Module specification

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Module Code	ENG6A8
Module Title	Professional Engineering
Level	6
Credit value	20
Faculty	Faculty of Arts, Sciences and Technology
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 (Hons) Aeronautical and Mechanical Engineering	Option
BEng (Hons) Electrical and Electronic Engineering	Core
BEng (Hons) Automotive Engineering	Option
BEng (Hons) in Renewable & Sustainable Engineering	Core
MEng Aeronautical and Mechanical Engineering	Option
MEng Electrical and Electronic Engineering	Option
MEng Automotive Engineering	Option
MEng Renewable & Sustainable Engineering	Option
BEng Industrial Engineering (Mechanical)	Core
BEng Industrial Engineering (Manufacturing and Production)	Core
BEng Industrial Engineering (Electrical and Automation)	Core
BEng Industrial Engineering (Engineering Management)	Core
BEng Industrial Engineering (Mechatronics)	Core

Pre-requisites

None

Breakdown of module hours

Learning and teaching hours	24 hrs
Placement tutor support	0 hrs
Supervised learning e.g., practical classes, workshops	0 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	24 hrs
Placement / work-based learning	0 hrs
Guided independent study	176 hrs
Module duration (total hours)	200 hrs

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Initial approval date	22nd Aug 2022
With effect from date	Sept 2022
Date and details of revision	30/01/2023 revision of LO order to align with assessment (AM0) March 2025 Addition as optional module with ENG6AG for the MEng programmes in place of ENG6C4
Version number	3

Module aims

- To provide an environment in which students can develop and understand professional attitudes and attributes and react confidently to changing situations.

- To prepare students for professional roles in professional environment, and to provide an understanding of professional codes of conduct and appropriate roles in meetings.

- To acquire knowledge of the design process, the legal constraints and design parameters relating to major forms of development, market trends, methods of procurement and procedures available for dispute resolution.

- To develop an understanding of the importance of engineering standard and Health and Safety aspects of the Engineering profession.

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

1	Critically analyse given situations relating to engineering, and prepare, propose, and justify appropriate courses of action.

2	Report clearly, critically, and comprehensively on problems, solutions, and outcomes.
3	Critically discuss legislative requirements and professional codes of practice in relation to the provision of services, health and safety, and employment of staff.
4	Display an in-depth knowledge of professional roles and relationships including teamwork.

Assessment

Students will be placed in groups and presented with a complex and changing scenario reflecting professional problems, policies, and practice. The groups will be expected to deal with a range of financial, operational, design, personal, cultural, and organisational issues. These will be combined to form a challenging academic and vocationally relevant scenario requiring students to engage in role-play that will reflect their intended professional careers.

Assessment 1: Will be in the form of a group project being assessed by a group video presentation and group report.

Assessment 2: Will be in the form of personal reflective logs (portfolio).

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)	Word count
1	1, 2, 3	Group Project	60%	2500
2	4	Portfolio	40%	1500

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

This module will be mostly lecture and seminar based for the first part of the semester with the second part being project-based with seminars and group tutorials. The students will be expected to work from the beginning in their groups to start constructing their proposals for the presentation within the given scenario, and to react to staged changes and constraints to provide a working solution to practical problems. A high standard of professionalism will be required for the working practices of each group.

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

Professional ethics
Duty of care, professional indemnity insurance, confirmation of instructions from clients, fee calculations, quality assurance

Staff selection
Legislative background, equal opportunities, ethnicity and race, job applications, selection procedures

Marketing and financial services
Theory of marketing, influence on strategic decision-making, market movement and trends, description of property, lease structures, appraisal, sources of finance.

The design processes
The basis of design development, client's requirements, design objectives, design control and responsibilities, subcontract management, value and risk management, project planning, procurement, and control, legal, technological, structural, cost, environmental and other constraints.

Contract forms and dispute resolution
Health and Safety requirements

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update. Please *ensure correct referencing format is being followed as per University referencing guide.*

Essential Reads
R. Burke, *Entrepreneurs Toolkit (Project Management)*, London: Burke Publishing, 2006.

P.S. Tolbert, and R. Hall, *Organizations, Structures, Processes and Outcomes*, 10th ed. Harlow: Pearson Education Ltd., 2008.

N. Bhuchan and K. Rai, *Strategic Decision making: Applying the Analytic Hierarchy Process*. London: Springer, 2004.

Other indicative reading
C. West and R. Steinhouse, *Think Like an Entrepreneur: Your Psychological Toolkit for Success*, Harlow: Pearson Education Ltd., 2008.

H. Thamhain, *Managing Technology-Based Projects: Tools, Techniques, People, and Business Processes*. John Wiley and Sons, 2011.

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