

Team Project

Module Code:	ENG7011-D
Academic Year:	2018-19
Credit Rating:	40
School:	Department of Mechanical and Energy Systems Engineering
Subject Area:	Mechanical and Automotive Engineering
FHEQ Level:	FHEQ Level 7 (Masters)
Module Leader:	Rizwana Ahmed

Additional Tutors:

Pre-requisites:

Co-requisites:

Contact Hours

Type	Hours
Independent Study	200
Seminar	6
Project supervision	24
Tutorials	36
Directed Study	134

Availability Periods

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

Module Aims

Outline Syllabus

The syllabus follows the development of a product using the systems engineering approach to design with 5 main developmental areas:

1. Product Specification

The needs and requirements of the product are defined within a specification which accounts for factors such as required function, user profile, user interaction, legislation, existing intellectual property, cost of manufacture, production methods and operation.

2. Ideation

Idea generation around the product specification with suitable selection processes for future concept generation conveyed in suitable forms.

3. Concept Design

Generation of concepts based on selected ideas to be described via CAD, GDLs, prototypes and computer analysis models. Concept evaluation to include manufacturing methodologies and assembly considerations as well as predicted product performance.

4. Design Detailing and Prototyping

Detailed design consideration including prototyping methods, design analysis and final method of production. Final solution described by suitable 2D and 3D computer models and engineering drawings including individual components and assemblies.

5. Design Verification and Modification

Final designs are verified and compared to initial specification. Analysis of performance is considered and any modifications to the design solution specified and tested.

Module Learning Outcomes

On successful completion of this module, students will be able to...

- 1 Apply a holistic approach to product design and development including specification of all design elements and idea selection methodologies
- 2 Demonstrate abilities in the application of suitable analytical and computation tools to inform concept selection and development. Validate component and assembly performance via prototyping and computational tools.
- 3 Use problem solving skills individually and as part of a team to produce and present a design solution.
- 4 Demonstrate a deep consideration of ethical, sustainability and health and safety implications of engineering practice in the context of a group based project

Learning, Teaching and Assessment Strategy

Students work in a team-based learning environment with support provided by academic, research and technical staff. Where appropriate industrialist input may also be available in the form of a client meeting.

Student groups will present their project progression at a number of stages through the project life cycle, with academic formative feedback and peer review provided.

Workshop based tutorials focused on project management, ethics and health and safety

implications of projects will be available in the early phase of the module

There are 2 formal assessments.

Assessment 1 (Coursework) - A formal presentation of a group design solution at concept stage (30%)

Assessment 2 (Coursework) - Final solution of group work activity including all relevant documentation (CAD, solution analysis, mathematical models, validation of solution and specification of design modifications. Assessment also includes peer assessment (70%)

Mode of Assessment

Type	Method	Description	Length	Weighting	Final Assess'
Summative	Presentation	Concept Design Presentation		30%	No
Summative	Coursework	Design Solution submission including asset folder of supporting material		70%	Yes
Referral	Coursework	Individual Design Solution		100%	Yes
Formative	Coursework	Project development presentations for formative assessment and peer review		%	No

Legacy Code (if applicable)

Reading List

To view Reading List, please go to [rebus:list](#).