



National Unit Specification: general information

UNIT Construction Measurement and Costing (SCQF level 6)

CODE F3JK 12

SUMMARY

This Unit is suitable for candidates who have limited or no experience of Construction Measurement and Costing.

This Unit not only aims to introduce the candidate to the importance of using a Standard Method of Measurement when preparing quantities, but also the skills required in undertaking basic measurement tasks when quantifying items for simple building or civil engineering works.

The Unit develops understanding in the pricing of items for such works which incorporates material wastage allowances. The purpose therefore of this Unit is to enable candidates to gain an awareness of construction measurement and costing for simple straightforward projects.

OUTCOMES

- 1 Demonstrate knowledge and understanding of a Standard Method of Measurement when it is used to prepare Bills of Quantities.
- 2 Demonstrate knowledge and understanding of a Bill of Quantities.
- 3 Determine item quantities and costs from simple construction drawings.

RECOMMENDED ENTRY

Entry is at the discretion of the centre.

Administrative Information

Superclass: TC

Publication date: April 2008

Source: Scottish Qualifications Authority

Version: 01

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National Unit Specification: general information (cont)

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CREDIT VALUE

1 credit at Higher level (6 SCQF credit points at SCQF level 6*).

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

CORE SKILLS

There is no automatic certification of Core Skills or Core Skill components in this Unit. Opportunities for developing aspects of Core Skills are highlighted in *Guidance on Learning and Teaching Approaches*.

National Unit Specification: statement of standards

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Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit Specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

OUTCOME 1

Demonstrate knowledge and understanding of a Standard Method of Measurement when it is used to prepare Bills of Quantities.

Performance Criteria

- (a) Discuss the key benefits of selecting a Standard Method of Measurement when preparing items for a Bill of Quantities.
- (b) Discuss the key disadvantages of not selecting a Standard Method of Measurement when preparing items for a Bill of Quantities.

OUTCOME 2

Demonstrate knowledge and understanding of a Bill of Quantities.

Performance Criteria

- (a) Describe the relationship between tender drawings, specification and the relevant Standard Method of Measurement at pre-tender stage.
- (b) List the different sections of a Bill of Quantities and briefly describing their purpose.
- (c) Explain the benefits of preparing a Bill of Quantities are described correctly.
- (d) Using an appropriate Standard Method of Measurement, select the correct Unit of measurement for ten items.

OUTCOME 3

Determine item quantities and costs from simple construction drawings.

Performance Criteria

- (a) Items from a simple construction details are quantified correctly.
- (b) Quantities are accurately recorded using an acceptable method.
- (c) Items are priced correctly making reasonable allowance for wastage.

National Unit Specification: statement of standards (cont)

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EVIDENCE REQUIREMENTS FOR THIS UNIT

Evidence is required to demonstrate that the candidates have achieved all Outcomes and Performance Criteria.

Written and/or recorded oral evidence is required to demonstrate that the candidate has achieved this Unit to the standard specified in the Outcomes and Performance Criteria. The evidence for this Unit should be obtained under controlled, supervised conditions. The assessment will be open-book and should last no more than two hours. Candidates will be permitted to take formulae, calculations, materials price list, calculators, notes and text books into the assessment.

In this Unit an appropriate instrument of assessment would be a question paper consisting of a balance of short answer, restricted response and structured questions based on case study material.

Outcomes 1 and 2 may be assessed using restricted response questions which include work tasks identified within each Outcome.

Outcome 3 will be assessed by candidate producing item quantities and costs and recording these using an acceptable booking methodology.

Evidence will be gathered at appropriate points throughout the delivery of the Unit. Assessments must be manageable and practicable for centres and candidates.

The Assessment Support Pack for this Unit provides appropriate sample assessment materials. Where centres wish to develop their own assessment materials they should refer to the Assessment Support Pack to ensure a comparable standard.

National Unit Specification: support notes

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This part of the Unit Specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

This Unit has been developed as an optional Unit within the National Certificate Awards in Built Environment and Civil Engineering and can be delivered as a freestanding Unit.

The delivery of this Unit should focus on either Standard Methods of Measurement for Building or Civil Engineering as appropriate and assessment of this Unit should reflect the appropriate industrial area.

This Unit aims to introduce candidates to the main elements of Construction Measurement and Costing by increasing candidate awareness using a Standard Method of Measurement including the advantages and disadvantages of its use; the ability to identify key stages in the preparation of a Bill of Quantities and ultimately the skill of undertaking basic measurement tasks along with the knowledge of costing quantified items which includes allowances for material wastage.

Health and Safety and Sustainability are integral and key to the construction industry therefore throughout the Unit emphasise will be placed where appropriate on the application of Health and Safety and Sustainability.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Emphasis in delivery of the Unit should be on familiarisation with terminology and basic concepts.

The use of case study material is particularly recommended for both the learning and assessment components of this Unit. The study material should commence by looking at the purpose of the Standard Method of Measurement for both building and civil engineering works followed by further explanation of how and why Bills of Quantities are prepared.

The final stages of learning would be to look at undertaking basic measurement tasks followed by the costing of such quantities.

Suggested teaching and learning methods for this Unit could include: the use of visual aids, ICT, group lectures and discussions, practical demonstrations, question and answer sessions, direct study.

Formative work for the Unit could specifically include group discussions as such approaches could be particularly beneficial to candidates with no industrial experience.

OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

In this Unit candidates will be:

- ◆ demonstrating an understanding of Bills of Quantities
- ◆ recording measurements

National Unit Specification: support notes (cont)

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- ◆ calculating quantities and estimating costs

These offer opportunities to develop aspects of the Core Skills of:

- ◆ *Numeracy*
- ◆ *Problem Solving*

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

Opportunities for the use of e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by information and communications technology (ICT), such as e-testing or the use of e-portfolios or e-checklists. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

Evidence will be gathered at appropriate points throughout the delivery of the Unit. In this Unit an appropriate instrument of Assessment could be a question paper consisting of a balance of short answer, restricted response and structured questions based on case study material.

Preparation for assessment should include formative work with opportunities for constructive feedback. Well planned assignments and project work will be useful preparation.

Planning should allow time for re-assessment. Given that assessment for this Unit must be conducted in controlled conditions, centres should ensure that a different assessment is given for re-assessment purposes and that similar controlled conditions apply.

CANDIDATES WITH DISABILITIES AND/OR ADDITIONAL SUPPORT NEEDS

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs (www.sqa.org.uk)*.