

<b>Module Title:</b>	CONSTRUCTION AND MATERIALS TECHNOLOGY
<b>Module Code:</b>	BSCS02C
<b>Level:</b>	4
<b>Credits:</b>	15
<b>Pre-Requisites:</b>	None

**Module Description:**

The module is designed to introduce the student to the fundamental aspects of construction technology and associated materials applied to low and medium rise buildings. This will include design forms, site evaluation and methods of construction, building services and topics related to building degradation. Contemporary topics of sustainability and green issues will be developed in relationship to the selection and use of materials, building legislation and health, safety and welfare issues.

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**Indicative Content:**

- Site evaluation: Site survey methods, site investigation techniques, classification and chemical composition of soils and rocks, health and safety issues
  - Sub-structure: effect of water and contaminants in the soil, temporary and permanent treatment, earthwork support, foundations and basements: functions, types, selection, materials, structural considerations, construction techniques, regulations
  - Superstructure: Types, materials and basics of structural behaviour, floor and roof systems, partitions, ceilings, claddings, properties: insulation, fire protection, corrosion and protection, services
  - Buildings: Domestic, industrial and commercial, medium and long span construction, infrastructure, functions of services, water, gas, drainage, phone, communication systems, drainage, heating and ventilation, air conditioning
  - Materials: Properties, Sustainability and green issues, properties, performance and causes of deterioration
  - Maintenance: Decay and deterioration issues, effects of natural phenomena on building materials cyclical and preventative maintenance
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**Learning and Teaching Methods:**

The module will be delivered through lectures, case studies, site visits, in order to integrate theoretical and practical studies. Case studies will seek to develop working knowledge and practices of the construction industry.

Where appropriate health, safety and welfare and CDM legislation and practice will be integrated with the construction process to highlight the dangers, risks and actions that should be undertaken. Students will be encouraged to contribute

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**Module Specifications:** *Schools of Construction & Engineering*

examples relating to health and safety from their own experience.

A range of construction projects will be considered in order to develop a fuller appreciation of the diversity of the construction of buildings. External practitioners and guest speakers will be used to enhance the teaching and learning process. Students will be encouraged to contribute with 'real' examples relating to the syllabus topics.

This module will develop an introduction to sustainability and 'green issues' in relation to material properties and their application within building elements.

This module will also develop knowledge so that students can relate to, appreciate, and apply their technical knowledge to the scenario in the work based learning project. It will assist in helping them recognise not only construction techniques and processes but also the health and safety risks associated with construction projects.

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**Specific Learning Resources:**

Barbour Index

Resource room with internet connection to workstations

Building Regulations Approved Documents

**Bibliography**Highly Recommended

Chudley, R. (2010) Building Construction Handbook 8th Edition Oxford:

Butterworth Heinemann

Domone, P. and Illston, J. (2010) Construction Materials 3rd Edition Abingdon:

Spon Press

Tricker, R. and Alford, S. (2010) Building Regulations in Brief Oxford: Butterworth-

Heinemann

Emmitt, S. and Gorse, C. (2010) Barry's Advanced Construction of Buildings

Oxford: Blackwell Publishing Ltd

Recommended

Building Research Establishment Digests

Technical Papers from the Cement and Concrete Association

Foster J.S. and Greeno, R. (2006) Structure and Fabric Part 1 7th Edition Harlow:

Pearson Education Ltd

Foster J.S. Harrington R. and Greeno, R. (2007) Structure and Fabric Part 2 7th

Edition Harlow: Pearson Education Ltd

McMullan R. (2007) Environmental Science in Building Basingstoke: Palgrave

McMillan

Glover, P. (2009) Building Surveys 7th Edition Oxford: Butterworth Heinemann

## Module Specifications: Schools of Construction & Engineering

### Background Reading

Technical Papers from RIBA

Technical Papers from TRADA

Technical Papers from ICE

Technical, professional and trade literature

## Module Learning Outcomes

### Subject Specific Learning Outcomes

*On successful completion of this module you will be able to:*

**LO** | Explain site evaluation and investigation techniques and their relationship to the design of sub-structures.

**LO** | Examine structural forms, and their application and behaviour.

**LO** | Explain causes of decay and deterioration of buildings.

**LO** | Examine sustainability and green issues.

**LO** | Describe the properties of building materials.

Assessment Title or element	Weighting (%)
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Case study (1,500 words)	30%
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Presentation	20%
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Examination (unseen)	50%
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*Information correct at point of publication.*