End Point Assessment Specification

Apprenticeship standard: ST0875 Small vessel chief engineer

Link to apprenticeship standard: Small vessel chief engineer / Skills England

Contents

1. Qualification objective

The International Convention and Code on Standards of Training, Certification and Watch-keeping (STCW) set the global standards for maritime engineer officers. This includes the provisions prescribing the mandatory minimum requirements for engineers.

The Maritime and Coastguard Agency (MCA) is an executive agency of the Department for Transport UK. It implements the UK government's maritime safety policy in the UK.

This apprenticeship leads to 'Chief Engineer Officer, less than 9000 Kilowatt (kW), less than 3000 Gross Tonnage (GT), unlimited area STCW Reg III/2' Certificate of Competency (CoC). The qualification measures an apprentices competencies against the required standards for this occupation.

2. Prior qualifications

a. Qualifications which a learner must have completed before taking the qualification

The apprentice must complete training towards English and maths qualifications in line with the apprenticeship funding rules. (The English and maths exit requirements will be optional for apprentices who are aged 19+ at the start of their apprenticeship training.)

An apprentice must complete the Maritime and Coastguard Agency's (MCA) mandatory qualifications, courses and other requirements to obtain a Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2, Certificate of Competency . These requirements are detailed in MIN 524, or subsequent M-Notice.

Example of the MCA's mandatory qualifications, courses, and other requirements

The apprenticeship has two stages which an apprentice must complete, each equating to an MCA issued Certificate of Competency (CoC):

1) Engineer Officer of the Watch, less than 9000 kW, less than 3000 GT, unlimited area (EOOW), STCW Convention Regulation III/2

Followed by:

2) Chief Engineer Officer, less than 9000 kW, less than 3000 GT unlimited area, STCW Convention Regulation III/2

Prior to joining first vessel for first sea voyage apprentices need to hold

- a valid ENG1 (medical fitness certificate) or accepted equivalent
- STCW Personal Survival Techniques
- STCW Fire Prevention and Fire Fighting
- STCW Elementary First Aid
- STCW Personal Safety and Social Responsibilities
- STCW Security Awareness

The other certification, and qualifications required to attempt this EPA depend on the route followed. More information on this can be found in 2c.

b. Prior knowledge, skills or understanding which the Learner is required to have before taking the qualification

IAMI do not stipulate any additional knowledge, skills or understanding beyond those outlined in the Apprenticeship Standard that an apprentice must have completed prior to taking the qualification. Required prior knowledge, skills or understanding is at the discretion of the individual employers.

Knowledge, skills or understanding as required by this apprenticeship:

Knowledge

K1: Understand the reason for determining voyage needs; fuel, lubricants, water, stores, expendables. [MCA]
K2: Understand the necessity for routine maintenance and the reasons for maintaining records of machinery and its performance. [MCA]
K3: Understand the consequences of sailing with certain items of machinery inoperative and the risks involved in doing so. [MCA]
K4: Understand the (Chief Engineer's) responsibilities and duties concerning bunkering or refuelling operations. [MCA]
K5: The methods of dealing with fire on board ship. Prevention of the spread of fire. The organisation and direction of fire-fighting and lifesaving parties. [MCA]
K6: Care and management of steering systems and bow thrusters. [MCA]
K7: Care and management of pumping systems. [MCA]
K8: Care and management of oily water separator equipment. [MCA]
K9: (a) Construction, maintenance and operation of fire-fighting equipment, (b) Fire detection and prevention. [MCA]
K10: (a) Codes of safe working practices, risk assessment, permit to work (entry into enclosed space, hot work, electrical work), (b) The dangers of entering enclosed spaces. [MCA]
K11: Routine operational duties and the effect of legislation on engine room operations. [MCA]
K12: Working principles and constructional details of marine engines, gears, clutches and ancillary equipment. [MCA]
K13: Fuel oil, lubrication oil, and cooling systems of marine engines together with ancillary systems including filters, pumps, heat exchangers and controls. [MCA]
K14: (a) Methods of manoeuvring, including bridge control systems, variable pitch propellers and bow thrusters, (b) Emergency controls. [MCA]
K15: Working principles and constructional details of air compressors, air receivers and associated equipment. [MCA]
K16: Operational testing and fault rectification of basic control systems and alarm panels. [MCA]
K17: Safe and efficient operation and maintenance of marine engines and propulsion systems. [MCA]
K18: Knowledge of the International Convention for the Prevention of Pollution from Ships (MARPOL) Annexes and implementations. [MCA]
K19: Principles of stability, water tight and watertight integrity, free surface effect and reserve buoyancy. [MCA]
K20: Basic understanding of International Safety Management (ISM). [MCA]
K21: Principles and constructional details of sensing, monitoring and measuring devices associated with marine equipment. [MCA]

K22: Principles involved with the operation, testing and maintenance of propulsive transmission systems, including thrust and shaft bearings, stern tubes and propellers. [MCA]
K23: Principles involved with the operation, testing and maintenance of bilge and ballast pumps, pumping and priming systems including pollution prevention equipment and systems. [MCA]
K24: Principles involved with the operation, testing and maintenance of steering and stabilizing systems including bow thrusters. [MCA]
K25: Principles involved with operation, testing and maintenance of control and alarm systems associated with automatic operation of marine steam plant. [MCA]
K26: Principles involved with the operation, testing and maintenance of: a. marine diesel engines (medium and high speed); gearing systems and clutches; b. starting and reversing systems; c. cooling and lubrication systems; d. fuel oil preparation systems; e. air compressors, receivers and associated equipment; f. auxiliary diesel engines and associated equipment; g. control and alarm systems associated with automatic operation of a diesel plant. [MCA]
K27: Methods of assessment of power output and diesel plant efficiency and action to be taken to maintain safe and efficient operation of plant. [MCA]
K28: Methods of testing fuel oil, lubrication oil and cooling water and action to be taken to maintain safe conditions. [MCA]
K29: Types of information issued by the MCA with respect to safety at sea. [MCA]
K30: Responsibilities of a chief engineer officer with regard to the control and prevention of fire: a. precautions against fire or explosions, explosive mixtures and sources of ignition; b. principles and methods of fire prevention, detection and extinction in all areas of a ship; c. principles of the operation, testing and maintenance of fire detection and extinguishing systems; d. principles of the operation, testing and maintenance of fire pumps and associated pumping systems; e. control and organization of fire and damage control parties. [MCA]
K31: Knowledge and understanding of applications and maintenance of ISM codes and system. [MCA]
K32: Organisation and control procedures necessary for the safe and efficient operation in the Unmanned Maritime Systems (UMS) mode. [MCA]
K33: Principles of the operation, testing and maintenance of: a. alternators, generators, motors, switch gear and batteries; b. ac and dc distribution systems. [MCA]
K34: Fault finding and rectification of faults in electrical systems. [MCA]
K35: Administration duties of a chief engineer associated with: a. organisation and training of staff for normal and emergency duties; b. organisation of temporary and permanent repairs and surveys – Company approval and Classification society. [MCA]
K36: Ensuring ship is in seaworthy condition prior to sailing taking into account nature of voyage. [MCA]
K37: Dry docking, hull surveys and repairs. [MCA]
K38: The introduction of increased automation, artificial intelligence, and emerging technologies in the maritime sector.
K39: Project management techniques: setting objectives, planning and monitoring.
K40: Commercial awareness; costing and budgeting principles.
K41: Resource management considerations: cost, quality, safety, security, and environmental impact.
K42: Problem solving tools and techniques: root cause analysis.
K43: Marine industry terminology.
K44: Communication techniques: verbal and written.
K45: Report writing techniques.
K46: Documentation requirements and importance.

K47: Information technology: word processing, spreadsheets, e-mail, and presentation. IT applications for technical reporting.
K48: Sustainability: current practices and developments in the sector.
K49: Ethical practices.
K50: Equality, diversity, and inclusion awareness.

Skills

S1: Take personal emergency action onboard a vessel. [MCA]
S2: Respond to emergencies onboard a vessel. [MCA]
S3: Take control of survival craft and rescue boats. [MCA]
S4: Take charge of an engine room watch. [MCA]
S5: Prepare and operate vessel propulsion machinery and ancillary systems. [MCA]
S6: Operate vessel ancillaries and service machinery. [MCA]
S7: Operate and adjust vessel electrical systems. [MCA]
S8: Carry out maintenance to vessel electrical machinery and systems. [MCA]
S9: Carry out maintenance to vessel mechanical machinery and systems. [MCA]
S10: Maintain personal health, safety and environmental standards onboard a vessel. [MCA]
S11: Maintain safe, legal and effective working practices onboard a vessel. [MCA]
S12: Maintain and enhance productive working relationships onboard a vessel. [MCA]
S13: Identify costs and create a draft budget for sign-off.
S14: Apply project management techniques.
S15: Identify, organise, and use resources to complete tasks.
S16: Diagnose problems. Resolve or escalate problems in line with responsibilities.
S17: Review work to identify improvements.
S18: Communicate verbally and in writing with others for example, colleagues and contractors onboard or ashore.
S19: Complete documentation for example, machinery space logbook and oil record book.
S20: Write technical reports.
S21: Use information technology for example, word processing, spreadsheets, email, and presentation.

Behaviours

B1: Promote and adopt a safety culture.
B2: Committed to protecting the marine environment from pollution.
B3: Take personal responsibility for their actions.
B4: Committed to quality and continuous improvement.
B5: Role-model equality and diversity expectations and requirements.
B6: Actively pursue professional development to maintain and enhance their competence.

c. Units which a Learner must have completed before the qualification will be awarded and any optional routes

IAMI do not stipulate any additional units beyond those listed in the Apprenticeship Standard that an apprentice must have completed prior to taking the qualification. Additional required units are at the discretion of the individual employers.

Units required as per this standard:

Complete the Diploma in Maritime Studies: Small Vessel Engineer

The apprenticeship has two stages which an apprentice must complete, each equating to an MCA issued Certificate of Competency (CoC):

1) Engineer Officer of the Watch, less than 9000 kW, less than 3000 GT, unlimited area (EOOW), STCW Convention Regulation III/2

Followed by:

2) Chief Engineer Officer, less than 9000 kW, less than 3000 GT unlimited area, STCW Convention Regulation III/2

Prior to joining first vessel for first sea voyage apprentices need to hold

- a valid ENG1 (medical fitness certificate) or accepted equivalent
- STCW Personal Survival Techniques
- STCW Fire Prevention and Fire Fighting
- STCW Elementary First Aid
- STCW Personal Safety and Social Responsibilities
- STCW Security Awareness

Stage one – new entrant to EOOW

There are three potential routes to EOOW, Convention regulation III/2:

1) Standard MCA approved programme - this route is outlined below

2) Experienced seafarer route

3) Alternative route: for graduate engineer, HND, HNC, or apprenticeship holder (3.5)

Standard MCA approved programme

To qualify for the issue of this CoC you must meet the following requirements:

(a) Hold an Approved Engine Course I and II (AEC I and II) – this is not required if you are completing your seagoing service as Assistant Engineer

(b) Have completed 12 months' combined sea service and workshop training, which must include:

- 6 months' seagoing service engaged in watchkeeping or Unmanned Machinery Space (UMS) duties on vessels of at least 350 kW
- 5 months' seagoing service on vessels of at least 350 kW
- 2 weeks MCA-approved Initial Workshop Skills Training
- a further 2 weeks' seagoing service on vessels of at least 350 kW or 2 weeks of MCA-approved additional Workshop Skills Training

(c) Complete the MNTB Small Vessel Training Record Book (TRB) during your seagoing service

(d) Complete the Diploma in Maritime Studies: Small Vessel Engineer

(e) Successfully pass the MCA-approved written examinations for:

- Marine Diesel Engineering
- Auxiliary Equipment Part – 1
- Operational procedures, Basic Hotel Services and Ship Construction

(f) Hold the applicable ancillary and safety course certificates

- STCW Personal Survival Techniques
- STCW Fire Prevention and Fire Fighting
- STCW Elementary First Aid
- STCW Personal Safety and Social Responsibilities
- STCW Proficiency in Survival Craft and Rescue
- STCW Advanced Fire Fighting
- STCW Medical First Aid
- STCW HELM (Operational)

(g) Hold a valid ENG1 (medical fitness certificate) or accepted equivalent

With all the above obtained, the apprentice will be given a notice of eligibility for the: MCA oral examination for EOOW, STCW Convention Regulation III/2.

Upon passing the MCA oral examination, the apprentice is awarded their CoC and stage one is complete.

Stage two – EOOW to Chief Engineer Officer

Candidates need to meet the following requirements:

a) Have completed 24 months' seagoing service which must include:

- 12 months as a EOOW while holding the applicable STCW Convention regulation III/2 CoC
    - i. 6 months of this service must be complete on vessels of at least 750 kW
    - ii. 6 months of this service must be completed on vessels of at least 350 kW

Note: The 24 months' seagoing service required for the Small Vessel Chief Engineer CoC does not include any workshop time. In effect this means that seagoing service accrued in stage one is only 11 months and therefore at least 13 months of seagoing service as an EOOW must be completed.

b) Successfully complete the MCA-approved modules and pass the corresponding written examinations for:

- Auxiliary Equipment part 2
- Chief Engineer Statutory and Operational Requirements
- Applied Marine Engineering

c) Complete either:

- MCA-approved modules and pass the corresponding written examinations for General Engineering Science I and II

OR

- The Diploma in Maritime Studies: Small Vessel and the Diploma in Maritime Studies: Small Vessel Chief Engineer

d) Hold the applicable ancillary and safety course certificates (in addition to those held EOOW level):

- STCW Human Element, Leadership and Management (Management)

With all the above obtained, the apprentice will be given a notice of eligibility for the: MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2. Upon passing the MCA oral examination, the apprentice is awarded their second CoC and stage two is complete. The MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2 forms part of the EPA for this apprenticeship.

Notes:

- The MCA's requirements for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2 are detailed in MIN 524, or subsequent M-Notice.
- The MNTB training record book is only used for reaching the EOOW CoC.
- The above pathway only outlines the standard MCA approved programme when two others formally exist.
- There are a range of caveats, exemptions and alternatives to specific requirements depending on circumstances which are detailed with the relevant MCA issued MIN.
- Correct at time of publication. Please refer to the latest M-Notice.

Information on the alternative two routes can be found in MIN 1904 (M+F) UK Requirements for Engineer Officer Small Vessel Certificate of Competency M Notice Template - MSF 5011 and MIN 624 Engineer Officer Small Vessel Certificate of Competency Guidance M Notice Template - MSF 5011

d. Other requirements which a Learner must have satisfied before the Learner will be assessed or before the qualification will be awarded

IAMI do not stipulate any additional requirements beyond those listed in the Apprenticeship Standard that an apprentice must have completed prior to taking the qualification. Additional requirements are at the discretion of the individual employers.

3. Assessment

a. Knowledge, skills and understanding which will be assessed as part of the qualification

KNOWLEDGE	ASSESSMENT METHODS
K1 Understand the reason for determining voyage needs; fuel, lubricants, water, stores, expendables. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2

KNOWLEDGE	ASSESSMENT METHODS
K2 Understand the necessity for routine maintenance and the reasons for maintaining records of machinery and its performance. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K3 Understand the consequences of sailing with certain items of machinery inoperative and the risks involved in doing so. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K4 Understand the (Chief Engineer's) responsibilities and duties concerning bunkering or refuelling operations. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K5 The methods of dealing with fire on board ship. Prevention of the spread of fire. The organisation and direction of fire-fighting and lifesaving parties. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K6 Care and management of steering systems and bow thrusters. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K7 Care and management of pumping systems. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K8 Care and management of oily water separator equipment. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K9 (a) Construction, maintenance and operation of fire-fighting equipment, (b) Fire detection and prevention. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2

KNOWLEDGE	ASSESSMENT METHODS
K10 (a) Codes of safe working practices, risk assessment, permit to work (entry into enclosed space, hot work, electrical work), (b) The dangers of entering enclosed spaces. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K11 Routine operational duties and the effect of legislation on engine room operations. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K12 Working principles and constructional details of marine engines, gears, clutches and ancillary equipment. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K13 Fuel oil, lubrication oil, and cooling systems of marine engines together with ancillary systems including filters, pumps, heat exchangers and controls. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K14 (a) Methods of manoeuvring, including bridge control systems, variable pitch propellers and bow thrusters, (b) Emergency controls. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K15 Working principles and constructional details of air compressors, air receivers and associated equipment. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K16 Operational testing and fault rectification of basic control systems and alarm panels. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K17	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2

KNOWLEDGE	ASSESSMENT METHODS
Safe and efficient operation and maintenance of marine engines and propulsion systems. [MCA]	
K18 Knowledge of the International Convention for the Prevention of Pollution from Ships (MARPOL) Annexes and implementations. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K19 Principles of stability, water tight and watertight integrity, free surface effect and reserve buoyancy. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K20 Basic understanding of International Safety Management (ISM). [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K21 Principles and constructional details of sensing, monitoring and measuring devices associated with marine equipment. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K22 Principles involved with the operation, testing and maintenance of propulsive transmission systems, including thrust and shaft bearings, stern tubes and propellers. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K23 Principles involved with the operation, testing and maintenance of bilge and ballast pumps, pumping and priming systems including pollution prevention equipment and systems. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2

KNOWLEDGE	ASSESSMENT METHODS
K24 Principles involved with the operation, testing and maintenance of steering and stabilizing systems including bow thrusters. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K25 Principles involved with operation, testing and maintenance of control and alarm systems associated with automatic operation of marine steam plant. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K26 Principles involved with the operation, testing and maintenance of: a. marine diesel engines (medium and high speed); gearing systems and clutches; b. starting and reversing systems; c. cooling and lubrication systems; d. fuel oil preparation systems; e. air compressors, receivers and associated equipment; f. auxiliary diesel engines and associated equipment; g. control and alarm systems associated with automatic operation of a diesel plant. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K27 Methods of assessment of power output and diesel plant efficiency and action to be taken to maintain safe and efficient operation of plant. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K28 Methods of testing fuel oil, lubrication oil and cooling water and action to be taken to maintain safe conditions. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K29 Types of information issued by the MCA with respect to safety at sea. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2

KNOWLEDGE	ASSESSMENT METHODS
K30 Responsibilities of a chief engineer officer with regard to the control and prevention of fire: a. precautions against fire or explosions, explosive mixtures and sources of ignition; b. principles and methods of fire prevention, detection and extinction in all areas of a ship; c. principles of the operation, testing and maintenance of fire detection and extinguishing systems; d. principles of the operation, testing and maintenance of fire pumps and associated pumping systems; e. control and organization of fire and damage control parties. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K31 Knowledge and understanding of applications and maintenance of ISM codes and system. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K32 Organisation and control procedures necessary for the safe and efficient operation in the Unmanned Maritime Systems (UMS) mode. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K33 Principles of the operation, testing and maintenance of: a. alternators, generators, motors, switch gear and batteries; b. ac and dc distribution systems. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K34 Fault finding and rectification of faults in electrical systems. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K35 Administration duties of a chief engineer associated with: a. organisation and training of staff for normal and emergency duties; b. organisation of temporary and permanent	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2

KNOWLEDGE	ASSESSMENT METHODS
repairs and surveys – Company approval and Classification society. [MCA]	
K36 Ensuring ship is in seaworthy condition prior to sailing taking into account nature of voyage. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K37 Dry docking, hull surveys and repairs. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
K38 The introduction of increased automation, artificial intelligence, and emerging technologies in the maritime sector.	Project report and presentation with questions
K39 Project management techniques: setting objectives, planning and monitoring.	Project report and presentation with questions
K40 Commercial awareness; costing and budgeting principles.	Project report and presentation with questions
K41 Resource management considerations: cost, quality, safety, security, and environmental impact.	Project report and presentation with questions
K42 Problem solving tools and techniques: root cause analysis.	Project report and presentation with questions
K43 Marine industry terminology.	Project report and presentation with questions
K44	Project report and presentation with questions

KNOWLEDGE	ASSESSMENT METHODS
Communication techniques: verbal and written.	
K45 Report writing techniques.	Project report and presentation with questions
K46 Documentation requirements and importance.	Project report and presentation with questions
K47 Information technology: word processing, spreadsheets, e-mail, and presentation. IT applications for technical reporting.	Project report and presentation with questions
K48 Sustainability: current practices and developments in the sector.	Project report and presentation with questions
K49 Ethical practices.	Project report and presentation with questions
K50 Equality, diversity, and inclusion awareness.	Project report and presentation with questions
SKILL	**ASSESSMENT METHODS**
S1 Take personal emergency action onboard a vessel. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
S2 Respond to emergencies onboard a vessel. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
S3 Take control of survival craft and rescue boats. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2

SKILL	ASSESSMENT METHODS
S4 Take charge of an engine room watch. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
S5 Prepare and operate vessel propulsion machinery and ancillary systems. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
S6 Operate vessel ancillaries and service machinery. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
S7 Operate and adjust vessel electrical systems. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
S8 Carry out maintenance to vessel electrical machinery and systems. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
S9 Carry out maintenance to vessel mechanical machinery and systems. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
S10 Maintain personal health, safety and environmental standards onboard a vessel. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
S11 Maintain safe, legal and effective working practices onboard a vessel. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
S12 Maintain and enhance productive working relationships onboard a vessel. [MCA]	MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2
S13	Project report and presentation with questions

SKILL	ASSESSMENT METHODS
Identify costs and create a draft budget for sign-off.	
S14 Apply project management techniques.	Project report and presentation with questions
S15 Identify, organise, and use resources to complete tasks.	Project report and presentation with questions
S16 Diagnose problems. Resolve or escalate problems in line with responsibilities.	Project report and presentation with questions
S17 Review work to identify improvements.	Project report and presentation with questions
S18 Communicate verbally and in writing with others for example, colleagues and contractors onboard or ashore.	Project report and presentation with questions
S19 Complete documentation for example, machinery space logbook and oil record book.	Project report and presentation with questions
S20 Write technical reports.	Project report and presentation with questions
S21 Use information technology for example, word processing, spreadsheets, email, and presentation.	Project report and presentation with questions
BEHAVIOUR	**ASSESSMENT METHODS**
B1 Promote and adopt a safety culture.	Project report and presentation with questions

BEHAVIOUR	ASSESSMENT METHODS
B2 Committed to protecting the marine environment from pollution.	Project report and presentation with questions
B3 Take personal responsibility for their actions.	Project report and presentation with questions
B4 Committed to quality and continuous improvement.	Project report and presentation with questions
B5 Role-model equality and diversity expectations and requirements.	Project report and presentation with questions
B6 Actively pursue professional development to maintain and enhance their competence.	Project report and presentation with questions

b. The method of any assessment and any associated requirements relating to it

This EPA has 2 assessment methods:

- Project report and presentation with questions
- MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2

IAMI is only responsible for the delivery and grading of the professional discussion.

Project report and presentation with questions

Overview

A project involves the apprentice completing a significant and defined piece of work that has a real business application and benefit. The project must meet the needs of the employer's business and be relevant to the apprentice's occupation and apprenticeship.

This project has 2 components:

- a project report
- a presentation with questions

Together, they give the apprentice the opportunity to demonstrate their competency across the KSBs mapped to this assessment method.

Project summary requirements

To ensure the project allows the apprentice to meet the KSBs mapped to this EPA method to the highest available grade, the EPAO should sign-off the project's title and scope at the gateway to confirm it is suitable. A brief project summary must be submitted to the EPAO. It should be no more than 500 words. This needs to show that the project will provide the opportunity for the apprentice to cover the KSBs mapped to this EPA method. It is not assessed.

Delivery

The apprentice must complete a project based on any of the following:

- a specific technical problem
- a recurring operational issue
- an idea or opportunity for example, to improve vessel efficiency or environmental impact
- the introduction of new technology or regulations
- a major machinery overhaul

To ensure the project allows the apprentice to meet the KSBs mapped to this assessment method to the highest available grade, the EPAO should sign-off the project summary at the gateway to confirm it is suitable.

The project output must be in the form of a report and presentation.

The apprentice must start the project after the gateway. The employer should ensure the apprentice has the time and resources within this period to plan and complete their project.

The apprentice may work as part of a team to complete the project, which could include internal colleagues or external support. The apprentice must however, complete their project report and presentation unaided and they must be reflective of their own role and contribution. The apprentice and their employer must confirm this when they are submitted.

Component 1: Project report

The report must include at least:

- a summary of the project
- the scope of the project investigation
- project delivery and outcomes, including project management
- analysis of the information provided, and research undertaken
- project conclusions stating how future outcomes may be achieved
- an appendix including the project budget and documentation

The project report must have a word count of 5000 words. A tolerance of 10% above or below the word count is allowed at the apprentice's discretion. Appendices, references and diagrams are not included in this total. The project report must map, in an appendix, how it evidences the relevant KSBs mapped to this assessment method.

The apprentice must complete and submit the report to the EPAO by the end of week 16 of the EPA period.

Component 2: Presentation with questions

The presentation with questions must be structured to give the apprentice the opportunity to demonstrate the KSBs mapped to the assessment method to the highest available grade.

The apprentice must prepare, submit, and deliver a presentation on their project. The apprentice must deliver their presentation to the independent assessor. After the presentation, the independent assessor must ask questions.

The presentation and questioning must last 30 minutes. This will typically include a presentation of 10 minutes and questioning lasting 20 minutes. The independent assessor can increase the time of the presentation and questioning by up to 10%. This time is to allow the apprentice to respond to a question if necessary.

The presentation should cover:

- an overview of the project
- the project scope (including key performance indicators)
- summary of actions undertaken by the apprentice
- project outcomes and how these were achieved

The independent assessor must ask at least 5 questions. They must use the questions from the EPAO's question bank or create their own questions in-line with the EPAO's training. Follow up questions are allowed where clarification is required.

The purpose of the independent assessor's questions is:

- to verify that the activity was completed by the apprentice
- to seek clarification where required
- to assess those KSBs that the apprentice did not have the opportunity to demonstrate during the report, although these should be kept to a minimum
- to assess the apprentice's level of competence against the grading descriptors

The apprentice must submit their presentation slides and any supporting materials for example, handouts to the EPAO at the same time as the report - by the end of week 16 of the EPA period.

The apprentice must notify the EPAO, at the submission of the presentation, of any technical requirements for the presentation. For the presentation, the apprentice should have access to:

- audio-visual presentation equipment
- flip chart, writing and drawing materials
- computer

The independent assessor must have at least 2 weeks to review the project report and presentation before the presentation is delivered by the apprentice. This is to allow them to prepare appropriate questions.

The apprentice must be given at least 2 weeks notice of the date and time of the presentation with questions.

MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2

Overview

In the MCA oral examination, the apprentice is assessed verbally. It gives the apprentice the opportunity to demonstrate the knowledge and skills mapped to this assessment method.

The apprentice must be 18 years of age to satisfy MCA requirements for certification. They may start the EPA process before they are 18 years of age, if they will be 18 or over at the point of certification.

Delivery

The MCA oral examination is administered by the MCA in accordance with their own published guidance.

c. Criteria against which Learners' levels of attainment will be measured (such as assessment criteria or exemplars),

The assessment has been designed in accordance with the Apprenticeship End-Point Assessment plan found here: Small vessel chief engineer / Skills England

This apprenticeship has a partially integrated EPA. The EPA uses an independent EPAO assessment alongside the MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2.

The integrated EPA is permitted because the following criteria are met:

- Parliament has prescribed that the occupation (profession) must be regulated, and a statutory regulator has undisputed control of access to the occupation.
- The partially integrated EPA meets the requirements of an apprenticeship.

For this assessment, grading decisions are made as follows:

Assessment method 1 - Project report and presentation with questions:

- fail
- pass
- distinction

Assessment method 2 - MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2:

- fail
- pass

The result from each assessment method is combined to decide the overall apprenticeship grade. The following grades are available for the apprenticeship:

- Fail
- Pass
- Distinction

For each assessment method, the criteria against levels of attainment will be measured are:

Project and presentation

For this assessment two assessors are assigned to each apprentice. For the project IAMI will provide guidance to the apprentice on the scenario-based project report of 8,000 words that investigates a specific problem, recurring issue, and/or idea/opportunity for their employer.

On completion of the project report, each apprentice will present a 20 minute presentation on their project, then answer questions from the primary and secondary assessor.

Each assessor will attend the apprentice presentation, and each assessor will ask five (5) based on their review of the project report. These questions may be supplemented by an additional question derived from the presentation. This presentation will be recorded.

Each assessor will individually assess the project and the presentation against the EPA grading criteria for Fail / Pass / Distinction, identifying where each criterion has been met for specific K, S and B for each of three assessed areas. The assessor's marks will be collated by the assigned IAMI Moderator and a post presentation meeting arranged between the assessors to decide on the final grading.

MCA oral examination for Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2

The MCA is responsible for discharging its statutory functions (and in order to meet international maritime regulations) by overseeing these assessments that affirm certification of the Chief Engineer Officer, less than 9,000 kW, less than 3,000 GT, unlimited area, STCW Convention Regulation III/2.

PROJECT REPORT AND PRESENTATION WITH QUESTIONS	MCA ORAL EXAMINATION FOR CHIEF ENGINEER OFFICER, LESS THAN 9,000 KW, LESS THAN 3,000 GT, UNLIMITED AREA, STCW CONVENTION REGULATION III/2	OVERALL GRADING
Fail	Any grade	Fail
Any grade	Fail	Fail
Pass	Pass	Pass
Distinction	Pass	Distinction

Where any EPA can not be completed, and therefore no grade is awarded, then this must be brought to the attention of the IAMI Secretariat at secretary@iami.org.uk

d. Specimen assessment materials

Due to the practical nature of the assessments, specimen assessment materials are not available.

4. Specified levels of attainment

Fail/Pass/Distinction

5. Qualification level

This is a level 4 qualification.