Module Descriptor

Module Title: User Centred Design Innovation

Module Code: 4MEMS9

Level: MAI

Credits: 5 ECTS

Prerequisites: None

Semester 1

Lecture/Week: 5

Aims/Objectives

Engineers and technologists are typically well equipped with fundamental knowledge to develop new products and services. Additionally, they will have experience of the practice of designing new devices, components, systems and programs. However, research shows that most new businesses fail because they fail to clearly identify a user need and to meet that need. This module provides students with the tools to identify users and their needs through a structured approach drawing from the design, ethnography and psychological domains, progressing to rapid prototyping of design concepts for testing with users. Students will work individually and in teams on developing solution concepts to complex multidisciplinary challenges and learning how to bring these to the stage where high resolution prototypes and external venture funding can be sought.

Syllabus

- Introduction to user centred design
- Ideation and the use of personas and POV statements
- Needfinding and benchmarking
- Interviewing and observation tools and techniques
- Use of focus groups
- Critical function and critical experience identification and prototyping
- Venture funding and pitching
- Intellectual Property and patenting

Recommended Texts: None

Learning Outcomes

On successful completion of the module, students will be able to:
1. Work in multidisciplinary teams on a technically ambitious and challenging project
2. Identify user needs and develop solution concepts to meet those needs
3. Analyse potential market and societal benefits of developed solutions
4. Conduct patent searches and analyse prior intellectual property
5. Liaise with professional engineers (and other staff in the commercial sector) in a professional and timely manner

Teaching Strategies
A blended learning approach is used in the module with extensive use made of a virtual learning environment. Students will typically have 1-2 hours of structured instruction per week with another 30-60 minutes of small group/individual mentoring/advice with the teaching team of academics and teaching assistants. Students will be expected to commit another 8-9 hours per week between individual and group assignments. Extensive use will be made of external experts and coaches/mentors (former graduates) in both formal and informal settings.

Assessment Mode(s)
The module marks are derived solely from continuous assessment.