectures and project related work.

<b>Assessment Details</b> Please include the following: <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
	NCAD Project	This assessment is based on participation, progress and the calibre of the project developed in NCAD	1,2,3,4,5,6	40	Wk 28
	Innovation Design Challenges	This assessment is based on addressing a design challenge (4-6 over the semester). Students will be provided with a design brief and tasked with a 3D printing solution which will be evaluated on design quality, innovation, meeting the brief and final product quality.	1,2,3,4,5,6	60	Wk 33
<b>Reassessment Requirements</b>	Reassessment – 100% Project				
<b>Contact Hours and Indicative Student Workload</b>	Contact hours: 65 –includes Full week in NCAD and St. James’ Hospital, Innovation/Design clinics				
	Independent Study (preparation for course and review of materials): 100				
	Independent Study (preparation for assessment, incl. completion of assessment): 35				
<b>Recommended Reading List</b>					
<b>Module Pre-requisite</b>					
<b>Module Co-requisite</b>					
<b>Are other Schools/Departments involved in the delivery of this module? If yes, please provide details.</b>					

<b>Module Approval Date</b>	19 <sup>th</sup> January 2023
<b>Approved by</b>	Michael Monaghan , David Hoey
<b>Academic Start Year</b>	2023
<b>Academic Year of Date</b>	2024