

## MODULE DESCRIPTOR

### Module Title

Fundamentals of Engineering Practice

Reference	EN1100	Version	4
Created	April 2023	SCQF Level	SCQF 7
Approved	July 2018	SCQF Points	30
Amended	August 2023	ECTS Points	15

### Aims of Module

To provide the student with the knowledge and skills required to carry out engineering project work in an appropriate context.

### Learning Outcomes for Module

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

- 1 Employ understanding of the engineering drawing and practical skills necessary to complete an engineering build project whilst mitigating risk.
- 2 Apply engineering design methods and manufacturing processes using appropriate planning to assemble, commission and verify a product to meet customer needs.
- 3 Recognise environmental and security issues which apply within the context of an engineering project.
- 4 Identify the responsibilities of engineering practice in relation to ethical issues and inclusivity.
- 5 Present detailed and relevant documentation of an engineering project using a variety of communication methods.

### Indicative Module Content

Assembly drawings, interpretation of Piping & Instrumentation Diagram (P&ID), electronic and mechanical schematics as well as basic computer aided design elements. Development of basic 3d models. Identification of common production equipment and processes. Verification of operability of common mechanical and electronic production equipment. Safe working practices and Risk assessment. A mechanical and electronic design and build project which allows the student to practice basic project management, design evaluation, assembly and test procedures and understanding of manufacturing principles. This will be supported by module theory. Use of 3D Printed elements allowing students to show personal qualities, such as initiative, imagination, and creativity. Introductory overview of sustainability of materials, parts, assemblies. Identify security issues of engineering projects. Introduction to corporate ethics and inclusion. Communication skills, reflective writing, recording of work done.

### Module Delivery

The module is delivered in Blended Learning mode using structured online learning materials/activities and directed study, facilitated by regular online tutor support. Workplace Mentor support and work-based learning activities will allow students to contextualise this learning to their own workplace. Face-to-face engagement occurs through annual induction sessions, employer work-site visits, and modular on-campus workshops.

### Indicative Student Workload

	Full Time	Part Time
Contact Hours	30	N/A
Non-Contact Hours	30	N/A
Placement/Work-Based Learning Experience [Notional] Hours	240	N/A
TOTAL	300	N/A
<i>Actual Placement hours for professional, statutory or regulatory body</i>	240	

### 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, 5
Description:	Portfolio of evidence - competencies assessment. Individuals must show evidence of competence and understanding in all learning outcomes in order to pass the module				

### MODULE PERFORMANCE DESCRIPTOR

#### Explanatory Text

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

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	None.
Corequisites for module	None.
Precluded Modules	None.

**INDICATIVE BIBLIOGRAPHY**

- 1 ULRICH, K. T. and EPPINGER, S.D., 2016. Product Design and Development. 6th ed. New York:McGraw-Hill.
- 2 DIETER, G, E. and SHHMIDT, L, C; 2009. Engineering Design. 4th ed. New York: McGraw-Hill.
- 3 CALLISTER W.D., RETHWISCH, D. G., 2014. Materials Science and Engineering. 9th Edition SI Version,New York: Wiley.
- 4 British Standard BS 8888:2017 - Technical product documentation and specification.
- 5 HERSH, M. A., 2015. Ethical engineering for international development and environmental sustainability. London: Springer.
- 6 HOROWITZ, P. and HILL, W., 2015. The Art of Electronics. 3rd ed., Cambridge University Press.
- 7 SINCLAIR, I., 2007. Practical Electronics Handbook. 6th ed., Newnes.
- 8 Manuals and other literature will be made available as appropriate in CampusMoodle.