



## **International Vocational Award Unit Specification: general information**

**UNIT**        Hydrocarbon Process Operations: Utility Operations  
(SCQF level 5)

**CODE**        F3PX 45

### **SUMMARY**

This is a mandatory Unit in the International Vocational Award (IVA) in Hydrocarbon Process Operations SCQF level 5.

Candidates, on successful completion of this Unit, will be able to demonstrate knowledge and understanding of the principles and safe practice of Utility Operations.

For this Unit the candidate will be required to demonstrate knowledge and understanding of:

- ◆ disposing of waste water
- ◆ generating electrical power
- ◆ operating gas turbines and diesel engine prime movers
- ◆ generating nitrogen
- ◆ operating chemical injection
- ◆ providing chlorine
- ◆ providing diesel
- ◆ providing heat (ie hot oil and/or hot water)
- ◆ providing heating, ventilation and air conditioning (HVAC)
- ◆ providing instrument and service air
- ◆ providing cooling water
- ◆ working with fire and gas and Emergency Shut Down (ESD) systems
- ◆ utility systems specific safety awareness

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### **Administrative Information**

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## **International Vocational Award Unit Specification: general information (cont)**

**UNIT**        Hydrocarbon Process Operations: Utility Operations  
                  (SCQF level 5)

This Unit has been designed specifically for a target audience in the international market.

### **OUTCOMES**

- 1    Demonstrate knowledge of the principles of Utility Operations.
- 2    Demonstrate understanding of the practice and application of knowledge to Utility Operations.

### **RECOMMENDED ENTRY**

While entry is at the discretion of the centre, candidates would normally be expected to have a working knowledge of English, Maths and Science.

### **CREDIT VALUE**

1 credit at Intermediate 2 level (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.*

## **International Vocational Award Unit Specification: statement of standards**

### **UNIT        Hydrocarbon Process Operations: Utility Operations (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**

Demonstrate knowledge of the principles of Utility Operations.

##### **Performance Criteria**

- (a) Explain clearly the main components of Utility Operations equipment.
- (b) Explain clearly the main functions of Utility Operations equipment.

#### **OUTCOME 2**

Demonstrate understanding of the practice and application of knowledge to Utility Operations.

##### **Performance Criteria**

- (a) Explain clearly how to start-up and shut-down Utility Operations equipment safely.
- (b) Explain clearly how to operate and monitor Utility Operations equipment safely.
- (c) Explain clearly how to isolate and reinstate Utility Operations equipment safely.

### **EVIDENCE REQUIREMENTS FOR THIS UNIT**

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

Candidates, to demonstrate satisfactory attainment of all aspects of the Unit, must produce satisfactory responses to questions that cover all Outcomes and Performance Criteria.

Assessment should be supervised, open-book and delivered at an appropriate time in the Unit when candidates have developed knowledge and understanding of:

- ◆ disposing of waste water
- ◆ generating electrical power
- ◆ operating gas turbines and diesel engine prime movers
- ◆ generating nitrogen
- ◆ operating chemical injection
- ◆ providing chlorine
- ◆ providing diesel
- ◆ providing heat (hot oil and /or hot water)
- ◆ providing heating, ventilation and air conditioning (HVAC)
- ◆ providing instrument and service air
- ◆ providing cooling water

## **International Vocational Award Unit Specification: statement of standards (cont)**

### **UNIT**      Hydrocarbon Process Operations: Utility Operations (SCQF level 5)

- ◆ working with fire and gas and Emergency Shut Down (ESD) systems
- ◆ utility systems specific safety awareness

Outcome 1 may be assessed by questions (eg multi-choice assessment).

Outcome 2 may be assessed by questions and workshop practicals.

Evidence of candidate responses, whether in response to written questions or in workshop practical, must be signed by the assessor as confirmation of achievement and retained by the centre.

## **International Vocational Award Unit Specification: support notes**

### **UNIT        Hydrocarbon Process Operations: Utility Operations (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 is a mandatory Unit within the International Vocational Award Hydrocarbon Process Operations (SCQF level 5). It is recommended that the Unit be delivered in the context of the Oil and Gas sector. This Unit is designed to provide candidates with an understanding of the principles and practices associated with the equipment and processes used in Utility Operations.

The Unit is designed to allow centres the flexibility to deliver knowledge and understanding based on the range of equipment available in a simulated or real work environment. The main areas to be covered are:

- ◆ disposing of waste water
- ◆ generating electrical power
- ◆ operating gas turbines and diesel engine prime movers
- ◆ generating nitrogen
- ◆ operating chemical injection
- ◆ providing chlorine
- ◆ providing diesel
- ◆ providing heat (hot oil and/or hot water)
- ◆ providing heating, ventilation and air conditioning (HVAC)
- ◆ providing instrument and service air
- ◆ providing cooling water
- ◆ working with fire and gas and Emergency Shut Down (ESD) systems
- ◆ utility systems specific safety awareness

#### **GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT**

While the use of case study material is particularly recommended for both the learning and teaching components of this Unit, other suggested teaching and learning methods for this Unit could include: the use of visual aids, information communication technology (ICT), group lectures and discussion, practical demonstrations, question and answer sessions, directed study, industrial/site visits.

Formative work for the Unit could specifically include group discussion and role play emphasising workplace health and safety issues and events specific to Utility Operations. Such an approach could be particularly beneficial to candidates with no industrial experience.

Case studies could be used as a stimulus to provide opportunities for completing appropriate documentation and reading and evaluating relevant legislation, policies and procedures. Role play of typical industry scenarios could additionally enhance the co-operative working skills of candidates.

## **International Vocational Award Unit Specification: support notes (cont)**

**UNIT**        Hydrocarbon Process Operations: Utility Operations  
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### **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)*.

Candidates should be made aware of what will be required of them in order to achieve credit for the Unit. They should be encouraged to discuss the work with the trainer/tutor and their colleagues. Help and encouragement should be given throughout the Unit so that the candidates become confident in their ability to achieve the Performance Criteria.

Preparation for assessment should include formative work with opportunities for constructive feedback.

In this Unit an appropriate instrument of assessment for Outcomes 1 and 2 could include:

- ◆ a question paper consisting of a balance of multiple choice, short answer, restricted response and structured questions
- ◆ workshop practical in a real or simulated workplace setting (eg oral questioning associated with ‘walking the line’)

Where candidates require re-assessment there should be a different set of questions available for that re-assessment.

#### **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](http://www.sqa.org.uk)).