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MODULE DESCRIPTOR

Module Title

Engineering Design and Professional Development

Reference	EN2602	Version	2
Created	August 2021	SCQF Level	SCQF 8
Approved	May 2020	SCQF Points	30
Amended	August 2021	ECTS Points	15

Aims of Module

To make students aware of the role, conduct and responsibilities of professional engineers and give them experience in developing solutions to technical problems as part of an engineering team.

Learning Outcomes for Module

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

- 1 In the context of engineering projects and business understand the professional competences expected of an engineer and their responsibilities.
- 2 Understand the legal, social and ethical responsibilities of an engineer.
- 3 Produce and maintain a reflective portfolio.
- 4 Apply creative, analytical and design skills to produce a design to specified requirements within a team environment.
- 5 Contribute to the production of technical documentation and participate in a presentation.

Indicative Module Content

The need for profession conduct, maintenance of standards and ethical values in engineering. The commercial, economic and social context of engineering. The role of engineers in sustainable development activities. Legal issues around technical contracts and engineering activities. Engineering issues around health and safety, liability, personnel, knowledge rights and risks. Importance of quality, use of emerging technologies and innovation to deliver engineering enhancement. Enablers to deliver business success and customer satisfaction. Environmental concerns in engineering. Research and development project: Information searching, feasibility study and costings. Working as a team - team roles and accountability. Personal development as an engineer through reflective portfolio and understanding of engineering competencies.

Module Delivery

The module is largely student-centred with a mixed balance of group activity and individual work undertaken. Each student will produce an engineering case study report and reflective portfolio of evidence. The group project is defined by a specification - the detailed requirements of which will be presented at the start of the exercise along with other relevant background material. Students research the topic by means of directed reading and carry out design and development work that culminates in the production of specified team deliverables.

Indicative Student Workload

	Full Time	Part Time
Contact Hours	72	N/A
Non-Contact Hours	228	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	300	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:	30%	Outcomes Assessed:	1, 2
Description:	Individual case study on a major project/company.				

Component 2

Type:	Coursework	Weighting:	20%	Outcomes Assessed:	3
Description:	Individual reflective portfolio of evidence.				

Component 3

Type:	Coursework	Weighting:	50%	Outcomes Assessed:	4, 5
Description:	Group portfolio including a technical report and supporting verbal corroborating evidence.				

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

To pass the module the student must achieve a minimum of a grade D. Non-submission of any component will result in an NS grade.

Module Grade	Minimum Requirements to achieve Module Grade:
A	A in Component 3 and at least B in remaining components.
B	A in Component 3 and at least D in remaining components OR B in Component 3 and at least C in remaining components.
C	C in Component 3 and at least D in remaining components OR D in Component 3 and at least A and D, or B and C in remaining components.
D	D in Component 3 and at least D in remaining components.
E	E in one or more components.
F	F in one or more components.
NS	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 Engineering Council (2013) UK Standard for Professional Engineering Competence (UK-SPEC), [http://www.engab.org.uk/engcdocuments/internet/Website/UK-SPEC%20third%20edition%20\(1\).pdf](http://www.engab.org.uk/engcdocuments/internet/Website/UK-SPEC%20third%20edition%20(1).pdf)
- 2 GAYTON, L., 2017, Legal Aspects of Engineering, 10th ed, Kendall/Hunt.
- 3 BAKSHI, B.R. 2019, Sustainable Engineering, CUP.
- 4 Walesh, S.G., 2012, Engineering Your Future: The Professional Practice of Engineering, 3rd ed, Wiley.
- 5 Chelsom, J.V. et al, 2005, Management for Engineering Scientists and Technologists, 2nd ed, Wiley.