



National Unit Specification: general information

UNIT Civil Engineering Site Work (SCQF level 6)

CODE F3J6 12

SUMMARY

This Unit is suitable for candidates who have limited or no experience in the Civil Engineering Industry. This Unit aims to develop the candidates' knowledge of the factors involved in developing and preparing a site for various types of construction projects. The Unit has been designed to develop the candidates' ability to understand the reasons for providing security measures, adequate on site and access routes, material storage areas, the safe working methods and equipment used for earthmoving, concreting and lifting operations.

OUTCOMES

- 1 Describe the requirements of preliminary sitework.
- 2 Describe the types of temporary works used on construction sites.
- 3 Identify and select the plant and equipment for earthworks, concreting and lifting operations.

RECOMMENDED ENTRY

Entry is at the discretion of the centre.

CREDIT VALUE

1 credit at Higher (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.*

Administrative Information

Superclass: TL

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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

Describe the requirements of preliminary sitework.

Performance Criteria

- (a) Describe site security arrangements correctly.
- (b) Describe the need for access and site transportation routes.
- (c) Describe the requirements for providing site accommodation.
- (d) Describe the requirements for providing health and welfare accommodation.
- (e) Describe the requirements for correct site storage of materials.

OUTCOME 2

Describe the types of temporary works used on construction sites.

Performance Criteria

- (a) Describe the purpose and types of hoardings relevant to a given construction activity.
- (b) Describe the uses and types of scaffolding systems and the accompanying regulations regarding their erection and maintenance.
- (c) Describe the purpose of formwork and the types of material used in different circumstances.
- (d) Describe the purpose of formwork support systems and the types of material used in different circumstances.

OUTCOME 3

Identify, select and use the plant and equipment for earthworks, concreting and lifting operations.

Performance Criteria

- (a) Identify the main types of earthmoving plant.
- (b) Identify the main types of lifting equipment.
- (c) Identify the main types of concreting plant.
- (d) Select appropriate plant and equipment for given site situations.

EVIDENCE REQUIREMENTS FOR THIS UNIT

Written and/or oral evidence is required to demonstrate that candidates have achieved all Outcomes to the standard specified in the Performance Criteria.

Evidence will be gathered at appropriate points throughout the delivery of the Unit. Assessment must be manageable and practicable for centres and assessment of all Outcomes should not exceed two hours.

National Unit Specification: statement of standards (cont)

UNIT Civil Engineering Site Work (SCQF level 6)

The assessment should be composed of an appropriate balance of short answer, restricted response and structured questions, will be closed-book and conducted under supervised, controlled conditions.

Assessment of this Unit should cover the following:

Outcome 1 — Candidates should be able to demonstrate their knowledge and understanding of Site clearance and setting out, security: fencing, hoardings, signs and CCTV, accommodation and site office: sectional timber huts, mobile caravans or cabins, storage of cementations materials, aggregates, bricks and blocks, roof tiles, drainages goods, timber, ironmongery

Outcome 2 — Candidates should be able to demonstrate their knowledge and understanding of hoardings: vertical hoardings and fan hoardings, scaffolding systems: putlog scaffolds, independent scaffolds, tubular steel scaffolds, aluminium alloy scaffolds, timber scaffolds, scaffold boards and fittings, formwork: single prop and double prop beam formwork, column formwork, propriety formwork and support systems

Outcome 3 — Candidates should be able to demonstrate their knowledge of Earthmoving plant: dragline, face shovels, scrapers, dozers and backacters, lifting equipment: tower, mobile and guyed derrick cranes, Concreting plant: truck mounted mixers, drum mixer

The Assessment Support Pack for this Unit provides sample assessment material. Centres wishing to develop their own assessments should refer to the Assessment Support Pack to ensure a comparable standard.

National Unit Specification: support notes

UNIT Civil Engineering Site Work (SCQF level 6)

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 a mandatory Unit in the National Certificate in Civil Engineering at SCQF level 6 and an optional Unit in the National Certificate in Built Environment at SCQF level 6 and can also be delivered as a freestanding Unit.

The objective of the Unit is to assist the candidate develop an overall understanding of the people, plant and processes involved in a construction project. Upon completion of the Unit, the candidate will have better appreciation of scheduling the various elements in a construction project and thereby contribute to its planning. Sustainability should make reference to the following: criteria affecting sustainability; environmental impact of not implementing sustainability, and; legislation promoting sustainability.

Throughout the Unit emphasis will be placed where appropriate on the application of Health and Safety and Sustainability. Safe working practices should be looked at in accordance with current health and safety codes of practice and regulations.

1 Describe the main requirements of preliminary sitework

Site Clearance, Setting Out

Security: fencing, hoardings, signs, CCTV.

Accommodation and Site Office: sectional timber huts, mobile caravans or cabins

Storage: cementitious materials, aggregates, bricks and blocks, roof tiles, drainages goods, timber, ironmongery

2 Describe the main types of temporary works used on construction sites.

Hoardings: vertical hoardings, fan hoardings

Scaffolding Systems: putlog scaffolds, independent scaffolds, tubular steel scaffolds, aluminium alloy scaffolds, timber scaffolds, scaffold boards and fittings

Formwork: single prop and double prop beam formwork, column formwork, propriety formwork and support systems

3 Identify, select and use the plant and equipment for earthworks, concreting and lifting operations

Earthmoving plant: dragline, face shovels, scrapers, dozers, backacters

Lifting equipment: tower, mobile and guyed derrick cranes

Concreting plant: truck mounted mixers, drum mixer

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

This Unit provides the candidate with the knowledge and understanding of the various people, plant and processes in a construction project.

National Unit Specification: support notes (cont)

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This Unit may be delivered in the sequence of Outcomes 1–3. The centre delivering this Unit for the first time may begin this Unit by discussing the role of construction industry in the societal development. An introduction to the various aspects of minor, medium and large scale construction projects may be provided.

Case studies should be used in order to differentiate construction activities of varying scale and purpose. Site visits could be used to help develop candidates' ability to understand and visualise construction elements. Also, site visits, and videos may effectively be used to appreciate the sequence of various activities and processes involved in a construction project.

Videos and print material may be used to help candidates appreciate the importance of effective communication skills. Maps and plans of real construction projects may be used to allow candidates relate to the knowledge developed through this Unit.

Where available, construction industry related expertise of the employers of students can also be incorporated into learning and teaching experience. Appropriate attention must be given to the health, safety and welfare arrangements throughout the delivery of this Unit. Where applicable, reference must be made to the appropriate British Standards and current Building Regulations.

The centre may incorporate E-learning by encouraging candidates to access available specialist information such as product catalogues through internet and other electronic media. The candidates may be encouraged to access Journals and online material featuring developments in the construction industry.

OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

In this Unit candidates will be:

- ◆ evaluating the requirements of a site
- ◆ deciding on appropriate security measures, and identifying adequate routes, storage areas and equipment for a range of operations

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

- ◆ *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)*.

National Unit Specification: support notes (cont)

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Where available, evidence from the workplace can also be incorporated to enhance the learning Outcomes, provided such evidence is appropriate and authenticated as the candidate's own work.

The volume of evidence required for each Outcome should take into account the overall number of assessments being contemplated within this Unit and the design of the overall delivery programme. In designing the assessment instrument(s) opportunities should be taken to generate appropriate evidence to contribute to the development of Core Skills elements.

The centre may design electronic assessments; provided the candidates have the necessary ICT skills and that the evidence produced by electronic assessments meets the standards of the Assessment Support Pack for this Unit.

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).