Module specification

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Module code	AURH458
Module title	Civil Engineering Construction
Level	4
Credit value	20
Faculty	Arts, Science and Technology
Module Leader	Colin Stuhlfelder
HECoS Code	100148
Cost Code	GABE

Programmes in which module to be offered

Programme title	**Is the module core or option for this programme**
HNC Civil Engineering	Core

Pre-requisites

N/A

Breakdown of module hours

Learning and teaching hours	48 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	**48 hrs**
Placement / work based learning	0 hrs
Guided independent study	152 hrs
Module duration (total hours)	200 hrs

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Initial approval date	13/4/21
With effect from date	Sep 21
Date and details of revision	28/06/21 Administrative change to module code
Version number	1

Module aims

This module aims to develop in the student an informed understanding of the selection, designand implementation of the various technologies that are available to the engineer in the provision of civil engineering infrastructure. Delivery will explore the decision-making processesthat govern the successful execution of engineering projects in respect of health, safety and welfare, and environmental protection and sustainability.

In undertaking this module, students will gain insight into the development of both substructureand superstructure elements, and will develop an appreciation of the sorts of practicalities thatinfluence the control of cost, time and quality in the safe implementation of above- and below-ground civil engineering operations.

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

1	Describe the methods and resources used in earthworks activities
2	Assess the methods and resources used in substructure and other below ground activities, and in the construction of superstructure
3	Evaluate the hazards arising from construction activities, and provide an analysis of associated risks and the means of controlling them
4	Prepare a design proposal for a new infrastructure project andselect appropriate methods and resources to solve problems arising from construction activities with proper regard to safety, the environment, quality, available technologies and economic considerations.

Assessment

Indicative Assessment Tasks:

This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

1. Evaluate modern methods of construction for earthworks and substructure. (2 hours)
2. Present a proposal for the construction of a road, bridge, tunnel or other similarly complex civil engineering structure that describes contemporary working practise to include health, safety and welfare, and environmental considerations. (15 minutes)

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1	In-class test	50

2	2,3,4	Presentation	50

Derogations

None

Learning and Teaching Strategies

Lectures and problem solving sessions will be given to provide the basic knowledge of the subject. Case studies will also be undertaken in parallel with formal tuition such that practical skills are readily developed and theoretical studies are quickly placed in context.

The delivery of this module will be enhanced by site visits, media recordings of site operations,visual slides and photographs.

Although learners will be assessed individually for both knowledge and skills development, further depth will be provided through the analysis of case study projects in small groups.

Indicative Syllabus Outline

Earthworks activities: cuttings and embankments; stability of slopes; groundwater problems; deep excavations and trenching

Substructure: foundations; piling; drainage; culverts; underpasses; works for utilities

Superstructures: bridges; commercial and industrial buildings; tall, independent structures

Hazards arising from construction activities: assessing risks and controlling safety; arrangements for earthworks; working in confined spaces; working on structures and within temporary works

Principles of effective and efficient management of construction activities: health, safety and welfare; environmental protection and sustainability; quality; contemporary technologies; economic considerations

Indicative Bibliography:

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

Essential Reads

Kirkham, R., (2015) *Civil Engineering Procedure.* 7th ed. London: Institution of Civil Engineers.

McAleenan, C., Oloke, D., (2015) *ICE Manual of Health and Safety in Construction*, 2nd EditionThomas Telford. London

Other indicative reading

Atkinson, A., (2014) *Fundamentals of Ground Engineering.* Boca Raton, Florida: CRC Press,Taylor and Francis Group LLC.

Bouassida, Y., Bouchon, E., et al, (2012) *Bridge Design to Eurocodes – Worked examples*,Publications Office of the European Union, Luxembourg

Rogers, M. and Enright, B. (2016) *Highway Engineering*. 3rd Ed, Wiley and Sons.

Hicks, T.,G., (2016) *Handbook of Civil Engineering Calculations* 3rd Edition, Mc Graw Hill,London

Links:

New Civil Engineer Journal

Institution of Civil Engineers Proceedings

Standards for Highways

Institution of Civil Engineers "Virtual Library"

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

Key Attitudes
Commitment
Resilience
Confidence
Adaptability

Practical Skillsets
Organisation
Critical Thinking
Communication