

Liverpool John Moores University

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Title: MEASUREMENT
Status: Definitive
Code: **4513BEFD** (108452)
Version Start Date: 01-08-2011

Owning School/Faculty: Built Environment
Teaching School/Faculty: Liverpool Community College

Team	Leader
Derek King	Y

Academic Level: FHEQ4
Credit Value: 12.00
Total Delivered Hours: 64.00
Total Learning Hours: 120
Private Study: 56

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	42.000
Tutorial	19.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Open book controlled assignment under exam conditions	50.0	3.00
Portfolio	AS2	Project based assignment	50.0	

Aims

To provide the student with a detailed understanding of the principles and procedures of measurement of building projects in general and building services engineering projects in particular. The emphasis within this module is to enable learners to apply the principles and procedures required to analyse, measure and produce approximate quantities for the range of components and elements

associated with large scale commercial building services engineering projects.

Learning Outcomes

After completing the module the student should be able to:

- 1 Demonstrate measurement techniques and their application.
- 2 Undertake measurement tasks and apply mathematical calculations to the measurement process for a range of standard and complex situations.
- 3 Prepare relevant preamble and preliminary items to given situations.
- 4 Analyse standard method(s) of measurement and codes.
- 5 Produce bills of quantities of measured works and schedules using manual and computer techniques .
- 6 Produce interim certificates and final accounts.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

EXAM	1	2	3	4	5	6
PROJECT	1	2	3	4	5	6

Outline Syllabus

Overview of measurement during the various stages of a project: initial estimating techniques, production of contract documentation, measurement of variations, sub-contract and supply chain packages, final account procedures.

Taking off of measurements and production of quantities: sections of a simple construction project, foundations and substructures, superstructure, including external and internal walls, flat and pitched roof construction and coverings, internal and external finishes, internal components such as doors, windows and staircases and floors, simple mechanical engineering services including plumbing and below ground drainage.

Take-off procedures for simple construction elements: general overview of take-off procedures for standard simple construction elements and components including foundations and substructures, superstructure, including external and internal walls, flat and pitched roof construction and coverings, internal and external finishes, internal components such as doors, windows and staircases and floors.

Take-off measurements and produce quantities for complex Building Services Engineering systems: heating, ventilation and air conditioning installations, electrical power, lighting and distribution installations, data, fire & security engineering installations, public health and above ground drainage systems, fuel and specialist gas installations and building management and control installations.

Preamble clauses: producing required preliminary items/clauses for inclusion in a bill of quantities.

Bill format: different formats of bills of quantities, codes and other contract documentation and their use.

Measurement techniques: payments, final account work, different forms of

procurement and different types of contractual arrangement.
Production of Bill of Quantities: traditional, cut and shuffle and computer aided systems, production of a bill of quantities for Building Services Engineering project.
Payment: production of interim and final accounts.

Learning Activities

Lectures, tutorials, case studies.

References

Course Material	Book
Author	Murray, G.
Publishing Year	1998
Title	Measurement of Building Services
Subtitle	
Edition	
Publisher	Palgrave Macmillan
ISBN	0333675932

Course Material	Book
Author	RICS
Publishing Year	1988
Title	SMM7
Subtitle	
Edition	
Publisher	RICS
ISBN	0854063617

Course Material	Book
Author	RICS
Publishing Year	1988
Title	Standard Method of Measurement 7 Measurement Code
Subtitle	
Edition	
Publisher	RICS
ISBN	0854063617

Course Material	Book
Author	Seeley, I.
Publishing Year	1998
Title	Building Quantities Explained
Subtitle	
Edition	5th Edition

Publisher	Palgrave Macmillan
ISBN	0333719727

Notes

This module takes the established principles and practices of Measurement within the construction sector and interprets them from the perspective of the commercial building services engineering industry. The module is delivered via realistic full size building services projects.