



Training & Certification Guidance: UK Requirements For Electro-technical Officers

Notice to all Owners, Masters, Officers, Ratings and those concerned with maritime training.

This notice replaces the MCA Interim ETO Guidance.

Summary

This Merchant Shipping Notice (MSN) sets out and explains the regulatory requirements regarding the implementation of training elements applicable under Chapter III/6, of the Standards of Training, Certification and Watchkeeping (STCW) Convention and Code. It outlines the examination and training requirements for Merchant Navy Electro-technical Officer (ETO).

The certification system provides a route for trainee officers, those with electrical or electronic engineer qualifications, experienced ETOs and ratings entering the industry to achieve an ETO Certificate of Competency.

This MSN covers:

1. Introduction
2. Certificate Structure
3. Requirements for the Issue of an ETO, Regulation III/6, Certificate of Competency
4. Seagoing Service Requirements for an ETO Certificate of Competency
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6. Seagoing Service Definition and Requirements
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Please note that the Revalidation of all Certificates of Competency is covered in MSN 1861.



1. Introduction

1.1 The Merchant Shipping (Standards of Training, Certification and Watchkeeping) Regulations 2015, implement the requirements of the International Convention and Code on Standards of Training, Certification and Watch-keeping (STCW) 1978, as amended (referred to in this MSN as the 'STCW Convention' and 'STCW Code' respectively), including the provisions prescribing the mandatory minimum requirements for the certification of Electro-technical Officers (ETOs).

1.2 To obtain a United Kingdom (UK) STCW Certificate of Competency you must:

- Meet the minimum age requirements;
- Complete the minimum period of seagoing service and workshop skills;
- Meet the minimum vocational and academic standard including an oral examination conducted by an MCA examiner;
- Undertake ancillary technical and safety training;
- Meet medical and eyesight standards.

1.3 If you are considering a seagoing career it is strongly advised that you undergo a medical and sight test, which includes testing of colour and visual acuity, before starting training. Please refer to section 9 of this MSN.

1.4 Prior to joining your first vessel you will need to hold the following certificates:

- A valid ENG1 (medical fitness certificate) or accepted equivalent;
- Personal Survival Techniques (STCW Code – Table A-VI/1-1);
- Fire Prevention and Fire Fighting (STCW Code – Table A-VI/1-2);
- Elementary First Aid (STCW Code – Table A-VI/1-3);
- Personal Safety and Social Responsibilities (STCW Code - Table A-VI/1-4);
- Security Awareness (STCW)¹.

All references to Certificates of Competency in this notice pertain to those issued by the Maritime and Coastguard Agency (MCA), unless otherwise stated.

1.5 It is not compulsory for a ship to carry an ETO unless it has been agreed between the owner/operator and the Flag Administration (the MCA in the case of UK-registered ships). This should then be stated on the ship's Safe Manning Document (SMD).

If you are employed on a ship as an ETO, you must hold an STCW ETO Certificate of Competency whether or not an ETO is listed on the SMD. However, paragraph 5 of STCW Reg. III/6 states that you are permitted to carry out certain functions of an ETO, providing you are suitably qualified, even if you do not hold an STCW ETO Certificate of Competency. This means you may be employed on a ship in a position such as Electrician or Systems Engineer, which may or may not be part of the Safe Manning requirement. Whether you are filling a position on the SMD or not, it is the ship's owner / operator's responsibility to define the competencies required, taking into account the duties which you are expected to perform, and ensure that you have the necessary competences to carry out these duties.

¹ If you are to serve on ships to which the International Ship and Port Facility (ISPS) Code applies, you must hold a Security Awareness certificate (STCW A-VI/6- 4). If you are assigned designated security duties aboard a vessel you must obtain a Designated Security Duties certificate (STCW A-VI/6 - 6 to 8). Please refer to MSN 1865.



1.6 Relevant organisations:

MNTB: The Merchant Navy Training Board is the UK shipping industry's central body for promoting and developing sector specific education, training and skills. They work to create a structure of qualifications, learning pathways and education and training arrangements, based on national occupational standards, which ensure compliance with statutory standards.

SQA: The Scottish Qualifications Authority is a national accreditation and awarding body for qualifications other than degrees. The SQA quality assures awarding bodies (nautical colleges) that plan to enter candidates for these qualifications. As an awarding body the SQA:

- Devises and develops qualifications;
- Validates qualifications (ensure they are well written and meet the needs of learners and tutors);
- Reviews qualifications to ensure they are up to date;
- Arranges for, assists in, and carries out the assessment of candidates taking SQA qualifications;
- Quality-assures education and training establishments which offer SQA qualifications;
- Issues certificates to candidates.

IAMI: The International Association of Maritime Institutions (IAMI) is an association of colleges and other organisations involved in providing education and training for personnel involved in the Merchant Navy.

The Association and its members have worked together with the MNTB, the MCA and industry to develop and maintain occupational standards and to devise schemes of training for entrants at a variety of levels to meet the needs of industry and the requirements of STCW.

AMERC: The Association of Marine Electronic and Radio Colleges (AMERC) is a network of colleges, universities and private organisations providing courses and consultancies in marine radio and electronics. AMERC is responsible for examinations and the syllabus content of marine electronics courses and qualifications. This includes the GMDSS Radio Maintenance certificates and Electronic Navigational Equipment Maintenance (ENEM) certificates. These qualifications are incorporated within the MNTB ETO trainee scheme.

UK NARIC: The National Academic Recognition Information Centre (UK) is the agency responsible for providing information and advice about how qualifications and skills from overseas compare to the UK's national qualification frameworks.

2. Certificate Structure

CoC	Area limitation	Tonnage limitation	STCW Convention Regulation
ETO	Unlimited	Unlimited	III/6
SETO (endorsement)	Unlimited	Unlimited	N/A



ETO Certificates of Competency will permit the following STCW functions at the operational level:

- Controlling the operation of the ship and care for persons on board (function 3);
- Electrical, electronic and control engineering (function 5);
- Maintenance and repair (function 6).

3. Requirements for the Issue of an ETO, STCW Convention Regulation III/6, Certificate of Competency

To be issued with an ETO Certificate of Competency you must follow either route **3.1**, **3.2**, or **3.3** and be at least 18 years of age.

3.1 If you follow an MNTB or MCA-approved cadet course of training you must:

(a) Complete at least 12 months' combined seagoing service and workshop skills training while following an MNTB-approved Foundation Degree or MCA-approved HND training programme. This must include at least:

- 6 months' seagoing service on merchant ships with a propulsion power of at least 750 kW, which incorporates onboard training that meets the requirements of section A-III/6 of the STCW Code and is documented in an approved MNTB Training Record Book; **and**
- 3 months' approved workshop skills training;

(b) Successfully complete an approved education and training programme meeting the standards of competency specified in section A-III/6 of the STCW Code, as listed in section 8;

(c) Hold the applicable ancillary course certificates listed in section 7;

(d) Complete an MCA-approved High Voltage (management level) course;

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

(f) Pass the MCA oral examination 'STCW Reg III/6 Electro-technical Officer' (for the syllabus please refer to Annex C or any subsequent publication).

3.2 If you do not follow an MNTB or MCA-approved cadet training course you must complete:

(a) The relevant modules from the MCA-approved Electrical and Electronic Engineering HND allowing you to meet the ETO standard, as detailed in section 8;

(b) All of the training, examinations, and medical fitness listed in **3.1** (c) to (f) above;

(c) Seagoing service as detailed in section 4 of this notice;

(d) Approved workshop skills training.

3.2.3 You may be granted exemptions from these requirements if you have one of the following qualifications or experience:

- A degree in Electrical Engineering or Electrical and Electronic Engineering²;
- A foundation degree, HND, HNC or equivalent qualification in Electrical Engineering or Electronic Engineering issued under the authority of an EU member state;

² If you have a degree issued from outside the UK you will need to get your degree assessed by NARIC, for further information please visit their website: www.naric.org.uk/naric



- An EU based apprenticeship in Electrical Engineering or Electronic Engineering (at or equivalent to NVQ level 3 or above);
- An STCW Engineering Certificate of Competency issued by the MCA or by an administration that the MCA accepts for the issue of Certificate of Equivalent Competency;
- Are an experienced and qualified Royal Navy (RN) ETO Officer or Rating.

You will need to apply directly to IAMI (jamiexemption@hotmail.co.uk) who will complete an assessment of your academic education and provide you with any exemptions you are entitled to. You will then need to apply to an MCA-approved nautical college who will assess your workshop skills training and provide you with an action plan to meet the ETO standard. This will:

- Detail the academic route you must follow;
- Stipulate the amount of seagoing service and workshop skills training you are required to complete.

You will also need to apply to IAMI (jamiexemption@hotmail.co.uk) if you are seeking exemption from AMERC: Principles of Electronics, ENEM, or Radio Maintenance.

If applicable, you must include your original college action plan and/or IAMI exemption letter with your ETO application to the MCA.

3.3 If you are an existing ETO or are working in a similar capacity, with 12 months' seagoing service as an ETO or 12 months' seagoing service carrying out similar duties, you must:

- Pass the SQA Chief Engineer Electro-technology written exam;
- Pass the AMERC Electronic Principles written exam;
- Complete an MNTB Officer Competency Record Book for ETOs;
- Hold the applicable ancillary course certificates listed in section 7;
- Hold a valid ENG1 (medical fitness certificate) or accepted equivalent;
- Pass the MCA oral examination for ETOs Officers (see Annex C);

You may also complete:

- Complete an AMERC Electronic Navigation Equipment Maintenance (ENEM) course (section 7);
- Complete an AMERC GMDSS Radio Maintenance course (see section 7);
- Complete an MNTB/MCA-approved High Voltage management level course (see section 7).

3.3.1 If you do not complete the course specified in points (g) and/or (h) and/or (i) listed above your Certificate of Competency will include the applicable limitations. Please refer to section 7.

3.3.2 Seagoing service, record book and workshop requirements for existing ETOs:

- For existing ETOs only, the MNTB Officer Competency Record Book tasks may be signed off retrospectively, providing the signatory has personal knowledge that the task was completed. Tasks must be signed off by a Chief Engineer or Superintendent who holds a UK Certificate of Competency or Certificate of Equivalent Competency;
- Existing ETOs with 12 months' or more seagoing service are exempt from workshop training.



3.3.2 For existing ETOs the 12 months' seagoing service must have been obtained prior to 1 January 2016. The route for existing ETOs will close on 1 January 2020. After this date existing ETOs must follow route 3.2.

You will need to apply to IAMI (iamiexemption@hotmail.co.uk) if you are seeking exemption from, SQA Chief Engineer Electro-technology, Principles of Electronics, ENEM, or GMDSS Radio Maintenance.

3.4 Guidance:

- The Department of Transport or Marine Safety Agency (MSA) certificates for Maintenance of Radar Equipment on Merchant Ships will exempt you from the GMDSS Radio Maintenance certificate requirements; and
- The Department of Transport or Marine Safety Agency (MSA) certificates for Maintenance of Electronic Navigational Equipment will exempt you from the AMERC Electronic Principles written examination and the ENEM certificate requirements.

You must submit these certificates to IAMI to gain the exemptions listed above.

4. Seagoing Service Requirements for an ETO Certificate of Competency

- 4.1 If you are following an MNTB (route 3.1) or MCA approved course of training you will require a minimum of 12 months of combined seagoing service and approved workshop skills training. This must include a minimum of 6 months' seagoing service and 3 months' workshop skills time.
- 4.2 If you are following the route outlined in section 3.2 your seagoing service will be decided by IAMI on a case by case basis. The required seagoing service will be at least 6 months, but no more than 33 months, and may include a minimum period of workshop training. Qualified RN personnel will require a minimum of 12 months' service in the RN while qualified, and will require a further 3 months in a merchant vessel before being issued with an ETO Certificate of Competency.
- 4.3 If you are an Electro-technical Rating without an academic qualification listed in 3.2.3 you must complete 36 months of combined seagoing service and MNTB workshop skills training. This must include a minimum of 30 months' seagoing service and 3 months' workshop time.
- 4.4 If you are an existing ETO (route 3.3) you must prove a minimum of 12 months' seagoing service while working on board ship as an ETO or undertaking equivalent duties.

5. Senior Electro-technical Officer (SETO) Endorsement

Guidance:

5.1 The term 'Senior Electro-technical Officer' (SETO) is not one recognised by the STCW Convention. However, the UK is using the term to indicate an ETO who has exceeded the STCW requirements, both in terms of academic standard and service.

5.2 To obtain a SETO endorsement in your Certificate of Competency you must:



- (a) Hold a UK ETO Certificate of Competency;
- (b) Have successfully completed a HND, Foundation Degree or Degree in Electrical and Electronic Engineering;
- (c) Meet the seagoing service requirements listed in section 5.3;
- (d) Hold an MCA-approved HELM management course completion certificate;
- (e) Hold an MCA-approved High Voltage management certificate;
- (f) Pass a SETO MCA oral examination.

5.3 Seagoing service requirement for SETO

Before being issued with a SETO endorsement the following seagoing service is required:

- (a) 12 months' seagoing service as an ETO after being issued with an ETO Certificate of Competency;
- (b) For existing ETOs only (see section 3.3), a total of 24 months' seagoing service as an ETO or carrying out similar duties³.

6. Seagoing Service Definitions and Requirements

- 6.1 Seagoing service is defined as time spent on board a ship, relevant to the issue of the certificate or other qualification being applied for. Seagoing service must be in the engineering department in vessels of more than 750 kW in propulsion power. Service is calculated from the date of engagement to the date of discharge.
- 6.2 A month is defined as a calendar month or 30 days if made up of periods less than 1 month.
- 6.3 At least 6 months of the qualifying seagoing service must have been performed within the 5 years immediately preceding the issue of your Certificate of Competency.
- 6.4 Seagoing service may be performed in vessels of any flag.
- 6.5 Seagoing service must be performed in merchant ships proceeding to sea. Proceeding to sea means, beyond the categorised waters around the coast of the UK or beyond the harbour limits for waters outside the UK.
- 6.6 If the ship you are serving on is in lay-up, at maintenance berth, extended anchorage or dry dock you may count up to 25% of this service or 3 months (whichever is the least) towards your qualifying service.
- 6.7 You will be required to submit documentary evidence of seagoing service for each Certificate of Competency you apply for. Proof of seagoing service must be documented by either Merchant Navy discharge book entries or certificates of discharge. Each entry must be supported by testimonials from the Master or Chief Engineer. The testimonials must cover your conduct and ability. Examples of seagoing service testimonials can be found in Annex A.

³ For existing ETOs the 24 months' seagoing service must have been obtained prior to 1 January 2016. The route for existing ETOs will close on 1 January 2020. After this date, you should refer to your action plan for your SETO seagoing service requirements, or complete the additional 12 months' seagoing service as an ETO after being issued with an ETO Certificate of Competency.



- 6.8 If you fail to produce satisfactory evidence that you have followed a training programme approved by the MCA or required by IAMI in your action plan, or you fail to satisfactorily complete your training record book, then, at the discretion of an MCA examiner, you may be required to complete additional seagoing service before being considered eligible for the issue of a Certificate of Competency.
- 6.9 Before being considered for an MCA oral examination you are required to provide evidence of having completed the full amount of qualifying seagoing service and workshops skills training.

7. Ancillary Technical and Safety Courses

7.1 The ancillary technical and safety courses that are required for the issue of each Certificate of Competency are contained in the table below. On successful completion of the relevant course you will be issued with an STCW certificate of proficiency. The ancillary technical courses form part of the education and training specified in section A-III/6, of the STCW Code. The safety courses form part of the mandatory training for: emergency, occupational safety, security, medical care and survival functions specified in chapter VI of the STCW Convention and Code.

7.2 You must successfully complete **all** the required ancillary technical and safety training applicable to the regulation of your Certificate of Competency.

Ancillary Course Certificate	Existing ETO (3.3) for an ETO CoC III/6	ETO CoC III/6	SETO CoC III/6	STCW Code Reference	Updating required
Personal Survival Techniques ^a	Yes	Yes	Yes	A-V1/1-1	●
Fire Prevention and Fire Fighting ^a	Yes	Yes	Yes	A-VI/1-2	●
Elementary First Aid ^a	Yes	Yes	Yes	A-V1/1-3	
Personal Safety and Social Responsibility ^a	Yes	Yes	Yes	A-V1/1-4	
Proficiency in Survival Craft and Rescue Boats other than Fast Rescue Boats ^b	Yes	Yes	Yes	A-V1/2	●
Advanced Fire Fighting ^b	Yes	Yes	Yes	A-VI/3	●
Medical First Aid ^b	Yes	Yes	Yes	A-V1/4-1	
High Voltage (management) ^c	Optional	Yes	Yes	A-III/2	
HELM (operational)	Yes	Yes		A-III/6	
HELM (management)			Yes	A-III/2	
AMERC GMDSS Radio Maintenance ^d	Optional	Yes	Yes	N/A	
AMERC ENEM ^d	Optional	Yes	Yes	N/A	

- From 01 January 2017 you will be required to provide documentary evidence of either completing the training course or updating your training within the preceding 5 years for all Certificates of Competency applications. To satisfy Port State Control requirements you will need to hold evidence onboard your vessel of completing or updating your training within the last 5 years. For further information see MSN 1865.

a - The MCA will accept certificates issued under the authority of any IMO 'White List' country.



- b** - The MCA will accept certificates issued under the authority of any EU Member State, as well as: Canada, New Zealand and South Africa⁴.
- c** – Course must be MCA-approved.
- d** – Course must be AMERC-approved.

7.3 High Voltage (MCA-approved)

The High Voltage course forms part of the education and training required to obtain a UK Certificate of Competency. A high voltage system (over 1000V) is where voltage is generated and distributed at high voltage, or, transformed to and distributed at high voltage. It does not include systems where high voltage is utilised locally e.g. ignition systems, radio transmission, radar and other navigational equipment.

If you are an existing ETO or are working in a similar capacity, qualifying under section 3.3, this course is optional. If you do not submit a course completion certificate for a High Voltage course at the management level, your Certificate of Competency will not be valid for service on ships fitted with high voltage (over 1000V) systems after 31 December 2016.

7.4 Electronic Navigation Equipment Maintenance (ENEM) (issued by AMERC)

This training will provide you with the necessary knowledge and skill to maintain ships electronic navigation equipment.

If you are an existing ETO or are working in a similar capacity, qualifying under section 3.3, this course is optional. If you do not submit evidence of completing AMERC ENEM training, your Certificate of Competency will contain the following limitation:

“not permitted to carry out maintenance on Navigational Systems”

If you have undertaken an MNTB-approved Foundation Degree or MNTB-approved HND, your course completion letter will provide you with the evidence that you have met this requirement, for the purposes of the Certificate of Competency application procedure. However, your nautical college should still issue you with an AMERC ENEM course completion certificate.

You should carry the AMERC ENEM course completion certificate onboard the vessel you are serving on.

7.5 GMDSS Radio Maintenance (issued by AMERC)

This training will provide you with the requisite basic knowledge in electronics and radio engineering to enable you to maintain a ships radio communications equipment.

If you are an existing ETO or are working in a similar capacity, qualifying under section 3.3, this course is optional. If you do not submit evidence of completing AMERC GMDSS Radio Maintenance training, your Certificate of Competency will contain the following limitation:

“not permitted to carry out maintenance on Radio Equipment”.

⁴ The MCA will accept these certificates of proficiency issued by India and Pakistan up until 01 January 2017. After this date the MCA may accept some certificates of proficiency issued by DG Shipping-approved training providers, for details please refer to our website, search www.gov.uk for “MCA ATP”.



If you have undertaken an MNTB approved Foundation Degree or MCA-approved HND, your course completion letter will provide you with evidence that you have met this requirement, for the purposes of the Certificate of Competency application procedure. However, your nautical college should still issue you with an AMERC GMDSS Radio Maintenance course completion certificate.

You should carry your AMERC GMDSS Radio Maintenance course completion certificate onboard the vessel you are serving on.

7.6 Human Element and Leadership (HELM) operational level (MCA-approved)

HELM forms part of the education and training requirements to obtain a UK Certificate of Competency. HELM aims to provide you with the leadership and managerial skills required by the STCW Code.

If you are following an MNTB-approved officer training scheme leading to the issue of an ETO Certificate of Competency no additional training is required and you will not need to submit a course completion certificate. All other candidates will need to complete a standalone HELM Operational course.

HELM Management is a standalone course. You must submit a course completion certificate regardless of the education and training route you have followed.

8. Approved Education and Training Schemes

8.1 Education and training programmes leading to the issue of Certificates of Competency must be approved by the MCA. The MCA will ensure that each programme meets the STCW regulatory requirements. The MCA will monitor and audit all nautical colleges that offer training and education leading to the issue of an STCW Certificate of Competency. Details of the approval process are contained in Annex B.

8.2 Approved ETO programmes of education and training consist of courses leading either to an MCA/MNTB approved Foundation Degree or Higher National Diploma (HND). These are run by MCA-approved colleges and consist of alternating periods of seagoing service and college time. At the end of the course you will be issued with a qualification from the awarding body and a course completion letter from your college. This original letter must be submitted to the MCA with your other documentation when applying for the issue of a Certificate of Competency.

8.3 If you are not following an approved ETO programme, you will need to apply to an MCA-approved nautical college who will issue you with an action plan that will identify the HND modules you need to complete in order to meet the ETO standard. Once you have successfully completed the modules and examinations identified in your action plan you will be issued with a certificate of achievement and a course completion letter by the college. This original letter must be submitted to the MCA with your other documentation when applying for the issue of a Certificate of Competency

8.4 To ensure learning outcomes can be successfully delivered, the MCA requires a classroom attendance rate of at least 80%. Shipping companies and nautical colleges may set a higher rate of attendance.

8.5 Contact details for nautical colleges offering MCA/MNTB-approved Foundation Degrees or MCA-approved HND schemes are available from the MCA website: search www.gov.uk for "nautical colleges".



9. Medical Fitness and Eyesight Standards

- 9.1 For any Certificate of Competency, you must meet the medical fitness and eyesight standards as required by the Merchant Shipping (Maritime Labour Convention) (Medical Certification) Regulations 2010 (S.I. 2010/737), or any subsequent amendment. Details on the application of those regulations are found in MSN 1839, or any subsequent amendment.
- 9.2 The seafarer medical examination includes a sight test for both colour vision and visual acuity. Failure to meet the statutory requirements will mean that an unrestricted medical certificate cannot be issued. **If you are considering a seagoing career it is strongly advised that you have a medical and sight test, which includes testing of both colour and visual acuity, before you start the training.** You can arrange a separate sight test with a local optometrist by taking along an Application for Seafarer Vision Test Form (MSF 4100). The form can be obtained by contacting an MCA Marine Office or the MCA Seafarer Health and Safety Branch: seafarers.s&h@mcga.gov.uk
- 9.3 For any Certificate of Competence you must produce a valid medical fitness certificate, either:
- (a) The UK medical fitness certificate, currently known as an ENG 1, issued by a MCA-approved medical practitioner; **or**
 - (b) A certificate issued by the administration of any country whose medical fitness certificate is recognised as equivalent to the UK ENG 1.

Updated lists are available from the MCA website.

The medical fitness certificate must specify the date of examination, the period of validity and any restriction applied.

10. Application Procedure

- 10.1 The application form, MSF 4259, details the procedure and fee to obtain an ETO Certificate of Competency. You must complete this and submit it to the MCA with the relevant fee and documents listed on the form.
- 10.2 The application form is available to download from our website: go to www.gov.uk and search "MSF 4259".
- 10.3 If you meet the requirements specified in the application form you will be issued with a Notice of Eligibility (NOE).
- 10.4 With the exception of passports, the supporting documents must be original. Applicants for a UK Certificate of Competency should submit a photocopy of their passport attested by:
- A Notary Public (UK or Foreign);
 - MCA-approved nautical colleges;
 - Your maritime administration;
 - Another MCA-approved organisation.



11. Notice of Eligibility (NOE)

- 11.1 You will be issued with an NOE once you have met the requirements specified below. The NOE will allow you to book an oral examination at an MCA Marine Office and provide you with a list of any outstanding documents that you will need to submit prior to the issue of your Certificate of Competency.
- 11.2 At least 6 months of the qualifying seagoing service must have been performed within the 5 years immediately preceding the issue of your NOE.

Prior to the issue of your NOE you must submit:

- The appropriate fee;
 - An ENG1 (medical fitness certificate) or accepted equivalent⁵;
 - An attested copy of your passport;
 - 2 passport-size photographs attested by a counter signatory;
 - Proof of the required seagoing service applicable to the Certificate of Competency being applied for;
 - STCW basic safety training:
 - Personal Survival Techniques (STCW Code – Table A-VI/1-1);
 - Fire Prevention and Fire Fighting (STCW Code – Table A-VI/1-2);
 - Elementary First Aid (STCW Code – Table A-VI/1-3);
 - Personal Safety and Social Responsibilities (STCW Code - Table A-VI/1-4);
 - Completed Training Record Book;
 - A letter from the college confirming your attendance on the ETO programme;
 - If applicable, your IAMI action plan and/or AMERC course(s) exemption letter.
- 11.3 **NOEs are valid for 5 years from the date of issue.** The date of issue will be stamped on your NOE. Once this period has elapsed⁶ you must make a new application with the supporting documentation and the appropriate fee.

12. MCA Oral Examination

- 12.1 If you are undertaking the ETO oral examination, you must deposit both your MNTB TRB and its associated workbook at the Marine Office where you are scheduled to sit the examination at least 2 working days prior to your examination date.
- 12.2 You must take your current passport (with visa if applicable) to the oral examination as a means of identification.
- 12.3 It is recommended that you complete all of the education and training before attempting the oral examination, as this will provide you with the knowledge on which the examination is based.
- 12.4 The MCA examiner will record the result of your oral examination.

⁵ To go to sea you must have obtained a valid medical fitness certificate. Whilst this may have expired when you apply for your NOE, it must be valid at the time when we issue your Certificate of Competency.

⁶ If you do not pass your oral exam within this timescale, your application will be rejected and the appropriate fee will be taken.



- 12.5 **Your oral examination pass is valid for a period of 3 years.** This must be in date at the time of the issue of your Certificate of Competency. The NOE must be returned to the MCA with any outstanding documentary evidence.
- 12.6 If you fail your oral examination you will need to apply to the MCA for another NOE and pay an additional fee. Details of how to do this can be found on the NOE.
- 12.7 If a candidate fails an oral examination re-sits may be taken at the following intervals:
- Second attempt** - at 2 weeks after the initial examination;
Third attempt - at least 2 weeks after the second attempt;
Subsequent attempts - at least 3 months after the previous attempt.
- 12.8 Time periods between examinations can be reduced at the discretion of the MCA examiner. Where a candidate exhibits a lack of basic competency across the syllabus or makes fundamental errors in areas of safety, the examiner may impose a seagoing service penalty which the candidate must complete before re-sitting the examination.
- 12.9 The oral examination syllabus can be found in Annex C of this MSN or any subsequent publication.

13. The issue of your Certificate of Competency

- 13.1 At least 6 months of the qualifying seagoing service must have been performed within the 5 years immediately preceding the issue of your Certificate of Competency. A Certificate of Competency will not be issued until the MCA has received all of the documentary evidence confirming you have met the required standard.
- 13.2 The appropriate Certificate of Competency will be issued and is valid for a period of 5 years from the date that the qualifying conditions were met. Your ENG 1 seafarer medical (or equivalent) must be valid at the time we issue your Certificate of Competency. Any outstanding fees will need to have been received by the MCA before an NOE or Certificate of Competency can be issued.
- 13.3 **You must check you meet the current regulatory requirements when you make an initial application AND at the time you submit your NOE pass for the issue of your Certificate of Competency.**
- 13.4 Further information and guidance is available from our website go to www.gov.uk and search "MCA ETO".

14. Fraudulent Certificates and Seagoing Service

- 14.1 The MCA checks that all of the information you submit in support of your application is accurate and true. We:
- Verify all Certificates of Competency and Watchkeeping certificates issued by foreign administrations;
 - Check and verify ancillary and safety course certificates;
 - Verify sea service testimonials and discharge book entries;
 - Only accept original course completion certificates.
- 14.2 If you submit fraudulent seagoing service records or certificates we will not allow you to proceed with your application. We reserve the right not to let you apply again until after a period specified by the MCA's Chief Examiner.



14.3 We may also refer your application to the MCA Enforcement Branch who may decide to proceed against you in court.

More Information

Seafarer Training and Certification
Maritime and Coastguard Agency
Bay 2/13
Spring Place
105 Commercial Road
Southampton
SO15 1EG

Tel : +44 (0) 23 8032 9(see website or application form for number)
Fax : +44 (0) 23 8032 9N/A
e-mail: engineering@mcga.gov.uk

General Inquiries: infoline@mcga.gov.uk

MCA Website Address: www.dft.gov.uk/mca

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Safer Lives, Safer Ships, Cleaner Seas



Sea Service Testimonial (*Trainee Electro-technical Officer/Electro-technical Rating/electrical engineer/electrician/other please state.....)
.....)

Company Address/Contact Details

Company Name:

Address:
.....
.....

Contact Details: Tel:.....Fax:

E-mail

PART 1 – OPERATIONAL SERVICE

This is to certify that:

Full name of Candidate.....

Date of Birth

Discharge Book Number.....

Has served on:

Name of ship IMO Number.....

From To(Dates)

Total propulsion power (MCR).....kW

Type and make of propelling machinery

Type and make of Generators.....

Distribution voltages.....

During this period the above-named candidate:

- a) Regularly carried out duties in connection assisting in the monitoring and maintenance of the ships electrical systems
- b) Was granted no leave of absence*
- c) Was granted leave of absence as follows*:

.....

*Delete as appropriate



PART 2 – TESTIMONIAL

My report on the service of the above-named trainee/rating during the period stated, is as follows:

Ability:

.....

.....

Conduct:

.....

.....

General comments:

.....

.....

.....

OFFICIAL ENDORSEMENT

**Name (block letters)
of Chief Engineer
Officer:**

**Certificate Grade,
Number, Expiry Date,
and Issuing Country:**

**Signature of Chief
Engineer Officer:**

**Ship's/Company
stamp and date:**

In exceptional circumstances this testimonial may be signed by a responsible official of the Company, who holds an engineer officer certificate of competency and has knowledge of the candidate's sea experience.



Entry routes into the UK Education and Training Certification Structure:

An MNTB/MCA-approved officer training programme: The MNTB Technical Committee develops training frameworks and grants approval to colleges and universities to deliver training programmes in accordance with these frameworks. The frameworks include the Foundation Degree ('Professional Diploma' in Scotland) and HND/HNC qualifications

Approval of education and training programmes

In accordance with STCW Convention regulation I/6, all nautical colleges planning to offer education and training leading to the issue of a Certificate of Competency will need to gain MCA approval.

All awards must be validated by the awarding body. The MCA and the MNTB will work together with awarding bodies to ensure that the award (currently HND/HNC, Foundation Degree/ Scottish Professional Diploma or Honours Degree) is fit for purpose and covers all requirements of the underpinning knowledge applicable to the STCW Code.

Nautical colleges will need to gain approval from an awarding body to award their qualification (e.g. If the college wishes to use an SQA HND, then the college must seek approval from the SQA).

UK Cadet Training

All UK cadet training programmes are currently approved by the MNTB in consultation with the MCA. Nautical colleges will need to develop a programme of training that must be approved by the MNTB in accordance with their published guidelines.

Non-UK Cadet Training

To gain approval, nautical colleges will have to undergo assessment by the MCA to ensure their training standards meet the STCW requirements. Nautical colleges wishing to obtain approval should make a written application to the MCA outlining:

- Course title;
- Lesson plan;
- Course duration;
- Facilities, teaching aids, and equipment;
- Staff qualifications and experience;
- Examination and assessment procedures;
- Monitoring of entry requirements;
- Issue, control, authentication and recording of certification; **and**
- Quality management systems and procedures.

Nautical colleges will need to develop an education and training programme that incorporates an MCA-approved HND/HNC delivering the underpinning knowledge required for the training of deck officers.



Approval

When the MCA is satisfied that the education and training programme meets the requirements of the STCW Code, an approval letter will be issued by the MCA Seafarer Training and Certification Branch.

Ongoing Monitoring

Nautical College requirements: In accordance with STCW Convention regulation I/8, all nautical colleges that offer education and training leading to the issue of a Certificate of Competency will be periodically audited by the MCA in accordance with the following requirements:

- Course title;
- Lesson plan;
- Course duration;
- Facilities, teaching aids, and equipment;
- Staff qualifications and experience;
- Examination and assessment procedures;
- Monitoring of entry requirements;
- Issue, control, authentication and recording of certification; **and**
- Quality management systems and procedures.

Any changes to course structure or syllabus must be submitted in writing to the MCA and, if offering UK cadet training, the MNTB.

The introduction of a new course that is developed by an MCA-approved nautical college leading to the issue of a Certificate of Competency must be approved by the MCA and, if offering UK cadet training, the MNTB.

The MCA/MNTB will inform the nautical colleges of any changes to STCW regulations that will affect the education and training syllabus. When notified nautical colleges must provide details in writing of how they plan to incorporate such changes into their programmes. Once the MCA/MNTB are satisfied the new STCW regulatory requirements have been met they will re-issue an approval letter. Prior to approval the MCA/MNTB may carry out a site visit.

Blended Learning

Any nautical college planning to offer a blended learning package must present their proposal to the MCA for approval.



ETO MCA Oral Examination Syllabus

The principal objective of the oral examination is to ensure that a candidate will be able to undertake the duties and responsibilities of an ETO (O) on board a seagoing ship. In the examination every candidate must prove the ability to undertake the tasks, duties and responsibilities listed in the column 1 of table A-III/6 of STCW Code.

The syllabus indicated below is in compliance with the STCW requirements and is divided into topics. Each topic contains a group of tasks, duties and responsibilities for the operation, maintenance and repair of the electrical system and equipments considered necessary for the safe and efficient running of the ship, safety of life at sea or protection of the marine environment.

ETO Operational level STCW Convention regulation III/6

All candidates MUST have the knowledge of the oral examination syllabus before taking oral examination with the MCA examiner.

Topic- 1

Monitor the operation of the Electrical, Electronic and Control Systems

- Basic understanding of the operation of mechanical engineering systems of the following:
 - Prime movers including emergency generators;
 - Main Propulsion Machinery;
 - Auxiliary Equipment;
 - Steering system;
 - Cargo handling systems /machinery;
 - Deck machinery;
 - Hotel systems.
- Knowledge of:
 - Electrical machines theory (construction, working principle and protection devices for Generator, Motor (including types and various starting methods) and Transformer);
 - Fundamentals of electronics and power electronics;
 - Electrical power distribution boards and electrical equipment;
 - Fundamentals of automation, automatic control systems;
 - Instrumentation , alarm and monitoring systems;
 - Electrical drives (including control unit and power modulator - converters (ac to dc, ac regulators, choppers or dc-dc converters, inverters, cycloconverters), variable impedance and switching circuits);
 - Technology of Electrical materials;
 - Electro-hydraulic and electro-pneumatic control systems;
 - Appreciation of the hazards and precautions required for the operation of power systems above 1000 volts.



Topic – 2

Monitor the operation of automatic control systems of propulsion and auxiliary machinery

Knowledge, understanding and proficiency in the preparation of control systems of propulsion and auxiliary machinery, for operation and maintaining safe operating condition – alarms, auto change over (to stand by unit), shut down, lock out, slow down, safety interlocks.

Topic – 3

Operate Generators and distribution systems

Knowledge, understanding and proficiency in coupling, load sharing, changing over generators, coupling and breaking connection between switchboards and distribution panels – ability to establish rules and procedures for safe operation in accordance with the operating manuals (maker) – ability to explain electrical distribution system with drawing/instructions – knowledge of earthing systems and earth fault finding procedures.

Topic – 4

Operate and Maintain Power Systems in excess of 1,000 Volts

Have Knowledge, understanding and proficiency in:

- Safety precautions and procedures;
- Electrical propulsion of the ships;
- Electrical motors and control system;
- Safe operation and maintenance of high-voltage systems and the danger resulting from operational voltage of more than 1,000 volts;
- Legislation pertaining to high voltage (HV) systems;
- HV switchboards;
- Protection for HV feeder, motors and transformers;
- Permit to work and sanction to test;
- Compiling and implementing switching plan to isolate a HV distribution fault;
- Earthing procedures;
- Checking Circuit Breaker for correct operation;
- Pressure tests of Circuit Breaker;
- Polarisation Index test for HV transformers;
- Trending HV IR tests.

Topic – 5

Operate Computers and Computer Networks on Ships

Have understanding of:

Main features of data processing;

- Construction and use of computer networks on ships;
- Bridge based, engine room based and commercial computer use;
- Ability to check and handle the computer networks and computers correctly.



Topic – 6

Use of Internal Communication System

Have knowledge, understanding and proficiency regarding the operation of all internal communication systems on board.

Topic – 7

Maintenance and Repair of Electrical and Electronic Equipment

Have knowledge, understanding and proficiency in:

- The interpretation of electrical and electronic diagrams;
- Safety requirements for working on shipboard electrical systems, including safe isolation of electrical equipment before personnel are permitted to work on such equipment;
- Issuance and requirements for the permit to work document;
- Maintenance and repair of electrical system equipment, switchboards, electric motors, generators and DC electrical systems and equipment;
- Detection of electric mal function, location of faults and measures to prevent damage;
- The precautions while carrying out insulation test on equipment incorporated with electronic circuit and devices;
- Construction and operation of electrical testing and measuring equipment;
- The performance test, maintenance, fault finding and repair of fire detection system and equipment;
- Function and performance tests of the following;
- Monitoring system;
- Automatic control system;
- Protective devices.

Topic – 8

Maintenance and Repair of automation and control systems of main propulsion and auxiliary machinery

Have knowledge, understanding and proficiency in:

- Safe isolation of equipment and associated system before personnel are permitted to work on the plant or equipment;
- Safety and emergency procedures;
- Testing, maintenance, fault finding and repair;
- Interpreting technical drawing;
- The use of measuring and calibrating instruments;
- Making justifiable decision leads to the restoration of automation and control systems by the method most suitable and appropriate to the prevailing circumstances and conditions.



Topic - 9

Maintenance and Repair of Bridge Navigation Equipment and Ship Communication Systems

Have knowledge, understanding and proficiency in:

- The principles and maintenance procedures of Navigation equipment, internal and external communication systems;
- Detecting machinery malfunction, location of faults and action to prevent damage;
- Safe isolation procedures;
- Interpretation of ships technical drawing;
- Safe maintenance and repair procedures;
- Testing, maintenance, faultfinding and repair.

Topic – 10

Maintenance and repair of electrical, electronic and control systems of deck machinery and cargo-handling equipment

Have knowledge, understanding and proficiency in:

- Safe isolation of equipment and associated system before personnel are permitted to work on the plant or equipment;
- Safety and emergency procedures;
- Testing, maintenance, faultfinding and repair;
- Interpreting technical drawing;
- The use of measuring and calibrating instruments;
- Making justifiable decision leads to the restoration of deck machinery and cargo handling equipment by the method most suitable and appropriate to the prevailing circumstances and conditions.

Topic – 11

Maintenance and repair of control and safety systems of hotel equipment

Have knowledge, understanding and proficiency in:

- Detecting machinery malfunction, location of faults and action to prevent damage; safe isolation procedures of equipment and associated systems;
- Interpretation of ships technical drawing;
- Safe maintenance and repair procedures;
- Testing, maintenance, fault finding and repair.



Topic – 12

General Electrical Safety

Have knowledge of:

- The types of electrical and electronic equipment that can be fitted in hazardous areas; the precautions (in addition to proper isolation of electrical equipment and systems) for the maintenance and repair of equipment and systems located in hazardous area;
- The issuance of permit to work;
- The precautions while working on live or dead electrical equipment/systems;
- The appropriate PPE and tools used for the maintenance, testing and repair of electrical equipment and systems;
- The Battery room safety, safe maintenance and working procedures on batteries, appropriate PPE and tools.

Topic – 13

Emergency Power Supply

Have knowledge of:

- Emergency switchboard, emergency power supply to the essential equipment and lighting circuits and pertaining regulations, Emergency generator connection interlock (main and emergency switchboards) and various starting methods;
- Testing and maintenance of the auto start system for the emergency generator in the event of main power failure;
- Battery bank and UPS – maintenance and testing procedures.

Topic – 14

Controlling the operation of the ship and care for persons on board at the operational level.

- **Ensure compliance with pollution prevention requirements.**

Knowledge of:

- The precautions to be taken to prevent pollution of the marine environment;
- Anti-pollution procedures and all associated equipment;
- Importance of proactive measures to protect the marine environment.
- **Prevent, control and fight fire on board.**

Knowledge of:

- Organising fire drills;
- Classes and chemistry of fire;
- Fire-fighting systems;
- Actions to be taken in the event of fire, including fires involving oil systems.



- **Operate life-saving appliances.**

Knowledge of:

- Organising abandon ship drills;
 - Operation of survival craft and rescue boats, their launching appliances and arrangements and their equipment, including radio life-saving appliances, satellite EPIRBs, SARTs, immersion suits and thermal protection aids.
- Apply medical first aid on board ship.

Knowledge of:

- Practical application of medical guides;
 - Effective actions in the case of accidents or illnesses that are likely to occur on board ship.
- **Application of leadership and team working skills**

Knowledge and ability to apply:

- Task and workload management;
 - Effective resource management;
 - Decision-making techniques.
- **Contribute to the safety of personnel and ship.**

Knowledge of:

- Personal Survival Technique;
- Fire prevention and ability to fight and extinguish fires;
- Elementary first aid;
- Personal safety and social responsibilities.

