UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title:	Healthcare Technology Project
Module Code:	MHT5005-B
Academic Year:	2019-20
Credit Rating:	20
School:	Department of Biomedical and Electronics Engineering
Subject Area:	Medical and Healthcare Technology
FHEQ Level:	FHEQ Level 5
Pre-requisites:	
Co-requisites:	

Contact Hours	
Type	**Hours**
Lectures	24
Tutorials	24
Directed Study	152

Availability	
Occurrence	**Location / Period**
BDA	University of Bradford / Academic Year (Sept - May)

Module Aims

Using established Product Design methods, the learner will work in groups to: (1) Identify a key need for a medical device technology. (2) Develop concepts for a new device with functionality that will address the need. (3) Refine the design to produce a proof of concept demonstrator. (4) Demonstrate and evaluate functional solutions to these problems with a working prototype.

Outline Syllabus

1) Identifying opportunities and addressing needs
2) Product specifications
3) Concept generation
4) Concept selection

5) Concept testing
6) Industrial design
7) Design visualisation tools
8) Project Planning
9) Prototyping Tools
10) Prototyping Methods
11) Product Architecture
12) Design for manufacture
13) Robust design
14) Design for Environment
15) Patents and IP protection

Learning Outcomes	
1	Demonstrate the process of systematic creative problem solving in a group-based working environment.
2	Select and apply new tools and techniques to enable project delivery.
3	Analyse and evaluate information to obtain solutions to particular engineering and technology problems.
4	Manage, present and interpret data to an audience
5	Solve problems systematically and creatively.
6	Collaborate and communicate effectively with other team members

Learning, Teaching and Assessment Strategy

Teaching will consist of 2 hours sessions which will typically comprise of an introductory lecture to provide information about how the cohort can approach the problem and what they should be thinking about in the following group work. The group work sessions which follow will provide the individual groups with tasks that they can work together to complete before the next session. All these tasks will directly feed the final design of the product that the group will build as a prototype during Semester 2. Both Tutors move from group to group duing the group sessions to provide feedback on their ideas and make suggestions for improvement.
The module is delivered according to the stages that an Entrepreneur would be likely to follow to bring a new product to market.

The module is assessed using coursework and presentation components, divided into key areas as follows:

Submission Type	Percentage
Semester 1 Design Brief Presentation (Wk7)	15%
Semester 1 Client Meeting Presentation (Wk 13)	15%
Semester 2 Proof of Concept Presentation(Wk 6)	15%
Semester 2 Proof of Prototype Showcase (Wk 12)	15%
Product Development Portfolio (Wk 12)	40%

The structure of the assessment has been designed to mirror a real product development approach with regular presentations to relevant stakeholders.
Assessment will be performed in class at key stages in the project where the class will be asked to present their work performed so far to the rest of the cohort.
The scores for each assessment will consist of a component awarded by the course tutors and a peer component that assesses the contribution of each group member.

This module satisfies the below Learning Outcomes as specified by the Accreditation of Higher Education Programmes: Third Edition (AHEP3) as published by The Engineering Council in-line with the UK Standard for Professional Engineering Competence (UK-SPEC). These outcomes specify six key areas of learning: Science and Mathematics (SM), Engineering Analysis (EA), Design (D), Economic, Legal, Social, Ethical and Environmental Context (EL), Engineering Practice (P) and Additional General Skills (G). SM1b, SM2b, SM3b, EA3b, EA4b, D1, D2, D3b, D4, D5, D6, EL2, EL3b, EL4, EL5, P1, P2, P3, P7, P11b, G1, G4, SM2m, SM3m, SM4m, SM6m, EA3m, EA4m, EA5m, D3m, D7m, D8m, EL3m, EL5m, EL7m, P2m, P10m, P11m. Further details of these learning outcomes can be found at https://www.engc.org.uk/

Mode of Assessment

Type	Method	Description	Length	Weighting
Summative	Presentation	Semester 2 Presentations		30%
Summative	Presentation	Semester 1 Presentations		30%
Summative	Coursework	Product development portfolio		40%
Referral	Coursework	Individual final report (2500 words)		100%

Reading List

To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html.

Please note:

This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.