	Reference EN2700 SCOF SCOF
Module Title	Level 8
Mechanical Engineering Design 2	SCQF Points 15
	ECTS Points 7.5
Keywords	Created May 2002
Material properties and selection; manufacturing &	Approved March
fabrication processes; environmental impact; energy;	2004
design management	Amended October
	2014
	Version No. 4

This Version is No Longer Current

The latest version of this module is available <u>here</u>

Prerequisites for Module Mode of Delivery EN1701 Introduction to Design, The theoretical aspects of the Materials and Manufacture or its module are delivered by lectures, equivalent. seminars and case studies. The approach will be principally student centred. Relevent criteria-based and decision-making strategies for **Corequisite Modules** failure analysis and prevention will be covered in lectures and tutorials None. and also within the **Precluded Modules** laboratory/workshop areas. Case studies will be selected as appropriate to the level of the None. students' expected understanding. **Aims of Module** Students may also be taken on industrial visits or receive talks To provide the student with an from guest speakers. understanding of the significance

of materials, manufacturing

and regulation on the design

process.

needs, environmental constraints

Assessment Plan

Learning Outcomes for Module

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

- 1.Evaluate the influence of design, materials, manufacture and operating environment on the performance of components and products in their operating environments.
- 2.Explain the importance of the legal, environmental and social aspects of engineering design.
- 3.Identify the possible causes of failure in specific components or products.
- 4. Apply effective integrated design methods to the production of technical solutions to specific problems.

Indicative Module Content

The student will develop an understanding of the impacts of engineering design management decisions in a global context. The environmental impacts implicit in sourcing of raw materials, and the alternatives available to the designer will be highlighted against a basic corporate social responsibility background. The selection of fabrication techniques, effects of material structures on product performance, and eventual

Component 1	1,2
Component 2	3,4

Component 2 is a problem-based coursework including case study and focussing on machine component design (50% weighting).

Component 1 is an investigative coursework report including experimental or workshop activities or reverse engineering (50% weighting).

Indicative Bibliography

- 1.ASHBY, M., SHERCLIFF, H. and CEBON, D., 2013. Materials.3rd ed. Oxford: Butterworth-Heinemann.
- 2.BUDYNAS, R. and NISBETT, K., 2015. Shigley's Mechanical Engineering Design. 10 ed. New York: McGraw-Hill.
- 3.ASBURY, S. and BALL, R., 2009. Do the right thing: Jargon free guide to Corporate Social Responsibility. IOSH Services Ltd.
- 4.KLEBANOV, B.M., 2009. Machine Elements, Life and Design. Boca Raton, FL: CRC Press.

Additional Notes

Students will be expected to observe all necessary safety

product disposal are examined. The student, either individually or as part of a group, will be required to research and select from a range of potential solutions to a design problem.

ed. regulations when using laboratory ally and workshop facilities.

Indicative Student Workload

Contact Hours	Full Time	Part Time
Laboratory / workshop	12	12
Lectures / tutorials	36	36
<i>Directed Study</i> Directed Study	27	27
<i>Private Study</i> Private Study	75	75