Unit 8: Measuring, Estimating and Tendering Processes in Construction and the Built Environment

Unit code: F/600/0223

QCF Level: 3

Credit value: 10

Guided learning hours: 60

Unit aim

This unit gives learners an understanding of the processes and techniques involved in measuring, estimating and tendering. It also gives them an opportunity to develop skills in producing final quantities, calculating all-in rates and determining the approximate value of building projects.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria
1 Be able to produce final quantities from dimensions and descriptions of construction work	1.1 Carry out the measurement of quantities for different applications
	1.2 Abstract final quantities from measurements
2 Understand the purpose of estimating and the common techniques used to price construction work	2.1 Explain the purposes of estimating
	2.2 Explain the uses of different estimating techniques
	2.3 Review the content of a given estimate
3 Be able to calculate all-in rates of materials, labour and plant	3.1 Determine labour and plant rates, and material costs

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	3.2 Produce all-in rates for two classes of construction work
4 Be able to derive approximate quantities and costs to determine the approximate value of building projects	4.1 Select techniques and processes for use in determining costs
	4.2 Produce approximate quantities and associated cost budgets for two stages of a construction project
5 Understand the process of tendering	5.1 Explain the common methods of tendering for construction work
	5.2 Discuss the documentation required to support the tendering process
	5.3 Explain the factors that can affect the level of tenders

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Unit content

1 Be able to produce final quantities from dimensions and descriptions of construction work

Applications: detailed measurement and production of quantities eg descriptions for bills of quantities, variations, interim payments, final account work, claims, disputes

Processes: traditional; cut and shuffle

Production of accurate descriptions and quantities: compilation of descriptions for works; mensuration techniques; calculation of quantities (volume, area, lengths)

Application of standard methods of measurement: Standard Method of Measurement for Building Work; Civil Engineering Standard Method of Measurement

2 Understand the purpose of estimating and the common techniques used to price construction work

Purposes of estimating: estimating net cost; pricing of preliminaries; profit and general overheads; the effects of quantity and value on the chosen method of estimating

Estimating techniques: labour, plant and materials; rates per unit of measurement; standard price book rates; output tables; historical rates; work study

Documentation: Code of Estimating Practice

3 Be able to calculate all-in rates of materials, labour and plant

Material costs: calculation of material quantities; cost of construction works based on unit costs of materials

Labour rates: calculation of all-in rates for craft workers (skilled, unskilled, gang rates); application of labour costs in unit rates; definition of prime cost of daywork; comparison with 'all-in' rates

Plant rates: calculation of fixed and operating costs; calculation of hourly rates; application of plant costs in unit rates

Calculation of unit rates for various classes of construction work: eg excavation, masonry, concrete work, underground drainage, structural steelwork, suspended timber floors, roof construction, roof coverings, plastering, dry linings, painting and decorating, plumbing work, electrical installation, glazing

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4 Be able to derive approximate quantities and costs to determine the approximate value of building projects

Traditional cost modelling: approximate estimating techniques; cost per unit eg bed, seat, pupil, space; cost per unit area eg m^2 of gross floor area, m^2 of functional space; cost of functional element; approximate quantities

Application: eg feasibility studies, pre-contract cost planning, control, links to stages of RIBA Architect's Plan of Work

Processes: eg use of historical data, tender price indices, location factors, wall-to-floor ratios, window-to-floor ratios, plan shape, number of storeys

5 Understand the process of tendering

Common methods of tendering: methods of tendering relevant to the scale, size and value of the construction works; type of work (building, civil engineering or building services work) for a range of construction works (eg single-stage selective, two-stage selective, open, serial); target cost; measured term; fee bidding

Documentation: eg drawings, schedules, specifications, schedules of work, bills of quantities, activity schedules; codes of procedure for tendering relevant to main and principal contractors, sub-contract packages and supply packages

Factors affecting the level of tenders: impact on value, price or level of a tender for main and principal contractors, sub-contract and supply packages; profit element; potential variations; quality of tender document; standard form of contract; amended standard form or bespoke contract forms; local authority conditions

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