

Construction Technology 2

Module Descriptor

Module Code: CON5TE2
Version: V2.00
Status: Final
Date: 28/06/2024

Summary Module Details

Module details

Module Title: Construction Technology 2

Module Leader: Richard Cork

Module Mode: Supported online learning

Semester: Autumn (UK) and Spring (UK)

Level: 5

Credits: 20

Learning Hours: 200

Contact & Study Hours

Directed Study Time: 90 hrs (45%)

Self-directed Study Time: 50 hrs (25%)

Assessment Study Time: 60 hrs (30%)

Assessment Type

Coursework: 100%

Computer Based Assessment:

Portfolio: 0%

Presentation: 0%

Project: 0%

Practical: 0%

Self-directed Research: 0%

Module Summary

This module introduces the building and environmental technology of framed construction. Topics covered include: the principles of framed structures; design and its communication; material and component selection; construction techniques; simple environmental services, as well as more complex related issues of sustainability; advanced construction techniques; technology/process innovation and development; components; civil engineering; sustainability; building regulation; contaminated land and fire safety.

Key generic skills such as producing and understanding simple drawn information are introduced.

Examples of framed buildings are included, such as steel, reinforced concrete, and timber construction applicable to buildings with different types of usage and levels of complexity for commercial, industrial, and residential.

Taken on which Programmes

BSc (Hons) Building Control (C)

BSc (Hons) Building Surveying (C)

BSc (Hons) Construction Management (C)

BSc (Hons) Quantity Surveying (C)

Construction Technology 2

BSc (Hons) Architectural Design Technology (C)

Core (C) or Elective (E)

Module Aims

This module aims to:

- Introduce framed building construction technology and environmental services. This includes structural principles, material, and component selection, design, and its communication and to introduce more complex issues such as sustainability, brownfield development and design for fire.
- Develop and encourage competence in the skills of sketching, and drawing skills, enabling the student to describe and explain building, environment, technology and framed construction.
- Develop building, technology, and environment theory; principles; materials; regulation; civil engineering; construction techniques; construction; innovation; contamination/ hazardous situations; sustainability; and introduce issues on complex projects.
- Build on a foundation of building, technology and environment knowledge and understanding, either developed previously or in parallel, so that it can be developed further in other modules.

Module Learning Outcomes

- LO1. Demonstrate knowledge and critical understanding of the concepts and principles associated with the building, environment and technology of framed structures and be able to present, evaluate and interpret them using sketches and drawings.
- LO2. Develop technical arguments in the selection and application of techniques for the design, environmental issues and construction process to produce framed buildings, and apply and evaluate when and where their selection would be appropriate.
- LO3. Evaluate the appropriateness of different approaches, materials, and construction in framed or similar buildings in accordance with building, environment and technology theories, standards, regulations, and sustainability.
- LO4. Critically evaluate and communicate accurately clearly, concisely, effectively, reliably, and independently on the appropriateness of different approaches on building, environment and technology issues for framed buildings using coherent structured arguments and analysis to devise solutions.

Indicative Module Content

Module topics

- **The construction technology of framed buildings**

This will include an understanding of the basic structural issues and principles for framed structures; typical materials used in structural frames, the reasons for their use; typical details and sustainability issues; foundation & basement options and selection; and the external and internal element options, materials and details, ground floors, upper floors.

Construction Technology 2

- **An introduction to Innovation in design & Civil engineering**

This includes the consideration and analysis of different, complex building and structural forms using international case studies and/or notional projects. Exploration includes the identification of the major components within complex structures and how they work conceptually as part of a system to distribute and transfer loads to foundations and provide necessary stability. This module will cover the basics of the principles of structures to enable the students to gain a basic understanding of how loads are distributed.

Complexities arise out of the vast infrastructure works required to provide innovative solutions to large-scale and high-rise projects on urban sites. Work here addresses factors that determine the appropriate solutions for constructing deep basements in constricted sites taken from a range of technical solutions. This topic also acknowledges the wide range of civil engineering projects including roads, bridges and marine structures that present additional complex challenges in relation to design. This also establishes the potential impact that large scale building projects have on the natural environment and acknowledges ways in which this can be assessed and potentially reduced.

- **Environmental servicing technology for framed buildings**

This topic acknowledges the broad range of services installations including space heating, ventilation, air conditioning, drainage, fire safety, security and lightning protection. The sustainable approaches for each that assist with carbon emission reduction which will concentrate on selecting appropriate alternative strategies in terms of heating, cooling, ventilation, and lighting.

- **An introduction to the regulation relating to the sustainable development of framed buildings, including involving contamination and hazardous environments.**

This will include an identification of standards and regulation with a particular focus on the consideration of designing to deal with fire in framed buildings and the complexity of a project due to the presence of deleterious materials in a building or the potential for contamination within the soil.

Considers context within which building regulations are used by governments in setting minimum standards for design in areas such as health and safety, hygiene, energy conservation and accessibility. It then moves on to consider how the complex projects need to move outside of the Approved Documents for key areas such as environmental performance and fire safety. It also considers the construction issues when encountering the potential for contamination in the context of developing brownfield sites. This topic also considers the nature of these investigations and potential solutions in underpinning of foundations, the design of temporary works or the methods used for demolition.

- **Technical drawing skills**

An introduction to design principles and drawn design communication will form part of the skills developed within the module.

This content will be reviewed and updated regularly to reflect the legal, ethical, and financial changes in professional standards and practice.

Overview of Summative Assessment

Module learning outcomes	Assessment	Word count or equivalent	Weighting
LO1, LO2, LO3, LO4	Assessment 1 Coursework	1,600 words	40%
LO1, LO2, LO3, LO4	Assessment 2 Coursework	2,400 words	60%

Module Pass Mark (as a weighted average of all assessments): 40%

Key Module Learning Resources

Core Sources and Texts

The core reading resources within each module will be provided via the specific Virtual Learning Environment (VLE) module pages and within the e-Library. Additional reference material and supplementary resources to support your studies are available through the UCEM e-Library.

Module tools

Students will have access to study materials, dedicated academic support, student forums, and learning activities via an online learning platform (VLE).

The module page on the VLE is broken down into structured study weeks to help students plan their time, with each week containing a mixture of reading, case studies, videos/recordings, and interactive activities to go through. Online webinars/seminars led by the Module Leader can be attended in real time and provide opportunities to consolidate knowledge, ask questions, discuss topics and work through learning activities together. These sessions are recorded to support students who cannot attend and to enable students to recap the session and work through it at their own pace. Module forums on the VLE provide further opportunities to discuss topics with other students, complete collaborative work and get extra help from the module team.

Professional online resources

The e-Library provides access to trusted, quality online resources, selected by subject specialists, to support students' study. This includes journals, industry publications, magazines, academic books, and a dissertation/work-based library. For a list of the key industry specific and education resources available please visit [the VLE e-Library](#).

Other relevant resources

Access is also provided to further information sources that include the British Library and Open University UK catalogues, as well as providing a monthly current awareness service entitled, **Knowledge Foundations** - a compendium of news, research and resources relating to the educational sector and the Built Environment.

The module resource list is available on the module VLE page and is updated regularly to ensure materials are relevant and current.