

## Higher National Unit Specification

### General information for centres

**Unit title:** Quality and Health and Safety Systems in Science Industries

**Unit code:** DF82 34

**Unit purpose:** This unit is designed for the first year of a science related discipline. It aims to introduce the candidates to quality and health and safety issues in a general, broad-based manner whilst also providing an opportunity to view these procedures in practice via an industrial/commercial site visit. It is designed in a non-specific way to accommodate the dynamic nature of the subject.

On completion of the Unit the candidate should be able to:

1. Describe key aspects of Health and Safety Procedures in relation to Science.
2. Describe named quality standard(s) in relation to Science.
3. Undertake an industrial/commercial site visit that incorporates the investigation of Quality Standards and Health and Safety initiatives.

**Credit value:** 1 HN Credit at SCQF level 7: (8 SCQF credit points at SCQF level 7\*)

*\*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.*

**Recommended prior knowledge and skills:** Access to this unit will be at the discretion of the centre.

**Core skills:** There may be opportunities to gather evidence towards the core skill in Communication at higher level and Working with others at Intermediate 2 in this unit, although there is no automatic certification of core skills or core skill components.

**Context for delivery:** This unit is included in the framework of all the group awards, in Science. It is recommended that it should be taught and assessed within the context of the particular group award to which it contributes. The unit, however, has been written in a generic, non-prescriptive format and so may stand on its own as an introduction to Quality Systems and Health and Safety issues. These are areas of importance in all workplaces and therefore this unit should be of interest to candidates studying in many different disciplines.

## General information for centres (cont)

**Assessment:** This unit requires the candidate to amass a large volume of information from a range of specific issues (as detailed by the centre). As such, several assessments, as opposed to a single holistic approach would be considered more appropriate to assess the candidate's competence. It is also recommended that Outcomes 2 and 3 be assessed by means of a report rather than a closed book assessment. Acceptable performance in this unit will be the satisfactory achievement of the standards set out in the evidence requirements for all three outcomes.

## Higher National Unit specification: statement of standards

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The sections of the Unit stating the Outcomes, knowledge and/or skills, and evidence requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the knowledge and/or skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

### Outcome 1

Describe key aspects of Health and Safety procedures in relation to Science.

#### Knowledge and/or skills

- ◆ Legal requirements for Health and Safety.
- ◆ Risk assessment.
- ◆ Accident procedure.
- ◆ Signs and symbols in hazardous situations.

#### Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can:

- ◆ briefly outline the major legal requirements for Health and Safety.  
The candidate should investigate the following:
  - The Health and Safety at Work Act
  - The Control of Substances Hazardous to Health (COSHH) RegulationsThese are very long and complicated documents and so only the main points should be covered to give the candidate an overview rather than minute detail.
- ◆ outline risk assessment and the nature and origin of common hazards.  
The candidate should investigate what risk assessment is and look at some common hazards their origins and effects and precautions. The candidate should demonstrate knowledge of risk assessment and troubleshooting some common hazards (identifies precautions).
- ◆ describe accident procedures.  
The candidate should describe some general procedures which deal with accidents.
- ◆ identify signs and symbols in hazardous situations.  
The candidate should identify warning signs and symbols for given hazardous situations.

Evidence should be produced to show that the candidate can describe/explain/identify particular Health and Safety issues as identified by the centre.

## **Higher National Unit specification: statement of standards (cont)**

### **Unit title:** Quality and Health and Safety Systems in Science Industries

It is recommended that the candidate's knowledge and/or skills should be demonstrated by a supervised closed book test for each of the above areas. This could be presented separately i.e. each part assessed individually or it could be assessed by combining some of the areas together in one test e.g. risk assessment and COSHH.

Every section in the evidence requirements shown above must be assessed.

### **Assessment guidelines**

In the first two sections, a series of questions could be asked to assess the candidate's knowledge.

For risk assessment a diagram/situation could be given to the candidates in which they have to identify hazards and suggest precautions. Similarly an accident scenario could be presented to the candidate who then has to identify the appropriate course of action.

For the last section, meanings/diagrams of signs and symbols should be identified correctly.

### **Outcome 2**

Describe named quality standard(s) in relation to Science.

#### **Knowledge and/or skills**

- ◆ Purpose of quality standard.
- ◆ Basic requirements/elements of the quality standard are identified and exemplified.
- ◆ Regulations.

#### **Evidence requirements**

Candidates will need evidence to demonstrate their skills and/or knowledge by showing that they can:

- ◆ explain the purpose of quality standard.
- ◆ understand the aims and objectives of the standard.
- ◆ identify and exemplify the elements of the quality standard.
- ◆ identify and explain the basic implementation requirements of the quality standard.
- ◆ explain regulators.
- ◆ identify compliance (broadly) check to certain regulatory bodies e.g. MCA required GMP and GLP quality standards to be employed.

The above should be the candidate's individual work. Clarification of exact evidence required should be detailed by the centre as each centre may select a different quality standard with different elements (essential/fundamental constituents). Assessment should be under open book conditions and can be completed in the candidates own time.

## **Higher National Unit specification: statement of standards (cont)**

**Unit title:** Quality and Health and Safety Systems in Science Industries

### **Assessment guidelines**

It is recommended that the candidate's knowledge and/or skills should be demonstrated by producing a report based on the appropriate information. This information should be partly given by the lecturer and partly investigated by the candidate with guidance from the lecturer. The information must provide candidates with the opportunity to cover all items in the evidence requirement shown above.

The report may include the following topics:

- eg purpose of quality standard
- scope of quality standard
- personnel responsible for implementation of quality standard
- maintenance of reports or any other relevant material as deemed appropriate by the lecturer.

### **Outcome 3**

Undertake an industrial/commercial site visit that incorporates the investigation of Quality Standards and Health and Safety initiatives.

#### **Knowledge and/or skills**

- ◆ Observation of industrial/commercial application.
- ◆ Quality standards are observed and summarised.
- ◆ Health and Safety aspects are observed and summarised.
- ◆ Report and evaluation.

#### **Evidence requirements**

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can:

- ◆ observe industrial/commercial application.
- ◆ identify and report on the company's business.
- ◆ observe and summarise quality standards.
- ◆ investigate what quality standards are complied with and the implementation of quality procedures.
- ◆ observe and summarise Health and Safety aspects.
- ◆ investigate health and safety policy in the company and the implementation of health and safety initiatives.
- ◆ present a concise, coherent, word processed report incorporating information from the previous three points.

This evidence should be the candidate's individual work based on the information gathered on the visit(s).

## **Higher National Unit specification: statement of standards (cont)**

**Unit title:** Quality and Health and Safety Systems in Science Industries

### **Assessment guidelines**

It is recommended that the candidate's knowledge and/or skills could be demonstrated by producing a report based on information acquired on site visit(s). The lecturer should ensure that the visits are structured so that candidates are provided with an opportunity to gather suitable information which covers all items in the evidence requirements shown above.

Lecturers should feel free to answer questions or clarify any queries relating to the information that candidates may have. Candidates should be encouraged to ask questions while on visits and so gain as much expert advice/knowledge from personnel on site.

## Administrative Information

**Unit code:** DF82 34

**Unit title:** Quality and Health and Safety Systems in Science Industries

**Superclass category:** PL

**Date of publication:** August 2004

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### History of changes:

| Version | Description of change   | Date        |
|---------|---|-------------|
| 02      | Previous version was made before the introduction of the History of Changes table.  | August 2005 |
| 03      | Minor change to Outcome 1 Evidence Requirement text, bullet point 2. Amended text to 'Guidance on content and context for this Unit' under Outcome 1. | 07/02/12    |
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## **Higher National Unit specification: support notes**

### **Unit title:** Quality and Health and Safety Systems in Science Industries

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**

It is important to stress that this unit has been written in a generic manner to accommodate the dynamic nature of the subject material and also to make its use as flexible as possible. Scenarios can be chosen which are most appropriate to the candidate's learning environment.

#### **Outcome 1**

Candidates should be given an overview of relevant health and safety legislation. The exact legislation covered may vary depending on the context of the course in which the unit is delivered, but it would be expected to include the following as a minimum:

The Health and Safety at Work Act, Sections 2(1) to 2(9)  
The Control of Substances Hazardous to Health Regulations  
The Management of Health and Safety at Work Regulations (risk assessments)  
Reporting of Injuries, Diseases and Dangerous Occurrences Regulations

Candidates should also be given an understanding of the nature and seniority of different levels of regulatory provisions i.e. Acts of Parliament; Regulations; Approved Codes of Practice; Guidance Notes, and of the role of relevant bodies e.g. Health and Safety Commission; Health and Safety Executive; Scottish Environmental Protection Agency. An understanding of the main differences between Statute Law and Common Law will be beneficial to candidates, as will an appreciation of concepts such as negligence and vicarious liability.

The four major classes of hazard (chemical, physical, biological, ergonomic) should be covered, in detail appropriate to the nature of the course in which the unit is delivered. Attention should be given to concepts such as acute and chronic effects, routes of entry, target organs etc.

The idea of a "Hierarchy of Control" will be useful to candidates in enabling them to correctly identify methods of risk management. Particular care should be taken to ensure that the difference between hazard and risk is well explained. Candidates should be given guidance, with appropriate examples, of how to correctly complete and understand COSHH and Risk assessments in line with the legislative requirements.

Procedures for dealing with accidents and emergencies should be covered, in terms of immediate, medium and long term actions. This will likely be best covered in terms of "real



## **Higher National Unit specification: support notes (cont)**

### **Unit title:** Quality and Health and Safety Systems in Science Industries

life scenarios”, and could include such considerations as procedure for raising alarm, procedure for evacuation( including rescue teams), first aid, procedure for calling emergency services, notification of HSE, clean up and hand back procedure, review of practices and assessments.

The students should be given details of the design and meaning of signs and hazard symbols which are relevant to the context of the course in which the unit is delivered.

#### **Outcome 2**

Quality standards are continually being revised and updated and so the accuracy of lecture material should be examined regularly.

Possible quality standards which may be investigated could include Good Manufacturing Practice (GMP), Good Laboratory Practice (GLP), International Standards Organisation (ISO), Hazard Analysis Critical Control Points (HACCP) or most recent equivalents. Other quality standards may be investigated if judged to be more appropriate.

Regulatory bodies and company compliance should be mentioned **briefly** e.g. MCA medicines control agency require pharmaceutical companies to comply with GMP and GLP quality standards before they will licence them for drug production.

#### **Outcome 3**

When planning industrial/site visits it is advised that this is organised as soon as possible to allow the company to accommodate the visit within timetable restrictions. Candidates can work together as a group or individually to arrange the visit. This includes planning, organising and possibly collaborating on their reports to ensure all relevant areas are covered. Some class time should also be left at the end of the unit after the visit(s) to allow the candidates to write up their reports with possible guidance from the lecturer.

### **Guidance on the delivery and assessment of this Unit**

This unit forms part of all Science Group Awards. The unit should be delivered in a way that enables candidates to appreciate its relevance to the occupational area. Wherever possible, units should be drawn from situations which candidates will understand.

The use of candidate-centred, resource-based methodologies should be as extensive as possible to promote independent study.

Assessment of Outcome 1 is by a supervised closed-book test, where there should be no reference to any materials during the test. Where evidence is found to be unsatisfactory candidates may be given a reassessment paper under the same conditions. Different questions should be used in each reassessment and all points in the evidence requirements must be covered.

## **Higher National Unit specification: support notes (cont)**

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Assessment of Outcomes 2 and 3 are by production of appropriate evidence. It is recommended that this evidence should be partly generated in class time with lecturer guidance and partly generated outwith class time (i.e. open book). Where evidence is found to be unsatisfactory, candidates may be questioned in order to identify particular problems with specific area(s). The most suitable remedial action is to allow the candidates to amend the written work and re-submit.

### **Open learning**

If this unit is delivered by open or distance learning methods, additional planning resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and reassessment purposes. For further information and advice, please see *Assessment and Quality Assurance of Open and Distance Learning* (SQA, February 2001-publication code A1030)

### **Special needs**

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).

## **General information for candidates**

### **Unit title:** Quality and Health and Safety Systems in Science Industries

This is a 1 credit HN unit at SCQF level 7 intended for candidates studying for all Science awards. It is designed to give you an introduction to quality standards and health and safety issues in a general, broad-based manner. The unit will also provide you with an opportunity to view these procedures in practice via at least one industrial/commercial site visit.

The three outcomes which make up the unit are described below. Emphasis is placed on how they are assessed.

#### **Outcome 1**

This outcome is about Health and Safety. You will learn about the legal requirements of workplaces e.g. Health and Safety at work Act, COSHH, accident procedure and Hazardous signs and symbols and about the nature and origin of common hazards.

The outcome is assessed by a supervised, closed-book test. It may be assessed in stages or as one complete test at the end of the outcome.

#### **Outcome 2**

This outcome is about quality standards. The detail of which standards you will be investigating will be given to you at a later date. In this outcome you will learn about the purpose, basic requirements and implementation of quality standards. You will also investigate regulatory bodies and company compliance.

The outcome is assessed by means of a report which will be developed under specific guidelines as detailed by the lecturer.

#### **Outcome 3**

This outcome requires at least one visit to an industrial/commercial site. Attendance is compulsory. On this visit you will be observing health and safety procedures and quality standards in practice. You will be expected to take notes and ask questions. The information/data which you gather will form the basis of a report which you will have to write to achieve this outcome.

The report should conform to the specified structure, be clear and coherent and be work-processed.

To succeed in this unit you must achieve a satisfactory level of performance in all assessments.