



Title:	M&E Measurement APPROVED
Long Title:	Measurement of Mechanical and Electrical Services
Module Code:	BULD8023
Credits:	5
NFQ Level:	Advanced
Field of Study:	Building Science
Valid From:	Semester 1 - 2012/13 (September 2012)
Module Delivered in	6 programme(s)
Module Coordinator:	DANIEL CAHILL
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Module Description:	This module will enable the student to measure Mechanical and Electrical Services and build up corresponding rates.

Learning Outcomes

On successful completion of this module the learner will be able to:

LO1	Outline the procedures used to obtain the data necessary to measure Mechanical and Electrical Installations; identify any omissions, and appropriate remedial action, in the available project information.
LO2	Produce dimensions, including waste calculations, thus demonstrating proficiency in the application of mensuration principles to the measurement of Mechanical and Electrical Installations
LO3	Utilise established principles of Measurement to ensure consistency in the measurement of Mechanical and Electrical Installations
LO4	Utilise Quantity Surveying measurement software to quantify the Mechanical and Electrical elements
LO5	Prepare and present the measurement of Mechanical and Electrical Installations for inclusion in a Bill of Quantities
LO6	Demonstrate and apply the principles of estimating and rate build up for Mechanical and Electrical Installations

Pre-requisite learning

Module Recommendations

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).

No recommendations listed

Incompatible Modules

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.

No incompatible modules listed

Co-requisite Modules

No Co-requisite modules listed

Requirements

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.

No requirements listed

<i>Co-requisites</i>
No Co Requisites listed

Module Content & Assessment

Indicative Content

Apply ARM measurement principles to Mechanical installations

Plant and Equipment, their Ancillaries, such as fans, pumps, valves, etc, not provided with main equipment; Radiators and other devices, Sundries, such as supports, mountings, sound insulation, ID plates, keys, tools and spares; Radiators and other devices, Sundries, such as supports, mountings, sound insulation, ID plates, keys, tools and spares; Pipework, fittings and sundries; Ductwork, fittings and sundries; Insulation to pipework and ductwork; Sundries and Builders Work associated with Hot and Cold Water installation, Fire Fighting installation, Heating installation, Fuel Oil installation, Fuel Gas installation, Renewable Fuels installations, Refrigeration installation, Compressed Air installation, Hydraulic installation, Chemical installation, Special Gas installation, Medical Suction installation, Pneumatic installation, Vacuum installation, Air Handling installation and other installation, type stated.

Apply ARM measurement principles to Electrical installations.

Equipment, Control Gear and Supply; Cables and Cable Compartments; Final Sub-Circuits; Sundries and Builders Works associated with Incoming Service, Standby Equipment, Mains installation, Power installation, Lighting installation, Heating installation, Telephone installation, Data Transmission installation, Clock installation, Sound Distribution installation, Security System installation, Lighting Protection installation, Transport installation, TV installation, Work associated with Mechanical and Electrical installations and Other installation, type stated

Other methods of measurement

Overview of SMM7/NRM/SMMIEC measurement principles for Mechanical and Electrical Services

Estimating

Manipulate and modify the resource costs for the Mechanical and Electrical Installations as noted above.

Assessment Breakdown

%

Course Work

100.00%

Course Work

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	Measurement of Mechanical and Electrical Services for a residential building	1,2,3,4	20.0	Week 5
Project	Prepare a Schedule of rates for Mechanical and Electrical Services	6	10.0	Week 7
Project	Prepare Bill of Quantities for Mechanical and Electrical Services for a complex building	1,2,3,4,5	70.0	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	1.0	Every Week	1.00
Lab	Application of practical measurement	2.0	Every Week	2.00
Independent & Directed Learning (Non-contact)	Independent study of course content and application	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	1.0	Every Week	1.00
Lab	Application of practical measurement	2.0	Every Week	2.00
Independent & Directed Learning (Non-contact)	Independent study of course content and application	4.0	Every Week	4.00
Total Hours				7.00
Total Weekly Learner Workload				7.00
Total Weekly Contact Hours				3.00

Module Resources
<i>Recommended Book Resources</i>
<ul style="list-style-type: none"> • Ivor H. Seeley, Roger Winfield, Alan V. Hore (Editor), Maria O'Kelly (Editor), Rita Scully (Editor) 2009, <i>Seeley and Winfield's Building Quantities Explained: Irish Edition</i>, Palgrave Macmillan [ISBN: 978-0230580145] • SCSI/CIF 2009, <i>Agreed Rules of Measurement 4 (student version)</i>, SCSI • George P. Murray 1997, <i>Measurement of building services</i>, Palgrave Macmillan [ISBN: 978-0333675939] • Buchan, RD, Fleming, EFW & Grant, FEK 2003, <i>Estimating for builders and surveyors</i>, Butterworth-Heinemann Oxford [ISBN: 978-0750642712] • RICS 1988, <i>Standard Method of Measurement (SMM)</i>, 7th Ed., RICS • An Foras Forbatha 1993, <i>National Standard Building Elements and Design Team Cost Control Procedures</i>, 3rd Ed., An Foras Forbatha
<i>Supplementary Book Resources</i>
<ul style="list-style-type: none"> • Duncan Cartlidge 2009, <i>Quantity surveyor's pocket book</i>, Butterworth-Heinemann Oxford [ISBN: 978-0750687461] • CIBSE, <i>CIBSE Guides, A-E</i>, CIBSE • ACE/RICS, <i>Standard Method of Measurement for Industrial Engineering Construction</i>, Assoc. Cost Engineers/Royal Institution of Chartered Surveyors
<i>This module does not have any article/paper resources</i>
<i>Other Resources</i>
<ul style="list-style-type: none"> • Website: <i>Society of Chartered Surveyors Ireland</i> http://www.scsi.ie • Website: <i>Royal Institution of Chartered Surveyors</i> http://www.rics.org • Website: <i>Chartered Institute of Building Services Engineers</i> http://www.cibse.org • Website: <i>The Building Services Research and Information Association</i> http://www.bsria.co.uk/

Module Delivered in

Programme Code	Programme	Semester	Delivery
CR_CQTSU_8	<u>Bachelor of Science (Hons) in Quantity Surveying</u>	8	Elective
CR_CCNMG_8	<u>BSc (Hons) in Construction Management</u>	8	Elective
CR_CMEQS_8	<u>Certificate in Mechanical & Electrical Quantity Surveying</u>	2	Mandatory
CR_CARCT_9	<u>Master of Science in Architectural Technical Design</u>	2	Elective
CR_CCOPM_9	<u>Masters of Science in Construction Project Management</u>	2	Elective
CR_CCNPM_9	<u>Postgraduate Diploma in Science in Construction Project Management</u>	2	Elective