Module descriptor for 7B18: Design and innovation

Module code	ME7B18
Module name	Design and Innovation
ECTS weighting	10 ECTS
Semester taught	Semester 2
Module coordinator/s	Assistant Professor Brooke Tornifoglio
Module learning outcomes (LO) with reference to the graduate attributes and how they are developed in discipline	On successful completion of this module, students should be able to: LO1: create and interpret a brief, as well as make competent judgements and decisions at the design level. LO2: perceive the nature of problems in depth, and to pursue innovative and creative solutions to design problems. LO3: communicate design and research concepts through multiple mediums, both visually and orally to multidisciplinary teams. LO4: understand the relevance of individual research in society and the potential impact on individuals, groups and society. LO5: possess skills ranging from concept through realisation to produce high quality functional product prototypes (e.g. using 3D printing technologies). 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. **Graduate Attributes: levels of attainment** To act responsibly - Attained To think independently - Attained To develop continuously - Attained To communicate effectively - Attained
Module content	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 technologies. The content is split across two initiatives:

	• Introduction to industrial design run by National College of Art & Design (NCAD) • Group project work 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 lectures, seminars and group based project work.
Assessment details	**Innovation design challenges (3)**: • Weighting: 30% of total grade (10% each) • What: Student groups will be provided with a design brief and tasked with 3D printing a solution which will be evaluated on design quality, innovation, meeting the brief and final quality. • When: Due week 2, 4, 6 • Why: LOs 1, 2, 3, 5, 6 **NCAD project**: • Weighting: 40% of total grade • What: Week long design project in NCAD, participation/progress/calibre of project is assessed. • When: Week 7 (sem. 2 reading week) • Why: LOs 1, 2, 3, 4, 5, 6 **Final design challenge:** • Weighting: 30% of total grade (15% each) • What: Student groups will come up with their own design challenge, engage with relevant stakeholders/public, produce a promotional video and a final working prototype. • When: Due week 13 • Why: LOs 1, 2, 3, 4, 5, 6
Reassment requirements	In the event of reassessment, it is 100% project based.
Indicative student workload	**Contact hours**: 65 hours – includes full week in NCAD/SJH, and design and innovation clinics. **Independent study**: 100 hours (preparation and review of materials). **Independent study**: 35 hours (preparation and completion of assessments).
Recommended reading list	N/A

Module pre-requisite	None
Module co-requisite	None
Module website	
Other schools/departments involved in delivery of this module?	N/A
Module approval date	2024
Approved by	Brooke Tornifoglio
Academic start year	2024
Academic year of date	2024/2025