UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title	Group Project
Module Code	ENG5060-B
Academic Year	2020/1
Credits	20
School	Department of Mechanical and Energy Systems Engineering
Subject Area	Mechanical and Automotive Engineering
FHEQ Level	FHEQ Level 5
Pre-requisites	N/A
Co-requisites	N/A

Contact Hours	
Type	Hours
Online Lecture (Synchronous)	12
Lectures	12
Online Tutorials (Synchronous)	12
Supervised time in studio/workshop	14
Directed Study	150

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Academic Year

Module Aims

The module is designed to build upon the stage 1 modules 'Design, Build and Test' and 'Computer Aided Engineering' to provide a more in-depth project based hands on experience which integrates with other modules within the second year.
The module has three key aims:
1. Provide practical experience of functional component and assembly design through the application of appropriate computer aided design, analysis and simulation tools.
2. Develop skills in the selection and application of appropriate manufacturing technologies such as computer aided manufacture (CAM) and additive manufacturing including consideration of production tolerances.
3. Create awareness of the functionality of complementary technologies such as electronics for sensing and control, and computer interfaces with mechanical systems.
4. Develop personal and interpersonal skills in product, process or system design through industrially or research relevant projects

Outline Syllabus

The syllabus will draw from skills developed during Stage 1 modules 'to develop a prototype product that has been designed to solve a real world engineering problem.
The cohort will work in small groups and will follow a product design framework as follows:
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

Outcome Number	Description
01	Creating solutions for real world engineering challenges using a range of engineering theories and tools.
02	Manage, interpret and present data to an audience
03	Demonstrate project management and problem solving skills
04	Collaborate and communicate effectively with other team members

Learning, Teaching and Assessment Strategy

A weekly online synchronous lecture will introduce the new product design theme to be applied to the group project idea. An online tutorial held later in the week will let each group individually discuss the outcomes with the tutor, and plan the next steps.
Assessment will take the form of 4 presentations (online and face to face, dependent on guidelines) to the cohort throughout Semester 1 and 2. The final presentation will be in a face to face setting in a public space to showcase the achievements of the cohort.
Formative assessment will be provided throughout the module during the online tutorial sessions.

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, EA1b, EA2, EA3b, D3b, D4, D5, EL1, EL2, EL3b, EL4, EL6b, P1, P2, P3, P6, P7, G1, G2, G3b, P2m.
Further details of these learning outcomes can be found at https://www.engc.org.uk/.

Mode of Assessment

Type	Method	Description	Length	Weighting
Summative	Coursework	Project Design, Prototype presentations and final showcase.	N/A	70%
Summative	Coursework	Group technical report	N/A	30%
Referral	Coursework	3D modelling of systems with data analysis	N/A	100%
Formative	Coursework	Ongoing formative assessment during timetabled tutorials	N/A	N/A

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.
