

MODULE SPECIFICATION FORM

Module Title: Construction Technology 2	Level: 5	Credit Value: 20
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Module code: AUR507	Cost Centre: GABE	JACS3 code: K210
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Trimester(s) in which to be offered: 1 & 2	With effect from: September 2016
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Office use only: To be completed by AQSU:	Date approved: September 2015 Date revised: August 2016 Version no: 2
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Existing/New: Existing	Title of module being replaced (if any):
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Originating Academic School: Applied Science, Computing and Engineering	Module Leader: Gareth Carr
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Module duration (total hours): 200 Scheduled learning & teaching hours: 48 Independent study hours: 152 Placement hours: 0	Status: core/option (identify programme where appropriate): Core for all except for BEng (Hons) Renewable Energy and Sustainable Technology
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Programme(s) in which to be offered: BSc (Hons) Architectural Design Technology BSc (Hons) Construction Management BSc (Hons) Real Estate BSc Civil Engineering Studies BSc (Hons) Construction Technology BEng (Hons) Renewable Energy and Sustainable Technology (Option) FdSc Facilities Management	Pre-requisites per programme (between levels): None
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Module Aims:

The purpose of this module is to demonstrate the technologies that are available in the provision of commercial and industrial buildings, civil engineering projects, and multi-occupation residential structures.

The module will consider the various materials and techniques that are employed in the design and construction of foundations and basements, principal superstructures, enclosures, building services provision and fitting-out for use.

Intended Learning Outcomes:

Knowledge and Understanding:

Upon completion of this module students will be able to:

1. Analyse the performance requirements of framed and more complex designed buildings and projects. (KS1, KS5)
2. Select and justify sustainable alternative options for the construction of primary and secondary building elements of projects, including those with basements. (KS1, KS3, KS7)
3. Analyse design options to ensure compliance with customer and user needs in terms of fitness for purpose, current building legislation including the conservation of energy, carbon emissions and structural performance and control. (KS1, KS3, KS6)
4. Analyse the functions and apply design concepts of building services to projects to ensure human comfort and convenience and adapt designs to meet their new purposes or applications. (KS1, KS6)
5. Demonstrate the ability to use relevant materials, equipment, tools, processes or products. (KS3, KS6)

Key skills for employability

1. Written, oral and media communication skills
2. Leadership, team working and networking skills
3. Opportunity, creativity and problem solving skills
4. Information technology skills and digital literacy
5. Information management skills
6. Research skills
7. Intercultural and sustainability skills
8. Career management skills
9. Learning to learn (managing personal and professional development, self-management)
10. Numeracy

Assessment:

1. An in-class test which examines the performance requirements of projects and the technologies which are available in their construction.
2. A case-study analysis which requires the selection of technologies appropriate to the construction of a project in response to a given design brief.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting	Duration (if exam)	Word count (or equivalent if appropriate)
1	1 & 4	In-class test	50%	2hrs	
2	2, 3 & 5	Case Study	50%		2000

Syllabus outline:

The sustainable design, construction and maintenance of commercial, industrial and multi-occupation residential buildings and projects, to include;

- the design and specification of sub-structure, superstructure and the 'external envelope' and its coordination through the adoption of Building Information Modelling;
- 'buildability' and the construction process, including health and safety considerations.
- the design-life and deconstruction of complex buildings and the implications for the Health and Safety file.

The design, installation and maintenance of sustainable mechanical and electrical services in commercial, industrial and multi-occupation residential buildings and projects, to include;

- supply, disposal, alarm and emergency systems;
- space heating, ventilation and air conditioning systems;
- mechanical conveyance systems, including lifts and escalators.

Learning and Teaching Strategies:

Formal lectures will describe technologies appropriate to various sets of performance criteria for a range of buildings and projects and will explain construction sequence in the context of the structural building types considered. Particular emphasis will be given to the use of case-studies, cross-section drawings, material samples and site-visits in communicating technical detail.

Bibliography:

Essential reading:

Ching, F. D. K., Onouye, B. & Zuberbuhler, D., (2014) *Building Structures Illustrated*. 2nd Ed. New Jersey: John Wiley and Sons.

Clements-Croome, D (Ed.) (2014) *Intelligent Buildings: An introduction.*, Abingdon: Routledge

Foster, J. S., Harrington, R. & Greeno, R., (2007). *Structure & Fabric: Part 2*. 7th ed. New Jersey: Prentice Hall.

Hall, F. & Greeno, R., (2013). *Building Services Handbook*. 7th ed. Abingdon: Routledge.

Vardhan, P. (2016) *Civil Engineering Solutions: An Innovative Guide to Advanced Civil Engineering Concepts*. Chennai: Notion Press

Hall, F. & Greeno, R., (2013). *Building Services Handbook*. 7th ed. Abingdon: Routledge.

Other indicative reading:

Bryan, T. (2010), *Construction Technology: Analysis and Choice*. 2nd Ed., Chichester: John Wiley and Sons.

Emmitt, S. & Gorse, C. A., (2014). *Barry's Advanced Construction of Buildings*. 3rd ed. Chichester: Wiley-Blackwell.

Littlefield, D., (2012). *Metric Handbook*. 4th ed. London: Architectural Press.

Riley, M & Cotgrave, A. (2014) *Construction Technology 2: Industrial and Commercial Building*. 3rd Ed., Basingstoke: Macmillan

Building Research Establishment Digests	HMSO, London
The Building Regulations	HMSO, London
Building Design	www.bdonline.co.uk
The Architectural Review	EMAP, London

Other sources:

www.ice.org.uk

www.istructe.org.uk

www.theihe.org.uk

www.ciht.org.uk

www.ihsti.com

Other indicative reading will be made available via the VLE.