

Module specification

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Module Code	ENG4B3
Module Title	Engineering Professional Development
Level	4
Credit value	20
Faculty	FAST
HECoS Code	100184
Cost Code	GAME

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
BEng/MEng Aeronautical Engineering	Core
BEng/MEng Automotive Engineering	Core
BEng/MEng Electrical and Electronic engineering	Core
BEng/MEng Mechanical Engineering	Core
BEng/MEng Renewable and Sustainable Engineering	Core

Pre-requisites

N/A

Breakdown of module hours

Learning and teaching hours	10 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	26 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	36 hrs
Placement / work based learning	0 hrs
Guided independent study	164 hrs
Module duration (total hours)	200 hrs

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Initial approval date	22/08/2022
With effect from date	September 2022
Date and details of revision	
Version number	1

Module aims

- To introduce students into the importance of engineering standards.
- To provide an introduction to the ethical considerations involved in a career in engineering.
- To develop an understanding of the importance of professional registration.
- To provide an understanding to how reflective practice can improve performance.
- To develop an appreciation of engineering practical skills and how they relate to design.

Module Learning Outcomes - at the end of this module, students will be able to:

1	Perform engineering operations for mechanical and electrical practices and report on them in a reflective manner.
2	Apply personal commitment to professional standards and obligations to society, the engineering profession and the environment.
3	Consider their ethical responsibility within the context of their engineering careers
4	Develop creative design skills, practical skills, engineering communication skills, personal and professional career management skills.

In addition to the module learning outcomes, student will also cover the following accreditation of higher education programme (AHEP) fourth edition learning outcomes: C7, C8, C11, C12, C16, C17 & C18.

Assessment

Indicative Assessment Tasks:

A portfolio of assessment pieces to include – A reflective log of the workshop processes, a report as to why professional registration is of importance and a short essay on ethical implications of a pertinent engineering topic, such as climate change or robotics. A group presentation will also be held on the theme of encouraging diversity and inclusivity within engineering through engagement with school children.

The portfolio should have a minimum word count of 4000 or equivalent.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1-4	Portfolio	100%

Derogations

A derogation from regulations has been approved for this programme which means that whilst the pass mark is 40% overall, each element of assessment (where there is more than one assessment) requires a minimum mark of 30%.

Learning and Teaching Strategies

The module is taught through a combination of lectures and practical workshops. An active and inclusive approach is used to engage learners in the topics and will involve individual, group work and flipped learning experiences aligned to the university's Active Learning Framework (ALF). The approach offers students a flexible and adaptive learning experience that can accommodate a range of options that includes both on campus learning and remote learning where appropriate.

The Moodle VLE and other on-line materials and resources will be available to support learning. ALF offers a balance between the classroom elements and digitally enabled activity incorporating flexible and accessible resources and flexible and accessible feedback to support learning.

Indicative Syllabus Outline

- Engineering profession and professional bodies**
 Professional bodies, structure of Engineering profession, range of careers, membership, UK-SPEC academic and professional requirements including sustainable design, health and safety, environmental and ethical considerations.
- Personal reflection and continuing professional development**
 Self-evaluation (reflective log); target-setting and managing time; note-taking; log report; formal report of complete exercise; and presentation skills. (Reinforcement of health, safety, sustainability, ethical, economic and social considerations during the design/production process.)
- Mechanical and electrical workshops skills**
 Metrology (Dimensioning and tolerancing, rules, tolerances, calliper, Micrometres), Machine shop (lathes, milling machines), Hand skills (marking up, filing, drilling)

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads

S. Starrett, et al., *Engineering Ethics: Real World Case Studies*. American Society of Civil Engineers. 2017.

Other indicative reading

M. Bystorm and B. Eisenstein. *Practical Engineering Design*. Publisher CRC Press, 2005.

N.V. Raghavendra and L. Krishnamurth, *Engineering metrology and measurement*. Oxford Press, 2013.

Royal Academy of Engineering “Engineering Ethics: Maintaining society’s trust in the engineering profession”. 2022.

Employability skills – the Glyndŵr Graduate

Each module and programme is designed to cover core Glyndŵr Graduate Attributes with the aim that each Graduate will leave Glyndŵr having achieved key employability skills as part of their study. The following attributes will be covered within this module either through the content or as part of the assessment. The programme is designed to cover all attributes and each module may cover different areas.

Core Attributes

Engaged
Enterprising
Creative
Ethical

Key Attitudes

Commitment
Curiosity
Resilience
Confidence
Adaptability

Practical Skillsets

Digital Fluency
Organisation
Leadership and Team working
Critical Thinking
Emotional Intelligence
Communication