

Title:	Building Services Evaluation APPROVED
Long Title:	Building Services Technology Evaluation
Module Code:	BULD8022
Credits:	5
NFQ Level:	Advanced
Field of Study:	Building Science
Valid From:	Semester 1 - 2012/13 (September 2012)
Module Delivered in	2 programme(s)
Module Coordinator:	DANIEL CAHILL
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Module Description:	Identification of, characteristics and selection criteria for cost-effective and sustainable environmental, public health, power supply, security and operational services in residential, commercial and industrial buildings
Learning Outcomes	
<i>On successful completion of this module the learner will be able to:</i>	
LO1	Articulate the context within which cost-effective and sustainable building services are selected, specified, installed, integrated, recorded, maintained and evaluated
LO2	Advise clients and design team members of implications of selected environmental services installations
LO3	Identify client requirements and criteria for choosing public health services installations
LO4	Appraise design criteria and extent of power supply requirements
LO5	Ascertain requirements for, and range of solutions available in relation to, fire detection and security installations
LO6	Evaluate a range of access control, communications and mechanical transport systems
Pre-requisite learning	
Module Recommendations	
<i>This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named CIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).</i>	
No recommendations listed	
Incompatible Modules	
<i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module. You may not earn additional credit for the same learning and therefore you may not enrol in this module if you have successfully completed any modules in the incompatible list.</i>	
No incompatible modules listed	
Co-requisite Modules	
No Co-requisite modules listed	
Requirements	
<i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed. You may not enrol on this module if you have not acquired the learning specified in this section.</i>	
No requirements listed	
Co-requisites	
No Co Requisites listed	

Module Content & Assessment

Indicative Content

Cost-effective sustainable systems generally

Renewable energy systems and energy management; sustainable construction/services technology; environmental impact, embodied energy; builder's work; Building Management System (BMS); testing, commissioning, certification, third-party warranties; 'as-built' drawings; operation and maintenance manuals; post-occupancy evaluation; Health and Safety

Environmental services (Heating, ventilation, air-conditioning, lighting)

Design criteria and specification; energy strategy studies; building morphology and fabric; services required to support the chosen design; heating/cooling philosophy; plant size/weight, riser sizes; sizing of pipes, cables, ducting, conduits, trunking and cable trays; sound insulation and attenuation; duct and pipe routes, spatial co-ordination; control location; commissioning

Public health services (Water supply, drainage)

Design criteria and specification; water supply and waste handling, storage, re-cycling; rainwater harvesting; system capacities - tanks, cylinders, pumps; plant and riser sizes; provision of mains supply, connection to mains; surface water attenuation; drainage routes, manhole locations; spatial coordination; commissioning

Power supply (electrical, gas)

Design criteria and specification; philosophy - use of natural light, degree of system integration, redundancy, life cycle; plant room/switchgear locations/sizes; provision of mains supply, connection to mains; distribution routes and circuits; cable sizes, control panel locations, user equipment, sensor locations, metering; compatibility with control system(s)

Security installations (Fire detection and alarm, fire fighting, intruder detection and alarm)

Design criteria and specification; strategy for fire safety - compartmentation, parameters for fire detection and suppression including sprinkler systems; distribution routes and circuits; cables sizes; pipe sizes; record drawings

Operational services (Communications, movement of people, specialist installations)

Design criteria and specification; plant size/weight; vertical transportation - lifts, escalators, travellers; medical gasses, steam, compressed air; cable and duct sizes and routes; commissioning, operation and maintenance

Assessment Breakdown	%
Course Work	100.00%

Course Work				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	Written report encompassing the criteria for selection of Mechanical and Electrical Services for a residential building	1,2,3,4,5	25.0	Week 4
Project	Evaluation of selected Mechanical and Electrical Services installation for a commercial/industrial building	1,2,3,4,5,6	75.0	Week 12

No End of Module Formal Examination

Reassessment Requirement

Coursework Only

This module is reassessed solely on the basis of re-submitted coursework. There is no repeat written examination.

The institute reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time

<i>Workload Type</i>	<i>Workload Description</i>	<i>Hours</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Delivery of course material	3.0	Every Week	3.00
Independent Learning	Review, augmentation and application of course material	4.0	Every Week	4.00
Total Hours				7.00
Total Weekly Learner Workload				7.00
Total Weekly Contact Hours				3.00

Workload: Part Time

<i>Workload Type</i>	<i>Workload Description</i>	<i>Hours</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Delivery of course material	3.0	Every Week	3.00
Independent Learning	Review, augmentation and application of course material	4.0	Every Week	4.00
Total Hours				7.00
Total Weekly Learner Workload				7.00
Total Weekly Contact Hours				3.00

Module Resources

Recommended Book Resources

- J Langmaid 2004, *Choosing building services - a practical guide to system selection*, BSRIA Bracknell, Berks. [ISBN: 9780860226437]
- D Bleicher 2012, *Illustrated guide to mechanical building services*, 2nd Ed., BSRIA Bracknell, Berks. [ISBN: 9780860227090]
- P Hastings 2005, *Illustrated guide to electrical building services*, 2nd Ed., BSRIA Bracknell, Berks. [ISBN: 9780860226536]
- K Pennycook 2008, *Illustrated guide to renewable technologies*, BSRIA Bracknell, Berks. [ISBN: 9780860226727]
- K Pennycook 2009, *Illustrated guide to ventilation*, 2nd Ed., BSRIA Bracknell, Berks. [ISBN: 9780860226734]
- K Pennycook 2010, *Illustrated guide to mechanical cooling*, BSRIA Bracknell, Berks. [ISBN: 9780860226758]

Supplementary Book Resources

- F Hall and R Greeno 2011, *Building Services Handbook*, 6th Ed., Routledge [ISBN: 978-0-08-096982-4]
- R Greeno 1997, *Building services, technology and design*, Longman [ISBN: 9780582279414]
- P Parnham 2012, *Assessing building services*, RICS [ISBN: 9781842197264]
- R McMullan 2012, *Environmental Science in Building*, 7th Ed., Palgrave Macmillan London [ISBN: 9780230290808]

This module does not have any article/paper resources

Other Resources

- Website: The Chartered Institution of Building Services Engineers *n/a*
<http://www.cibse.org>
- Website: The Building Services Research and Information Association *n/a*
<http://www.bsria.co.uk>
- Website: The Association of Cost Engineers *n/a*
<http://acoste.org>
- Website: The Sustainable Energy Authority of Ireland *n/a*
<http://www.seai.ie>
- Website: RETScreen® International - Government of Canada *RETScreen Clean Energy Project Analysis*
<http://www.etscreen.net>
- Website: Royal Institution of Chartered Surveyors *Environmental assessment method for non-domestic fit-outs*
<http://www.rics.org/ska>
- CD-ROM: Sustainable Energy Authority of Ireland *Non Domestic Energy Assessment Procedure (NEAP)*
- CD-ROM: Sustainable Energy Authority of Ireland *Dwelling Energy Assessment Procedure (DEAP)*
- CD-ROM: The Passive House Institute (PHI) *Passive House Planning (Design) Package (PHPP)*

Module Delivered in			
Programme Code	Programme	Semester	Delivery
CR_CMEQS_8	Certificate in Mechanical & Electrical Quantity Surveying	1	Mandatory
CR_CARCT_9	Master of Science in Architectural Technical Design	1	Elective