National Unit Specification: general information

UNIT Maintenance Safety (SCQF level 5)

CODE F5J4 11

SUMMARY

This Unit may form part of a National Qualification Group Award or may be offered on a free standing basis.

This introductory Unit is designed to provide candidates with a basic knowledge and understanding of health and safety in an engineering maintenance environment. During Unit delivery candidates will learn about the responsibilities of employers and employees in relation to current health and safety legislation as applied in a mechanical plant maintenance environment. They will also identify procedures for reporting potential health and safety hazards. Candidates will also learn to state important safety requirements involved in working safely in a plant maintenance environment. They will also develop the knowledge and understanding to describe the ways in which health and safety procedures are applied to reduce risks associated with plant maintenance tasks.

This Unit is suitable for candidates training to be mechanical, maintenance or multi-disciplinary engineering craftspersons.

OUTCOMES

1 State employer and employee responsibilities and reporting procedures with regard to health and safety in a plant maintenance environment.
2 State safety requirements involved in working in a plant maintenance environment.
3 Describe the ways in which health and safety procedures are applied to reduce risk for a given plant maintenance task.

Administrative Information

Superclass: VG

Publication date: March 2009

Source: Scottish Qualifications Authority

Version: 01

National Unit Specification: general information (cont)

UNIT Maintenance Safety (SCQF level 5)

RECOMMENDED ENTRY

While entry is at the discretion of the centre some knowledge and experience of working in a practical engineering environment would be an advantage.

CREDIT VALUE

1 credit at SCQF level 5 (6 SCQF credit points at SCQF level 5).

**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 in this Unit.

The Unit provides opportunities for candidates to develop aspects of the following Core Skills:

- Communication (SCQF level 5)
- Information Technology (SCQF level 5)
- Working with Others (SCQF level 4)

These opportunities are highlighted in the Support Notes of this Unit Specification.

National Unit Specification: statement of standards

UNIT Maintenance Safety (SCQF level 5)

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

State employer and employee responsibilities and reporting procedures with regard to health and safety in a plant maintenance environment.

Performance Criteria

(a) State correctly employer's responsibilities in terms of current health and safety legislation.
(b) State correctly employee's responsibilities in terms of current health and safety legislation.
(c) Identify correctly sources of current information for guidance on legislative provisions and regulations.
(d) Identify correctly procedures for reporting potential health and safety hazards.

OUTCOME 2

State safety requirements involved in working in a plant maintenance environment.

Performance Criteria

(a) State correctly hazards that can occur in a plant maintenance environment.
(b) Identify correctly examples of health and safety signage that are commonly used in a plant environment.
(c) State correctly the Personal Protective Equipment (PPE) requirements for given plant maintenance tasks.
(d) State correctly examples of the safe use and storage of tools and equipment in accordance with recognised regulations and testing and calibration procedures.
(e) State correctly the testing and certification requirements associated with an item of maintenance equipment.

National Unit Specification: statement of standards (cont)

UNIT Maintenance Safety (SCQF level 5)

OUTCOME 3

Describe the ways in which health and safety procedures are applied to reduce risk for a given plant maintenance task.

Performance Criteria

(a) State correctly factors that may be of particular danger to maintenance personnel.
(b) Describe correctly a time-based shutdown procedure for a given plant maintenance task.
(c) Describe correctly a procedure for cordoning off areas in which maintenance activities are to take place.
(d) Describe correctly lock-off procedures for a given maintenance task.
(e) Identify correctly safety interlock systems for a given maintenance task.
(f) Describe correctly the procedures to be adopted in the event of fire in a given maintenance environment.

EVIDENCE REQUIREMENTS FOR THIS UNIT

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

Written and/or recorded oral evidence should be produced to demonstrate that a candidate has achieved all Outcomes and Performance Criteria.

Outcomes 1 and 2 may be assessed on an individual basis or as a single assessment covering both Outcomes. The total time for assessment(s) of Outcomes 1 and 2 must not exceed 1 hour and 15 minutes. Assessment(s) must be conducted under controlled, supervised, closed-book conditions in which candidates may use reference materials provided by the centre but are not allowed to bring their own notes, handouts, textbooks or other materials into the assessment.

Outcome 3 must be assessed under supervised, open-book conditions.

With regard to Outcome 1:

- candidates must state three employer and three employee responsibilities with regard to current health and safety legislative requirements
- candidates must state two current sources of information for guidance on legislative provisions and regulations
- candidates must identify two different procedures for reporting potential health and safety hazards one of which must be a Risk Assessment Form

National Unit Specification: statement of standards (cont)

UNIT Maintenance Safety (SCQF level 5)

With regard to Outcome 2:

- candidates must state six hazards that can occur in a plant maintenance environment
- candidates must identify four different health and safety signs commonly found in a plant environment
- candidates must identify PPE requirements for two different maintenance tasks
- candidates must state two examples of the safe use and storage of tools and equipment in accordance with recognised regulations and testing and calibration procedures

With regard to Outcome 3:

- candidates must state three factors that may be of particular danger to maintenance personnel
- candidates must describe two lock-off procedures for a given maintenance task
- candidates must identify three safety interlock systems associated with a maintenance task

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 Maintenance Safety (SCQF level 5)

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 forms part of the National Qualification Group Award (NQGA) in Mechanical Maintenance Engineering at SCQF level 5, but may also be offered on a free standing basis.

The aim of this Unit is to provide candidates with basic knowledge and understanding of health and safety in an engineering maintenance context. On successful completion of the Unit candidates will be able to state some of the responsibilities of employers and employees in relation to current health and safety legislation as applied in a mechanical plant maintenance environment. They will also be capable of identifying procedures for reporting potential health and safety hazards. Candidates will be able to state important safety requirements involved in working safely in a plant maintenance environment. They will also have developed the knowledge and understanding to describe the ways in which health and safety procedures are applied to reduce risks associated with plant maintenance tasks.

In Outcome 1 candidates should explore the responsibilities of employers and employees with regard to current health and safety legislation as these apply in an engineering plant maintenance environment. They should also learn how to access current information for guidance on legislative provisions and regulations as applied to plant maintenance procedures. Such sources of information may include Health and Safety Executive (HSE) information, company health and safety representatives (eg Health and Safety Officer), trade union representatives, company Health and Safety policies, procedures and practices etc. Candidates should also explore worksite procedures for reporting potential health and safety hazards.

In Outcome 2 candidates should examine safety requirements involved in working in a plant maintenance environment. Such an examination may commence by examining potential hazards that can arise in plant maintenance environments such as slips, moving parts of machinery, contaminants, irritants, working at height, working in confined spaces, pressure or pressure stored systems, volatile materials, lack of guarding, handling and lifting etc. Candidates should also learn about different health and safety signs that are commonly used in plant maintenance environments. Candidates should examine the requirements for different types of PPE in different plant maintenance environments (eg breathing equipment in certain gaseous environments). Candidates should also consider the safe use and storage of tools and equipment in line with recognised regulations and testing and calibration procedures and the testing and certification requirements associated with maintenance equipment such as scissor lifts, cherry pickers, fork lift trucks etc.

In Outcome 3 candidates should investigate the ways in which health and safety procedures are applied to reduce risk associated with plant maintenance tasks. Outcome delivery may commence with an identification of factors that may be of particular danger to maintenance personnel such as working at height, working in confined spaces, use of ladders, scaffold and harnesses, working in potentially explosive areas. etc.

Candidates may then learn about procedures that are required to be applied before maintenance tasks can be undertaken (eg isolation of electrical equipment, removal of dangerous gases, boiler shutdown etc.). Candidates should also look at procedures for cordoning off areas in which maintenance activities are to take place (taping off working envelope, use of cones for demarcation of areas using lifting equipment, fork lift truck etc). Candidates should also consider lock-off procedures used in mechanical plant maintenance (to include padlocks, tag out and Permit to Work systems). They should also investigate interlock systems such as guard switches, emergency stops, castell locking systems etc. Finally, candidates should consider procedures to be adopted in the event of fire in maintenance environments. Such considerations may include the use of correct fire extinguishers, evacuation procedures, muster points, reporting etc.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

It is recommended that the Unit is delivered in the same sequence the Outcomes are presented in the National Unit Specification: statement of standards section of the Unit. The Unit may be delivered by a combination of lectures, group work, role play, case studies, investigations (including the use of the Internet) and industrial visits.

Unit delivery could specifically include group discussions and role play based on workplace health and safety issues and events. Such an approach could be particularly beneficial to candidates with little or no industrial experience.

Case study materials highlighting ‘real life’ industrial situations are particularly recommended for learning and teaching. Case studies could be used to stimulate discussion on a range of health and safety issues including the responsibilities of employers and employees for health and safety, the correct procedures for reporting health and safety hazards, the selection of PPE for different maintenance environment, etc.

Candidates may investigate and evaluate relevant legislation, policies and procedures from available resources including websites. Engineering industries where maintenance safety and up-dating of current legislation is an issue will often have their own information websites, (usually trade associations, societies, institutes and trades unions). These may be accessed by lecturers and candidates according to the particular industry in which candidates are involved.

Industrial visits, particularly for candidates with little or no industrial experience, can often be of great benefit in allowing them to see how health and safety procedures and practices are applied in practice. Discussions with plant staff will also give candidates opportunities to explore in a practical context some of the health and safety issues they have discussed in the classroom.

Guest lecturers from different industries can provide candidates with, among other things, enhanced knowledge and understanding of health and safety legislation, practices and procedures, employer and employee responsibilities with regard to health and safety, good and bad health and safety practices etc.

Wall charts, videos/DVDs and other learning and teaching aids dealing with health and safety issues can also help to enhance candidate learning.

OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

The Reading Communication Core Skill component at SCQF level 5 may be developed while candidates are sourcing and reading information from a range of sources. The use of library and internet resources should be actively encouraged and time made available accordingly. Skills in assessing the validity of information from different sources should be encouraged. Evaluation of information accessed should include a check of the accuracy and currency of all information to be used.

The Oral Communication Core Skill component at SCQF level 5 may be developed while candidates engage in group discussions and role play on industrially related health and safety issues.

The Written Communication Core Skill at SCQF level 5 may be developed while candidates are providing answers to questions in both formative and summative assessments.

The Using Information Technology Core Skill component at SCQF level 5 may be developed while candidates explore various websites containing information on health and safety issues.

The Working with Others Core Skill component at SCQF level 4 may be developed while candidates communicate and listen to others in group discussions and role play situations.

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

Centres are encouraged to use formative assessment extensively as it plays a particularly important role in allowing candidates to develop a sound knowledge and understanding of issues relating to health and safety.

Outcomes 1 and 2

Assessment may comprise a single assessment paper covering the Outcome and Performance Criteria requirements for both Outcomes. The assessment paper should be taken at a single assessment event lasting 1 hour and 15 minutes and comprise a suitable balance of short answer and restricted response questions or objective questions (eg multi-choice questions) or mixture of both. This assessment may be suitable for on-line delivery.

National Unit Specification: support notes (cont)

UNIT Maintenance Safety (SCQF level 5)

Outcome 3

Assessment may comprise a Case Study and a question paper related to the Study. The Case Study should be designed to cover the Outcome and Performance Criteria requirements of the Outcome. The question paper may comprise a suitable balance of short answer, restricted response and structured questions. Centres may choose to limit the time candidates have to answer questions to 1 hour and 30 minutes.

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 Communication 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)*.

DISABLED CANDIDATES AND/OR THOSE WITH ADDITIONAL SUPPORT NEEDS

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website **www.sqa.org.uk/assessmentarrangements**