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## MODULE DESCRIPTOR

### Module Title

Advanced Design for Sustainable Manufacture

Reference	EN4506	Version	1
Created	June 2023	SCQF Level	SCQF 10
Approved	August 2023	SCQF Points	15
Amended		ECTS Points	7.5

### Aims of Module

To enable students analyse the design process and understand the manufacturing, assembly, cost, quality, sustainability and ethical issues in the design process

### Learning Outcomes for Module

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

- 1 Illustrate understanding of the design process.
- 2 Critique a product and related system in the context of Design for manufacture and assembly principles
- 3 Justify product design and the important issues in Design for cost, quality, and sustainability.
- 4 Examine the ethical considerations for design and manufacture.

### Indicative Module Content

Design process; Material and manufacturing selection, feedback and iteration in the design process , opportunities and limits, strategies, methods and mean of the design process ; Reliability driven product design; maintainability, environmental issues and design, ethics obligation and code of conduct. Sustainable product design, strategies and principles to reduce impact, Service design process models, Product-service systems, Sustainable design standards and Sustainable materials and manufacturing

### Module Delivery

The module is delivered by means of lectures, tutorials and self-guided study and is integrated with applications in the laboratory.

### Indicative Student Workload

	Full Time	Part Time
Contact Hours	46	N/A
Non-Contact Hours	104	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
<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: Report

**MODULE PERFORMANCE DESCRIPTOR****Explanatory Text**

The module has 1 component and to gain an overall pass a minimum D grade must be achieved in each component.

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

**Module Requirements**

Prerequisites for Module	EN3108, EN3109
Corequisites for module	None.
Precluded Modules	None.

**INDICATIVE BIBLIOGRAPHY**

- 1 Dym, Clive L., 2008, Engineering Design.3rd Ed. Wiley ISBN 10: 0470225963 ISBN 13: 9780470225967
- 2 Kuashik Kumar, Divya Zindani, J Paulo Davim., 2021. Sustainable manufacturing and Design 1st Edition. Elsevier
- 3 J Paulo Davim., 2010. Sustainable manufacturing, 1st Ed. John Wiley & sons, Inc.
- 4 Sarbjeet Kaushal, Ishbir Singh, Satnam Singh, and Ankit Gupta Sustainable,2022. Advanced Manufacturing and Materials Processing Methods and Technologies. 1st edition CRC Press, Taylor & Francis Group, LLC