

MODULE DESCRIPTOR

Module Title

Mechanical Design B

Reference	EN2802	Version	1
Created	April 2023	SCQF Level	SCQF 8
Approved	August 2023	SCQF Points	15
Amended		ECTS Points	7.5

Aims of Module

To enable students to build and test multi-element mechanical systems taking into consideration material sustainability, ethical implications, risk assessment and security mitigation.

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1 Evaluate holistically each individual component for manufacturability as well as material security, global supply chain risks, product life cycle and sustainability.
- 2 Build a mechanical system in a team using appropriate equipment and technologies evaluating its performance.
- 3 Identify ethical implications of the design in the context of social responsibility, equality, and diversity.
- 4 Develop a portfolio of evidence to communicate self-learning and the design project to wider audiences.

Indicative Module Content

The environmental, diversity, equality and sustainability impacts implicit in sourcing raw materials, and the alternatives available to the designer will be highlighted along with the concept of a basic corporate social responsibility background. The selection of fabrication techniques, materials, and material security in the context of the global supply chain and product life cycle is examined as part of the designing process. The students in the group will be required to implement the developed design into practice using range of fabrication techniques to solve a practical problem and understand as well as test its performance.

Module Delivery

The theoretical aspects of the module are delivered by lectures, seminars and case studies. The approach will be principally student-centred. The practical/manufacturing part will be delivered through workshops and self-build exercises. Students may also be taken on industrial visits or receive talks from guest speakers.

Indicative Student Workload

	Full Time	Part Time
Contact Hours	66	66
Non-Contact Hours	84	84
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	150
<i>Actual Placement hours for professional, statutory or regulatory body</i>		

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

Type:	Coursework	Weighting:	100%	Outcomes Assessed:	1, 2, 3, 4
Description:	Portfolio of evidence.				

MODULE PERFORMANCE DESCRIPTOR**Explanatory Text**

Component 1 comprises 100% of the module grade. To pass the module, a Grade D is required.

Module Grade	Minimum Requirements to achieve Module Grade:
A	A
B	B
C	C
D	D
E	E
F	F
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module	EN1601 or equivalent.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

- 1 Slack, Nigel, Alistair Brandon-Jones, Nicola Burgess, Essentials of Operations Management, Third edition, Pearson Education, UK
- 2 Ashby, Michael F ; Johnson, Kara, Materials and Design - The Art and Science of Material Selection in Product Design, 2nd Edition, 2010, Elsevier.
- 3 Manzini, Ezio ; Vezzoli, Carlo Arnaldo, Design for Environmental Sustainability, London: Springer London, Limited, 2008
- 4 Bowen, W. Richard, Engineering Ethics, Springer International Publishing Switzerland, 2014
- 5 Jean-Claude Bolay, Magali Schmid, Gabriela Tejada, Eileen Hazboun, Technologies and Innovations for Development, Springer, 2014