University of the West of Scotland

Module Descriptor

Session: 2024/25

Title of Module: Sustainable Construction			
Code: ENGG08013	**SCQF Level: 8 (Scottish Credit and Qualifications Framework)**	**Credit Points: 20**	**ECTS: 10 (European Credit Transfer Scheme)**
School:	School of Computing, Engineering and Physical Sciences		
Module Co-ordinator:	John Hughes		

Summary of Module

The module introduces students to Sustainable Development Goals (SDGs) particularly highlighting the role of the construction industry in minimising the impact on the natural environment whilst maintaining the Health, Safety & wellbeing of the construction workforce.

Students will develop a holistic understanding of the building fabric, namely: substructure (foundation and basement), and superstructure (frame, external walls, and roofs). Students will also learn about the energy performance of buildings and acquire knowledge on sustainable construction practice, such as site waste management plans, and application of offsite construction technology.

In addition, students will learn about the latest CDM regulations and have field experience of construction practice with a particular focus on Sustainable Construction.

This module will support students to develop their UWS graduate attributes, namely: Academic (critical and analytical thinking, inquiring, knowledgeable, innovation, and problem solving); Personal (effective communicator, creative, imaginative); Professional (Collaborative, research-minded, and socially responsible).

Module Delivery Method

Face-To-Face	**Blended**	**Fully Online**	**HybridC**	**Hybrid 0**	**Work-Based Learning**
☒	☐	☐	☐	☐	☐

See Guidance Note for details.

Campus(es) for Module Delivery

The module will **normally** be offered on the following campuses / or by Distance/Online Learning: (Provided viable student numbers permit) (tick as appropriate)

Paisley:	Ayr:	Dumfries:	Lanarkshire:	London:	Distance/Online Learning:	Other:
☒	☐	☐	☐	☐	☐	Add name

Term(s) for Module Delivery					
(Provided viable student numbers permit).					
Term 1	☒	Term 2	☐	Term 3	☐

Learning Outcomes: (maximum of 5 statements) **These should take cognisance of the SCQF level descriptors and be at the appropriate level for the module.** At the end of this module the student will be able to:	
L1	Develop a critical understanding of the application of sustainable construction practice.
L2	Acquire knowledge and understanding of Health, Safety and Wellbeing in the construction industry.
L3	Develop holistic knowledge and understanding of the sustainable construction practice through field experience.

Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	During completion of this module, there will be an opportunity to achieve core skills in:
Knowledge and Understanding (K and U)	SCQF Level **8** • K&U of civil engineering design process and construction. • K&U of the role of sustainability in the built environment. • K&U of the function and performance requirements of a building • K&U of the energy performance of buildings. • K&U of a range of environmental issues in the built environment. • K&U of basic construction trades. • Introductory K&U of health and safety.
Practice: Applied Knowledge and Understanding	SCQF Level **8** • Apply knowledge of site waste management in a project context. • Apply knowledge of energy performance of buildings in a project context. • Apply knowledge of offsite construction in a project context.

Generic Cognitive skills	SCQF Level **8** • Develop analytical and research skills for applying sustainable construction practice in a project context. • Be able to comprehend the broad picture of civil engineering, and seeing the importance of safety and sustainability. • Development of group participation in teaching and learning • Introduce the use of appropriate codes of practice and industry standards.	
Communication, ICT and Numeracy Skills	SCQF Level **8** • Further development in numeracy skills. • Development of presentation and team working skills.	
Autonomy, Accountability and Working with others	SCQF Level **8** • Exercise some autonomy and initiative in activities related to civil engineering. • Develop an appreciation of the social, environmental, ethical, economic, and commercial considerations affecting the exercise of engineering judgement. • Develop responsibility for own time management and organizing own study activities out with formal class contact periods.	
Pre-requisites:	Before undertaking this module, the student should have undertaken the following:	
	Module Code:	**Module Title:**
	Other:	Or Equivalent
Co-requisites	**Module Code:**	**Module Title:**

*Indicates that module descriptor is not published.

Learning and Teaching	
In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours.	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Normally totalling 200 hours): (Note: Learning hours include both contact hours and hours spent on other learning activities)

Lecture/Core Content Delivery	27
Laboratory/Practical Demonstration/Workshop	21
Independent Study	152
	200 Hours Total

****Indicative Resources: (eg. Core text, journals, internet access)**

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

All learning material for Sustainable Construction is available on the learning platform. This includes lecture presentations, hand-outs, suggested reading material and weblinks to appropriate sources.

Essential Reading

1. Our Common Future https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf
2. UN Sustainable Development Goals https://sdgs.un.org/goals
3. Zero Waste Scotland http://www.zerowastescotland.org.uk/category/audience/construction/
4. Scottish Government Guide to the Planning System http://www.scotland.gov.uk/Publications/2009/08/11133705/1
5. Scottish Government building regulations http://www.scotland.gov.uk/Topics/Built-Environment/Building/Building-standards/publications/pubtech
6. HSE http://www.hse.gov.uk/construction/
7. Construction Design and Management (CDM) Regulations, 2015
8. von der Tann L, Basu D, Ritter S, Capellen PS and Størdal IF Sustainability in geotechnical engineering: what does it mean and why does that matter?. Proceedings of the Institution of Civil Engineers – Engineering Sustainability, https://doi.org/10.1680/jensu.22.00076
9. Tierney, G. and Tennant, S. (2016) Post Occupancy Evaluation (POE): a BREEAM Excellent case study. 32nd. Annual ARCOM Conference, 5 - 7 September 2016, Manchester, UK, Association of Researchers in Construction Management, 415 - 424.

(**N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Attendance and Engagement Requirements

In line with the Student Attendance and Engagement Procedure: Students are academically engaged if they are regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities,

course-related learning resources, and field work and complete assessments and submit these on time. For the purposes of this module, academic engagement equates to the following:

Equality and Diversity
The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code. Please ensure any specific requirements are detailed in this section. Module Co-ordinators should consider the accessibility of their module for groups with protected characteristics..
(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)

Supplemental Information

Divisional Programme Board	Engineering
Assessment Results (Pass/Fail)	Yes ☐No ☒
School Assessment Board	Civil Engineering and Quality Management
Moderator	Alrazi Earij
External Examiner	Jonathan Oti
Accreditation Details	This module is accredited by the Joint Board of Moderators as part of BEng (Hons) Civil Engineering.
Changes/Version Number	3.09 Learning Outcomes revised to in line with the field-work. Learning and teaching hours updated. Assessment weighing revised with 50:50 distribution. 3.08 Previous revisions - March 2019 Learning Outcomes reviewed and aligned with the JBM attributes for a CEng particularly the inclusion of field-experience for sustainable development. Assessment plan revised and updated in-line with JBM requirements. Addition of updated learning material for research-informed teaching.

Assessment: (also refer to Assessment Outcomes Grids below)
Assessment 1: Written report/review of aspects of sustainability in construction (50%).
Assessment 2: Written portfolio/ reflection on practical component of course (50%).
(N.B. (i) **Assessment Outcomes Grids** for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed. (ii) An **indicative schedule** listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.)

Assessment Outcome Grids (See Guidance Note)

Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Review/article/Critique/Paper	✓	✓		50%	

Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Portfolio of practical work		✓	✓	50%	