University of the West of Scotland

Module Descriptor

Session: 2024/25

Title of Module: Civil Engineering Materials			
Code: ENGG08016	**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:	Wenzhong Zhu		

Summary of Module

Construction Materials

Concrete materials: constituent materials, advantages and limitations. Properties of fresh and hardened concrete. Types of concrete and specification of concrete. Basic tests for fresh and hardened concrete. Ordinary concrete mix design. Production methods and basic concrete technology. Durability of concrete, corrosion prevention. Advancements in concrete technology.

Masonry, bricks, stonemasonry, rendering.

Structure, decay and preservation of timber. Plywood, glue-laminated timber and cross-laminated timber, etc.

Introduction to bitumen, binders, fillers, aggregates. Hot-rolled asphalt, dense macadam (asphalt concrete) and other design mix of asphalts. Testing.

Applied Geology

Students are introduced to earth materials in a context of civil engineering. This includes basic geology covering plate tectonics, erosion and deposition, rocks and minerals.

Students are introduced to basic rock description and properties of rocks, the fundamentals of stratigraphy, interpretation of geological maps and fundamentals of subsurface structures.

This module will work to develop a number of the following key 'I am UWS' graduate attributes: Critical thinker, Inquiring, Collaborative, Analytical, Research-minded, Knowledgeable, Problem solver, Autonomous, and Driven.

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	Demonstrate a broad knowledge of the characteristics of main construction and geological materials, and some basics of engineering geology.
L2	Demonstrate a detailed knowledge & understanding in properties, test methods and uses for some materials.

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** Demonstrate knowledge and understanding of essential facts and principles of construction materials and geology.
Practice: Applied Knowledge and Understanding	SCQF Level **8** Knowledge and understanding of laboratory and workshop practice and construction processes.
Generic Cognitive skills	SCQF Level **8** • Introduce the use of appropriate codes of practice and industry standards. • Develop awareness of economical, sustainability and environmental issues associated with various construction materials.

	• Further develop awareness of health & safety issues in laboratory and workshop practice and construction processes. • Ability to obtain, interpret and apply the results from laboratory work. • Ability to apply basic quantitative methods relevant to construction materials. • Encourage students to see civil engineering with a geological context	
Communication, ICT and Numeracy Skills	SCQF Level **8** Further develop transferable skills in written communication.	
Autonomy, Accountability and Working with others	SCQF Level **8** • Further develop transferable skills that will be of value in working with others. • Develop skills in planning, self-learning and improving performance, as the foundation for lifelong learning/CPD.	
Pre-requisites:	Before undertaking this module the student should have undertaken the following:	
	Module Code:	**Module Title:**
	Other:	
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	28
Laboratory/Practical Demonstration/Workshop	16
Tutorial/Synchronous Support Activity	4

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:

Various handout materials and resources available in Aula VLE

Extension Resources: Consultation of the undernoted resources is recommended and material from these resources may be of benefit to the student in the assessment process:

Construction Materials

Taylor, G.D., “Materials in construction”, Longman, 2000.

Jackson, N and Dhir R.K., “Civil Engineering Materials”, Palgrave, 1996.

Soutsos, M and Domone, P, “Construction Materials, Their nature and behaviour”, 5th Edition, CRC Press, 2018.

"Design of normal concrete mixes", 2nd edition, BRE press, 1997, free access/download through the University library, using Construction Information Service data base.

Engineering Geology

Simons, N., Menzies, B, Matthews, M., “A short course in Geotechnical Site Investigation”, Thomas Telford, 2002.

Wattham, T., “Foundations of Engineering Geology”, E & F N Spon, 2002.

Please ensure the list is kept short and current. Essential resources should be included, broader resources should be kept for module handbooks / Aula VLE.

Resources should be listed in Right Harvard referencing style or agreed professional body deviation and in alphabetical order.

(**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 complete assessments and submit these on time.

For the purposes of this module, academic engagement equates to the following: 28 hours of Lectures, 20 hours of tutorial and lab/practical sessions and 152 hours of independent study. The Independent Study includes Coursework and report writing (24 hours), and self study (128 hours).

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.. Aligned with the University's commitment to equality and diversity, this module supports equality of opportunity for students from all backgrounds and learning needs. Using the VLE, material will be presented electronically in formats that allow flexible access and manipulation of content. This module complies with University regulations and guidance on inclusive learning and teaching practice. Specialist assistive equipment, support provision and adjustment to assessment practice in accordance with the University's policies and regulations.
(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 and Physical Sciences
Assessment Results (Pass/Fail)	Yes ☐No ☒
School Assessment Board	Civil Engineering and Quality Management
Moderator	John Hughes
External Examiner	Jonathan Oti
Accreditation Details	This module is accredited by Joint Board of Moderators as part of BEng (Hons) Civil Engineering
Changes/Version Number	Version: ? updated v1.2 - accreditation details added v1.3 - KIS changes made to Sections 9 and 10

	v1.4 - an additional reference added to the Indicative resources v1.5 - slight change of module content: drop the lecture on geo-hazards and an associated reference from the indicative resources, add more lab/tutorial time; Change of Moderator - John Hughes to be the new moderator after the retirement of Joseph Heffernan; slight change of lecture, lab and tutorial time; change the delivery mode from 'face to face' to 'blended' to reflect the video content, and onine quiz used in the module. V1.6 Change to content to include more geological map interpretation, removal of core-log description, inclusion of 3 –point exercises. Modify slightly the learning outcomes and Generic Cognitive skills developments to align with the JBM requirements. Add an item to the Indicative learning resources. Add a statement on 'I am UWS' graduate attributes. V1.7 Minor modifications to the module summary V1.8 Change closed book exam to unseen open book exam to reflect the likely impact of COVID-19. V1.9. Minor update to Learning and Teaching regarding 'hybrid' delivery and 'adaptive' examination. V1.10. Change online open book exam to unseen closed book class test. Change to face-to-face on campus teaching delivery. Add detailed EDI statements.

Assessment: (also refer to Assessment Outcomes Grids below)
Assessment 1 – Unseen Closed Book Class Test, 50%
Assessment 2 – Two written reports, 15% each and online quiz, 20%
(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)

Component 1

Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Learning Outcome (5)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Unseen closed book class test	x	x				50	2

Component 2							
Assessment Type (Footnote B.)	**Learning Outcome (1)**	**Learning Outcome (2)**	**Learning Outcome (3)**	**Learning Outcome (4)**	**Learning Outcome (5)**	**Weighting (%) of Assessment Element**	**Timetabled Contact Hours**
Report of practical/ field/ clinical work	x	x				50%	0
Combined Total for All Components						**100%**	**2 hours**