MODULE TITLE: Innovation in Product Development
Lecturer: Kevin Kelly

MODULE CODE: 4E5

LEVEL: Senior Sophister
CREDITS: 20
PREREQUISITES: None

Semesters: 1 & 2
DURATION (WEEKS): 24
LECTURE/WEEK: 2
LABS/WEEK: 4
TOTAL: 44
TOTAL: 88

AIMS/OBJECTIVES
This module is a project based module, where teams of students work, within a user-centred design framework, to conceptualize and manufacture a high quality prototype to real-world problem. Each team will work to a specific project brief from a project sponsor – typically a business with global scale. Project briefs will be significantly open-ended to facilitate truly innovative solutions to be developed. Students will work with an academic mentor/supervisor, teaching assistants and with a project liaison in the sponsor company. Some of the projects will require liaison with project teams, in other universities, working on other aspects of the problem. Students will be expected to deliver a working prototype solution of commercial quality at the conclusion of the project.

SYLLABUS
- Successful team formation and management
- Introduction to user-centred design
- Ideation and use of personas and POVs
- Need finding
- Embedded Microcontrollers for consumer products
- Human factors in engineering design
- Critical Experience and Critical Function Prototyping
- Dark Horse and ‘Funky’ prototyping
- Rapid prototyping and manufacturing
- Design for manufacture
- User testing
- Use of video/electronic media for communication
- Start-ups and entrepreneurship
- Intellectual Property

RECOMMENDED TEXT(S)
- None.

OTHER RELEVANT TEXT(S)/RESOURCES
- Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation, Tim
LEARNING OUTCOMES
On successful completion of the module, students will be able to:

1. Work in in multi-disciplinary and/or geographically distributed teams on a technically ambitious and challenging project
2. Identify user needs and develop solutions to meet those needs, from concept through realization
3. Deliver high quality functional product prototypes of commercial quality
4. Analyse potential market and societal benefits of developed solutions
5. Conduct patent searches and analyse prior intellectual property
6. Liase with professional engineers (and other staff in the commercial sector) in a professional and timely manner
7. Develop innovative solutions to real-world problems

TEACHING STRATEGIES
Learning will be predominantly self-directed, with significant guidance and supervision from staff and teaching assistants. Occasional lectures on topics of mutual benefit and interest will be organized. Students will follow a structured innovation paradigm, closely modelled on the Stanford ME310 curriculum.

ASSESSMENT MODE(S)
The module marks are derived solely from continuous assessment.