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Title: Mechanical Engineering Design 3  
Status: Definitive  
Code: **6103MECH** (121313)  
Version Start Date: 01-08-2021  
  
Owning School/Faculty: Engineering  
Teaching School/Faculty: Engineering

Team	Leader
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**Academic Level:** FHEQ6      **Credit Value:** 20      **Total Delivered Hours:** 33  
**Total Learning Hours:** 200      **Private Study:** 167

### Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	11
Tutorial	22

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Design Project	100	

### Aims

*This module will deliver a project based learning experience in Engineering Design. It is intended to present a practical focal point for knowledge and techniques learned in other modules as well as to continue to build on the engineering design curriculum*

from levels 4 and 5. Its participants will follow a systematic approach to generate detailed designs for a component or system.

## Learning Outcomes

After completing the module the student should be able to:

- 1 Actively manage the design process and monitor progress
- 2 Communicate design information and data effectively.
- 3 Apply analytical techniques, from a range of engineering disciplines, in a design context.
- 4 Apply engineering knowledge and judgement to solve design problems.
- 5 Determine the compliance of designs relative to the relevant engineering standards.
- 6 Determine the cost of a proposed design based on relevant economic considerations.

## Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Design Project	1	2	3	4	5	6
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## Outline Syllabus

### *Management of the Design Process*

- *Coordination of design teams.*
- *Design project management, BS7000 Design Management.*
- *Collaborative design briefs, needs recognition and creation of effective design specifications.*
- *Concept generation and presentation.*
- *Embodiment design, layout planning, part modelling.*
- *Design for Manufacture, Bills of Process and process planning. Cost estimation and modelling.*
- *Team evaluation of ideas.*
- *Writing design reports.*

### *Principles of systems design*

- *Application of appropriate design methodologies for complex design projects.*
- *Ensuring compliance with standards and & laws.*
- *Intellectual Property, Copyright, Patents.*
- *Further applications of ISO/BS8887:2009 Design for Manufacture, Assembly, Disassembly and End-of- life processing for multiple subsystems.*
- *Concurrent engineering.*

## **Learning Activities**

This module will be delivered through an integrated series of lectures and tutorials. The learning activities are to be student focused and develop the students design knowledge through experiential learning.

## **Notes**

This module aims to equip the student with important underpinning engineering skills. Completion of this module is a requirement for compliance with the Engineering Council UK Spec and accreditation of the programme by the engineering professional bodies. A student must therefore successfully complete all sections of the module to a satisfactory level.