

PERFORM MEASUREMENT OF WORKS AND COST ESTIMATION

UNIT CODE: CON/OS/CET/CC/06/6/A

UNIT DESCRIPTION

This unit describes competencies required to perform measurement of works and Cost Estimation. It involves preparing tender documents, taking off quantities, working up dimensions and abstracting measured quantities

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT This describes the key outcomes which make up workplace functions	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements (to be stated in passive voice) <i>Bold and italicized terms are elaborated in the Range</i>
1. Prepare tender documents	1.1 <i>Working drawings</i> are prepared as per client requirements 1.2 <i>Specifications</i> are prepared as per SOPs 1.3 Bill of quantities is prepared based on specifications and working drawings 1.4 Schedule of rates are prepared as per SOPs 1.5 Condition of contract is prepared based on nature of the project 1.6 Form of agreement is prepared as per the conditions of the contract 1.7 Form of tender is prepared based on the nature of the contract
2 Take off quantities	2.1 Dimension sheet/paper is prepared based on the standard format 2.2 Quantities checklist is prepared based on items to be measured 2.3 <i>Quantities</i> are calculated based on the unit of measure 2.4 Dimensions are booked based on the principles of measurement 2.5 Booked items are described based on the standard method of measurement/CESMM
3 Work up dimensions	3.1 Timesing of dimensions is carried out as per SOPs 3.2 Dimensions are squared as per SOPs
4 Abstract measured quantities	4.1 Abstracting sheet is prepared based on the standard format 4.2 Description of booked items are transferred to the abstracting sheet as per SOPs 4.3 Squared quantities are transferred to the abstracting sheet 4.4 Net quantities are calculated as per SOPs

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Working drawings may include but not limited to:	<ul style="list-style-type: none"> • Architectural • Structural • Electrical • Mechanical • Civil
2. Specifications may include but not limited to:	<ul style="list-style-type: none"> • Material • Workmanship
3. Quantities may include but not limited to:	<ul style="list-style-type: none"> • Volumes • Areas • Linear meters • Numbers (enumeration) • Items

REQUIRED KNOWLEDGE

- Mathematics
- Tender documents
- Technical drawings
- Construction technology
- Quantity survey practice and procedures
- Standard documents (CESMM and SMM)
- Units of measurement
- Estimation and costing
- Abstraction
- Technical terminologies

SKILLS

- Analytical
- Critical thinking
- Computer
- Construction

- Structural detailing
- Scaling
- Design
- Problem solving

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1 Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Prepared tender documents 1.2 Demonstrated knowledge on measurement of works 1.3 Appropriately used workshop tools 1.4 Take off quantities 1.5 Worked up dimensions 1.6 Abstracted measured quantities
2 Resource Implications	The following resources should be provided: 2.1 Computer 2.2 Computer labs 2.3 Computer software 2.4 IT technician 2.5 Stationery 2.6 Computer accessories
3. Methods of Assessment	Competency may be assessed through: 3.1 Written text 3.2 Interview 3.3 Observation
4. Context of Assessment	Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.