

Module specification

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Module Code	AUR4A1_AURH4A1
Module Title	Construction Technology
Level	4
Credit value	20
Faculty	Faculty of Art, Computing and Engineering
HECoS Code	100584
Cost Code	GABE

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
HNC Construction Technology	Core
BSc (Hons) Architectural Design Technology	Core
BSc (Hons) Building Surveying Degree Apprenticeship	Core
BSc (Hons) Building Surveying	Core
BSc (Hons) Construction Management Degree Apprenticeship	Core
BSc (Hons) Construction Management	Core
BSc (Hons) Quantity Surveying Degree Apprenticeship	Core
BSc (Hons) Quantity Surveying	Core

Pre-requisites

There are no pre-requisites for this module.

Breakdown of module hours

Learning and teaching hours	36 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	36 hrs
Placement / work based learning	0 hrs
Guided independent study	164 hrs
Module duration (total hours)	200 hrs

For office use only	
Initial approval date	3 rd July 2024
With effect from date	September 2024
Date and details of revision	
Version number	1

Module aims

The principal aim of 'Construction Technology' is to explain the elements, materials, components and systems used in the construction of domestic, commercial and industrial buildings, and to provide opportunities for students to develop appropriate knowledge and understanding of the contexts within which such technologies are selected and used.

The module also aims to demonstrate how the selection, composition and use of such technologies are influenced by the performance requirements of buildings, the construction process or 'buildability', health, safety and welfare considerations, their impact on the natural environment, and their life-cycle in terms of installation, deterioration, repair and maintenance. The module will emphasise the importance of using materials, components and systems in the correct context so that their combination and specification satisfy best practice, the performance expectations of manufacturers, and comply with legal and regulatory requirements and authoritative technical guidance.

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

1	Explain how performance requirements of buildings influence the selection of materials, components and systems.
2	Explain how mainstream construction technologies are utilised for building elements, components and systems in the design and construction of domestic, commercial and industrial buildings.
3	Select and justify the use of construction technologies in response to a given set of building performance requirements.
4	Evaluate the potential of new and emerging technologies in the design and construction of buildings and infrastructure.

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.

'Construction Technology' will be assessed through an In-class Test (2 hrs) and a written assignment (2,000 words indicative) which are equally weighted in terms of their contribution to the final recommended mark for the subject.

The In-class Test will require illustrated written responses to a series of questions that explore the performance requirements, elements, materials, components and systems used in the construction of low-, medium- and high-rise buildings, and will be conducted in accordance with the University's Academic Regulations.

The Written Assignment will be based upon a given development scenario, and will provide students opportunities to establish performance requirements in the context of a particular building type, and to select and justify the use of elements, materials, components and systems that satisfy the function and purpose of the building being considered.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1 & 2	In-class test	50
2	3 & 4	Written Assignment	50

Derogations

There are no derogations associated with this module

Learning and Teaching Strategies

Learning and teaching strategies in the context of 'Construction Technology' will accommodate both didactic and scenario-based opportunities to ensure that students gain knowledge and understanding through traditional teaching delivery, and are able to contextualise it through the interpretation of scenarios based upon typical sets of requirements that arise in the technical design, construction and use of domestic, commercial and industrial buildings. Delivery will incorporate the principles of the University's Active Learning Framework (ALF), so that learning opportunities are both synchronous and asynchronous, and are supported by an accessible range of material resources.

Class-based study will comprise didactic sessions that accommodate theoretical and technical considerations in the design and construction of buildings, and will be informed by associated legal and regulatory frameworks, health, safety and welfare, environmental impact, 'buildability', the control of cost, quality and time, the extent of temporary works that might be required and the mitigation of risk through the adoption of best-practice in controlling the design and construction process.

Class-based study should accommodate the use of case study buildings as far as possible to help illustrate the application of the technologies being considered, and site visits to live construction projects will provide valuable opportunities for students to better-appreciate the combinations, detailing and logistical implications of specifying and installing available technologies during the construction phase in particular.

Indicative Syllabus Outline

Performance requirements and the selection of materials, components and systems:

- Legislative requirements in Wales and the UK
- Communicating technical information to clients, colleagues and stakeholders
- Health, safety and wellbeing of building occupiers and users
- Short and long-term environmental impact and accreditation schemes
- The construction process
- Safe, secure systems of work and risk management
- The influence of selected technologies on the procurement process
- Construction logistics and constraints
- Realising design into built form

Building elements, components and systems in domestic, commercial and industrial buildings:

- Existing building appraisal, pathology, defects, remedial and retrofit technologies
- New-build elements, materials, components and systems;
 - Ground investigation
 - Ground improvement
 - Foundations and basements
 - Structural masonry
 - Structural timber
 - Portal frames
 - Structural concrete
 - Structural steel
- New and emerging construction technologies

Indicative Bibliography:

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

Essential Reads

Emmitt, S. (2023), *Barry's Advanced Construction of Buildings*. 5th ed. Chichester: John Wiley And Sons Ltd.

Other sources:

Ching, F. D. K. (2020), *Building Construction Illustrated*. 6th ed. Chichester: John Wiley and Sons Ltd..

Allen, E. & Iano, J. (2019), *Fundamentals of Building Construction: Materials and Methods*. 7th ed. Chichester: John Wiley & Sons Ltd.

Chartered Institute of Architectural Technologists: www.ciat.org.uk

Royal Institute of British Architects www.architecture.com

Chartered Institute of Building www.ciob.org.uk

Ordnance Survey www.ordnancesurvey.co.uk/

Royal Institution of Chartered Surveyors www.rics.org

Institution of Civil Engineers www.ice.org.uk

Designing Buildings Wiki www.designingbuildings.co.uk

Institution of Structural Engineers www.istructe.org.uk

IHS Database www.ihsti.com