Liverpool John Moores University

Title:	MEASUREMENT, TENDERING AND ESTIMATING
Status:	Definitive
Code:	**4610BEFDL** (123923)
Version Start Date:	01-08-2016
Owning School/Faculty:	Built Environment
Teaching School/Faculty:	City of Liverpool College

Team	Leader
Alfred Leung	Y

Academic Level:	FHEQ4	**Credit Value:**	20	**Total Delivered Hours:**	75
Total Learning Hours:	200	**Private Study:**	125		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	60
Tutorial	12

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	FORMAL EXAMINATION	50	3
Artefacts	AS2	DESIGN PROJECT	50	

Aims

This module aims to provide the student with a fundamental understanding of the principles and procedures of measurement of building projects in general and building services engineering in particular. The module will enable students to develop an awareness of the generic principles of tendering and estimating for the non-domestic construction sector and will also allow them to develop and demonstrate a detailed knowledge of how these procedures apply to the commercial Building Services Engineering Industry.

Learning Outcomes

After completing the module the student should be able to:

1 Apply measurement techniques to complete measurement tasks for a range of standard and complex situations.
2 Prepare relevant preamble, preliminary items, and qualified & unqualified schedules of rates to given situations.
3 Apply standard method(s) of measurement to produce interim certificates and final accounts.
4 Identify the pre-tender information required for construction and building services engineering tenders.
5 Produce an estimate for a building services engineering project using appropriate principles and procedures.
6 Describe different tendering procedures and contractual arrangements commonly used in building services engineering projects.

Learning Outcomes of Assessments

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

FORMAL EXAMINATION	1	2	6
DESIGN PROJECT	3	4	5

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.

Take-off procedures for building services engineering elements: general overview of take-off procedures for standard simple building services engineering elements and components including equipment, system accessories and labour.

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: the role and purpose of bills of quantities, 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.

Preparation of qualified and unqualified Schedule of Rates; Maximising the impact and values from SoR's

Payment: production of interim and final accounts.

Examination of tendering information: consideration of the types of client, their objective and the constraints imposed; identification of the range of contract documentation required.

Commercial and operational considerations: formulation of final estimate and tender price, inclusion of appropriate preliminaries, on-costs and overheads, inclusion of all Provisional Sums both defined and undefined, costs associated with the health and safety plan, commercial factors, risks and awareness of factors which might affect profit margin. Use of standard or company data, documentation, procedures or software.

Tender Preparation: examination of the decision to tender, contract risk management, procedures and strategies for tender preparation.

Types of contracts (identification only): commonly used for commercial building services engineering projects, types of commercial tendering procedures, procedures used to formulate select lists, procedures used in receiving and opening tenders, PFI and DBFO schemes and their operation.

Learning Activities

Lectures, tutorials, case studies.

Notes

This module is intended for 'commercial' students from the buildings services sector (i.e. building services quantity surveyors etc.) and students from other construction disciplines who will benefit from a good grounding in modern building services installations.

The module takes the established principles and practices of Measurement, Tendering and Estimating within the construction sector and interprets them from the perspective of the commercial building services engineering industry.