UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title	Construction Technology 2
Module Code	CSE5018-B
Academic Year	2024/5
Credits	20
School	School of Built Environment, Architecture & Creative Industries
FHEQ Level	FHEQ Level 5

Contact Hours	
Type	Hours
Seminars	12
Directed Study	140
Lectures	24
Tutorials	24

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 2

Module Aims

In the UK, construction, demolition and excavation account for 60% of material use and waste generation. The construction sector needs to fully adopt the principles of circular economy to improve operational efficiency, achieve significant economic savings, and eventually reach the net zero carbon target.

The module aims to:

Identify and compare structural forms, their buildability and sustainability issues involved in their design and construction, and understand the behaviour and analysis of structural systems/elements

Develop an understanding of the application of simple analysis to the design of structures and to introduce relevant codes of practice for the design of simple structural elements.

Appraise construction technologies of larger and more complex traditional and modern buildings considering the principles of circular economy

Apply knowledge and skills required within the designing of components and details, their performance specification, life-cycle assessment, quality control, regulatory and health and safety standards together with an appreciation of their on-site buildability and environmental impact.

Outline Syllabus

Structures: an introduction to structural principles; structures in nature and in vernacular and traditional buildings; the design of walls, beams, columns, floors, roofs and portal frames; critical appraisal and selection of alternative structural components and systems for small buildings

Selection of structural forms and materials.

Structural engineering and sustainable development

Introduction to Eurocode

Design of steel beams and columns

Design of reinforced concrete beams, columns and slabs

Introduction to design in masonry and timber

Construction: An awareness of building methods used for complex building typologies, their elements, components, material specification, environmental and regulatory issues within the context of Architectural Technology.

Enterprise skills: Principles of Circular Economy in construction

Methods of renovation/demolition relating to existing buildings

Develop integrated technical drawing skills

Strategic thinking skills by applying knowledge acquired in Construction Technology 1, and 2

Use digital tools to gather, and present information and to evaluate and communicate the learning outcomes.

Learning Outcomes

Outcome Number	Description
01	Characterise constructional and structural systems, the environmental strategies and the regulatory requirements that apply to the design and construction of a comprehensive design project.
02	Apply fundamental principles in structural design and analysis.
03	Realise various structural elements, boundary conditions, loading conditions and apply appropriate codes of practice and industry standards correctly to the design process.
04	Evaluate factors affecting the design and technical detailing of complex buildings and their material components.
05	Produce advanced technical drawings to standard industry conventions showing detailed interface assemblies with correct annotation, line weights, hatching, specifications, etc.

Learning, Teaching and Assessment Strategy

The teaching and learning methods have been selected to engage students in developing their knowledge and understanding of Construction Technology through formal learning opportunities such as lectures, tutorials, and seminar classes.

Throughout the module, students will be set formative assessment activities that will help develop confidence in tackling problems and in applying the knowledge and skills that they learn. The timely constructive feedback from formative assessments will support students develop the skills and knowledge required for the summative assessment.

The module will be summatively assessed through an Examination and by submitting a coursework which comprises a set of technical drawings. Formative feedback will be provided for all activities. This may take the form of question and answer sessions within lectures; through worked examples, design exercises and discussion groups in small group tutorials; through submitting tutorial questions and formative reports for feedback; comments on the tutorial/practical work during the session, the use of the Forum facility on Canvas (for generic feedback).

Supplementary assessment for re-assessment will be the same as original.

Mode of Assessment

Type	Method	Description	Weighting
Summative	Examination - Open Book	Exam	50%
Summative	Coursework - Patchwork Assessment	Technical Drawings including Presentation	50%

Reading List

To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

Please note:
This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.
