Module Descriptor

Title	Civil Engineering Materials		
Session	2025/26	**Status**	Published
Code	ENGG08016	**SCQF Level**	8
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	W 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	On-Campus[1] ☒	Hybrid[2] ☐	Online[3] ☐	Work -Based Learning[4] ☐
Campuses for Module Delivery	☐ Ayr ☐ Dumfries	☐ Lanarkshire ☐ London ☒ Paisley	☐ Online / Distance Learning ☐ Other (specify)	

Terms for Module Delivery	Term 1	☐	Term 2	☒	Term 3	☐
Long-thin Delivery over more than one Term	Term 1 – Term 2	☐	Term 2 – Term 3	☐	Term 3 – Term 1	☐

Learning Outcomes	
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.
L3	N/A
L4	N/A
L5	N/A

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 8** Demonstrate knowledge and understanding of essential facts and principles of construction materials and geology.
Practice: Applied Knowledge and Understanding	**SCQF 8** Knowledge and understanding of laboratory and workshop practice and construction processes.
Generic Cognitive skills	**SCQF 8** • Introduce the use of appropriate codes of practice and industry standards.

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

	• 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 8** Further develop transferable skills in written communication.
Autonomy, Accountability and Working with Others	**SCQF 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.

Prerequisites	**Module Code**	**Module Title**
	Other	
Co-requisites	**Module Code**	**Module Title**

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. The learning and teaching activity for this module includes lectures, tutorials, laboratories, and independent study. Independent study includes all study, learning, and processing undertaken by a student, outside of the scheduled lectures, tutorials, and laboratories.	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning 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
n/a	0
n/a	0
TOTAL	200

Indicative Resources

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., (2000) Materials in construction, Longman.

Jackson, N and Dhir R.K., (1996) Civil Engineering Materials, Palgrave.

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

Teychenné, D.C., Marsh, B.K., et al., (1997) Design of normal concrete mixes, 2nd edition, BRE press. Free access/download through the University library, using Construction Information Service data base.

Engineering Geology

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

Wattham, T., (2002) Foundations of Engineering Geology, E & F N Spon.

(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:

The School of Computing, Engineering and Physical Sciences considers attendance and engagement to mean a commitment to attending, and engaging in timetabled sessions. Students will scan their attendance via the attendance scanners each time they are on-campus. Students will have attendance recorded in class and they will be expected to login to the VLE several times per week. Students who are unable to attend a timetabled learning session, due to illness or other circumstance, should notify their Programme Leader. Across the School an 80% attendance threshold is set. Students who fall below this, will be referred to the Student Success Team to see how they can be best supported in their studies.

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.

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. This module has lab-based teaching and as such students are advised to speak to the Module Co-ordinator to ensure that specialist assistive

equipment, support provision and adjustment to assessment practice can be put in place, 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	**Please select**
Overall Assessment Results	☐ **Pass / Fail** ☒ **Graded**
Module Eligible for Compensation	☐ **Yes** ☒ **No** **If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.**
School Assessment Board	Civil Engineering and Quality Management
Moderator	J Hughes
External Examiner	A Robinson
Accreditation Details	This module is accredited by the Joint Board of Moderators as part of BEng (Hons) Civil Engineering & GA-BEng (Hons) Civil Engineering.
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	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.

	V1.11. External Examiner updated. Minor updates for Attendance & Engagement requirements, and for Equality & Diversity. UWS Referencing style is used for the resources list - March 2025

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%
Assessment 3
N/A
(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.)

Component 1							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Unseen closed book class test	☒	☒	☐	☐	☐	50	2

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Laboratory reports/Coursework and Online quiz	☒	☒	☐	☐	☐	50	0

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
N/A	☐	☐	☐	☐	☐	0	0
Combined total for all components						100%	2 hours

Change Control

What	**When**	**Who**
Further guidance on aggregate regulation and application when completing template	16/01/2020	H McLean

Updated contact hours	14/09/21	H McLean
Updated Student Attendance and Engagement Procedure Updated UWS Equality, Diversity and Human Rights Code	19/10/2023	C Winter
Guidance Note 23-24 provided General housekeeping to text across sections.	12/12/23	D Taylor