

## **SQA Advanced Unit specification**

### **General information**

**Unit title:** Marine Engineering: Management (SCQF level 8)

**Unit code:** HW5W 48

**Superclass:** ZS

**Publication date:** November 2017

**Source:** Scottish Qualifications Authority

**Version:** 01

### **Unit purpose**

This Unit is designed to enable learners to develop their knowledge and understanding of various aspects of the management of shipboard operations. It examines the sources and structure of marine legislation and management practices necessary to monitor and control compliance with the legislation.

It is primarily aimed at learners who intend to seek sea-going employment as a Merchant Navy Engineering Officer and will meet MCA requirements up to Class 1 certificate of competency. However it may also be studied by someone with an interest in the subject area.

### **Outcomes**

On successful completion of the Unit the learner will be able to:

- 1 Apply marine legislation and safety management systems to shipboard operations.
- 2 Analyse management theory and methods of system control in a shipboard context.

### **Credit points and level**

1 SQA Credit at SCQF level 8: (8 SCQF credit points at SCQF level 8)

## **SQA Advanced Unit Specification**

### **Recommended entry to the Unit**

Entry is at the discretion of the centre, however learners would benefit most from this unit if they have acquired some sea time on-board a ship.

### **Core Skills**

Opportunities to develop aspects of Core Skills are highlighted in the Support Notes for this Unit specification.

There is no automatic certification of Core Skills or Core Skill components in this Unit.

### **Context for delivery**

If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

The Assessment Support Pack (ASP) for this Unit provides assessment and marking guidelines that exemplify the national standard for achievement. It is a valid, reliable and practicable assessment. Centres wishing to develop their own assessments should refer to the ASP to ensure a comparable standard. A list of existing ASPs is available to download from SQA's website (<http://www.sqa.org.uk/sqa/46233.2769.html>).

### **Equality and inclusion**

This Unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on our website [www.sqa.org.uk/assessmentarrangements](http://www.sqa.org.uk/assessmentarrangements).

### SQA Advanced Unit specification: Statement of standards

**Unit title:** Marine Engineering: Management (SCQF level 8)

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.

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. Learners 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

Apply marine legislation and safety management systems to shipboard operations.

##### Knowledge and/or Skills

- ◆ International regulations and regulatory bodies
- ◆ Application of regulations by flag states
- ◆ Code of Safe Working Practices (COSWP)
- ◆ Role of the Safety Officer
- ◆ Certification and certification bodies
- ◆ Classification Societies
- ◆ Survey and inspections processes
- ◆ Dealing with non-compliance

#### Outcome 2

Analyse management theory and methods of system control in a shipboard context.

##### Knowledge and/or Skills

- ◆ Quality assurance
- ◆ Application of the International Safety Management (ISM) code
- ◆ Purpose and practice of auditing
- ◆ Importance of accurate record keeping
- ◆ Communication methods
- ◆ Prepare a written report

### Evidence Requirements for this Unit

Written and/or oral evidence is required for Outcomes 1 and 2 and should be assessed separately by means of open-book unsupervised assessments. Learners may have access to a computer or library for information retrieval.

#### Outcome 1

Written and/or oral evidence for the Knowledge and/or Skills items in Outcome 1 should be provided on a sample basis. In any assessment of this Outcome, four out of seven Knowledge and/or Skills items should be sampled. When reassessment takes place an alternative sample should be used.

In order to ensure that learners will not be able to foresee what items they will be assessed on, a different sample of four out of seven Knowledge and/or Skills items are required each time the unit is assessed.

Learners will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ Discuss the IMO history, members, structure and interpret the main conventions and codes.
- ◆ discuss the role of flag states and interpret the UK flag implementation of IMO conventions with Statutory Instruments, M Notices, statutory certificates, Port state Inspections and the MCA certificate structure.
- ◆ Explain the structure of COSWP, itemising the most important guidance.
- ◆ Analyse the role of the safety officer.
- ◆ Discuss the role of classification societies, certification systems, (continuous surveys, approved systems) Harmonisation of surveys, Class certificates.
- ◆ Describe the survey process and explain the preparation required for surveys. (Statutory, class, port state, charterer's and company).
- ◆ Discuss the organisational procedures for dealing with regulation non-compliance, analysing the effects on the ship, company or organisation of non-compliance; personal and corporate penalties for non-compliance.

#### Outcome 2

Written and/or oral evidence for the Knowledge and/ or Skills items in Outcome 2 should be provided on a sample basis. In any assessment of this Outcome, four out of six Knowledge and/or Skills items should be sampled. When reassessment takes place an alternative sample should be used.

In order to ensure that learners will not be able to foresee what items they will be assessed on, a different sample of four out of six Knowledge and/or Skills items are required each time the unit is assessed.

## **SQA Advanced Unit Specification**

Learners will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ Analyse quality assurance and apply to shipboard activity.
- ◆ Investigate the ISM Code, describing reasons for its implementation, basic content and application.
- ◆ Analyse the purpose, and practice of internal and external auditing.
- ◆ Explain the importance of accurate records for operational, commercial and legislative requirements, dispute resolution, in cases of emergencies and confidentiality.
- ◆ Explain basic on-board communication methods.
- ◆ Prepare a written technical report for an investigating body.

## **SQA Advanced Unit Support Notes**

**Unit title:** Marine Engineering: Management (SCQF level 8)

Unit Support Notes are offered as guidance and 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 underpinning knowledge requirements for a Certificate of Competency in the Merchant Navy as Chief Engineer Unlimited (STCW '95 III/2), and reflects the content of the International Maritime Organisations' (STCW '95) requirements for that role.

Learners will develop their understanding of the theories relating to the management of personnel and operations as applicable under current UK and International legislation.

#### **Outcome 1**

This Outcome studies the maritime organisations necessary for safer ships and cleaner oceans, the through life cycle of surveying and certification. It examines the interpretation and application of current international and UK legislation.

#### **Outcome 2**

This Outcome deals with the implementation of the International Safety Management code and its impact on the management of safety on board the ship. It describes the implementation of auditing for quality assurance purposes and emphasises the need for accurate record keeping and good communication.

The need to develop a safety culture and implement risk assessment procedures will be explained and the roles and responsibilities of the vessel's Safety Committee and Safety Officials discussed.

The need for audits and procedures for investigating and reporting accidents will be considered and the related documentation and records discussed.

### Guidance on approaches to delivery of this Unit

While a broad overview is required, it would help learners if the learning and teaching approach is contextualised to the working situation. This unit should be delivered by a combination of whole class teaching and tutorial work, using a combination of the following:

- ◆ Active and open-ended learning activities such as research, case studies and presentations
- ◆ Use of real-life contexts and experiences to meaningfully exemplify topics knowledge and understanding
- ◆ Appropriate use of technological resources (eg web-based resources)
- ◆ Appropriate use of media resources (eg video clips)
- ◆ Collaborative learning opportunities to develop team working
- ◆ Discussions and informed debates

As the Unit builds on knowledge gained from Marine Legislation and Leadership (SCQF level 7), it is recommended it is delivered towards the end of the award.

### Guidance on approaches to assessment of this Unit

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to learners.

Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where learners experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

Outcomes 1 and 2 should be assessed separately. It is recommended that Outcome 1 is assessed by means of an open-book assignment or a case study with a word count of 3,000. Learners should be given clear guidelines, structure, and four subject matters based on the Evidence Requirements, and should be given a completion date.

Outcome 2 may be assessed as an assignment in the form of a 3,000 word open-book investigation or case study prepared during the learners' sea phase that demonstrates evidence of four required knowledge and/or skills items concerning management theory on their ship.

The brief should be clearly defined and a checklist developed defining the Outcomes to be covered and the standards to be achieved. This will allow the assessor to reference evidence against the submitted work.

The learners' work can be authenticated by the following methods:

- ◆ Checking plans and drafts of work
- ◆ Production of documentation of the development of the responses
- ◆ Acknowledgment of resources used

### Opportunities for 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 social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support SQA's qualifications is available at [www.sqa.org.uk/e-assessment](http://www.sqa.org.uk/e-assessment).

### Opportunities for developing Core and other essential skills

There are opportunities to develop the following Core Skills:

#### Communication

- ◆ Can be developed within the context of group work and role play where learners will be encouraged to express opinions and present rational arguments for and against a position.
- ◆ Reading will be developed by learners having to comprehend complex legislation regarding management of shipboard operations and safety procedures.
- ◆ Writing can be developed within the assessment regime as learners will have to produce well written assignments/case study in which they clearly present information.

#### Problem Solving

- ◆ Critical Thinking can be developed by having learners analyse conflict situations that may arise in the workplace and then evaluate the necessary approaches required to resolve the situation.
- ◆ Planning and Organising can be developed by allowing learners to plan and organise their own time and research requirements for completing the assignment.
- ◆ Reviewing and Evaluating may be developed when learners consider safety management systems on board ships. This requires seafarers to evaluate the effectiveness of the system when accidents or dangerous incidents occur and they will then review existing procedures and amend them accordingly.

#### Working with Others

- ◆ Will be developed during group work and role playing.

The case study will allow the learner to develop a variety of supplementary skills and attributes which enhance life skills and the educational experience. Such skills tied to enterprise, employability, sustainable development and citizenship are deemed essential to success in learning, life and work.

The work to be completed within the case study will provide the learner with opportunity to reflect upon collateral soft skills found, for example, in career development, developing management skills, understanding rights and responsibilities, self-confidence, team working and inter-dependence.



## History of changes to Unit

Version	Description of change	Date

© Scottish Qualifications Authority 2017

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of SQA Advanced Qualifications.

**FURTHER INFORMATION:** Call SQA's Customer Contact Centre on 44 (0) 141 500 5030 or 0345 279 1000. Alternatively, complete our [Centre Feedback Form](#).

## **General information for learners**

### **Unit title:** Marine Engineering: Management (SCQF level 8)

This section will help you decide whether this is the Unit for you by explaining what the Unit is about, what you should know or be able to do before you start, what you will need to do during the Unit and opportunities for further learning and employment.

The unit consists of two outcomes and on completion of the unit you should be able to:

- 1 Apply marine legislation and safety management systems to shipboard operations.
- 2 Analyse management theory and methods of system control in a shipboard context.

You will learn about the reasoning, history and application of the main international regulatory bodies and the conventions/regulations/codes they administer.

You will learn about UK regulations/codes of practice, and how these are disseminated to shipboard staff.

You will learn about ship classification, survey/auditing and the effect on the ship if found non-compliant.

You will have opportunities to develop your Core Skills *in Communication, Problem Solving* and *Working with Others* at SCQF level 6 in the teaching and assessment approaches used in this Unit.

The assessment of the Unit requires that all Knowledge and/or Skills are evidenced.

Outcome 1 will be assessed by an assignment (or case study).

Outcome 2 will be assessed by means of a case study conducted during your sea phase.