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NVIC 3-98

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 3-98

Subj: PORT STATE CONTROL GUIDELINES FOR THE ENFORCEMENT OF THE 1995 AMENDMENTS TO THE INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING FOR SEAFARERS, 1978 (STCW).

1. PURPOSE. This Navigation and Vessel Inspection Circular (NVIC) provides guidance on the enforcement of the 1995 Amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW), under the U.S. Coast Guard's Port State Control (PSC) Program. It is intended to be used by Coast Guard Port State Control Officers (PSCOs) during foreign vessel examinations, but may also be of use to vessel owners, operators, and flag States in ensuring compliance with the requirements under STCW 78 and its 1995 amendments.

2. ACTION.

A. Coast Guard PSCOs will refer to the enclosed guidance when conducting PSC examinations on all foreign vessels to assess compliance with the STCW 78 and its 1995 amendments.

B. Enclosure (1) contains a checklist that Coast Guard PSCOs can use as an addendum to the foreign vessel examination checklist. The checklist is designed to assist PSCOs in assessing foreign vessel compliance with the STCW Convention during all PSC examinations.

C. Because of the subjective nature of some of these requirements, Coast Guard PSCOs shall use discretion when considering enforcement action to correct non-conformities. PSCOs will ensure vessel personnel are provided copies of this NVIC, and should offer additional guidance as needed or requested. Deficiency reports should offer adequate time to allow for full compliance.

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A																										
B		2	10		1			1						13	1		5									10
C					43							1	4	5												
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D. Officers in Charge, Marine Inspection and Captains of the Port (OCMIs/COTPs) shall bring the enclosed guidance to the attention of appropriate individuals in the marine industry within their zones.

3. DIRECTIVES AFFECTED. None.

4. BACKGROUND.

A. The STCW Convention was adopted by a Conference of Parties in 1978 and entered into force on April 28, 1984. The United States did not become a Party until 1991. The final step in the United States' implementation of the Convention was the issuance of the standard STCW Endorsement Form to U.S. mariners, which began October 1, 1996, certifying that U.S. licenses are issued in accordance with the STCW.

B. By 1993, significant limitations to STCW had become apparent. They included requirements that were too vague and left too much to the discretion of the Parties; the absence of clear, uniform standards of competence; ineffective international oversight to verify compliance; limited provisions for port state control; and outdated technical references that failed to address modern shipboard systems, job descriptions and approaches to maritime training.

C. In 1993, the International Maritime Organization (IMO) embarked on a comprehensive revision of STCW to establish the highest practicable standards of competence and to address human error as a major cause of maritime casualties. The amendments that were developed and eventually adopted by a Conference of Parties on July 7, 1995, are comprehensive and detailed. They concern, among other things, port state control, communication of information to IMO to allow for mutual oversight, and responsibilities of all Parties to ensure that seafarers meet objective standards of competence. The amendments entered into force on February 1, 1997. On June 26, 1997, the U. S. Coast Guard published an Interim Rule to implement the amendments for the U.S. domestic fleet. This rule became effective on July 28, 1997. The affected U.S. industry was previously informed through a Notice of Intent published in the Federal Register in advance of the Interim Rule.

5. DISCUSSION.

A. Summary of Changes to the STCW Convention. The following discussion is designed to highlight some of the major changes and new requirements added to the STCW Convention by the 1995 Amendments.

(1) STCW Code. The most notable amendment involves the creation of the STCW Code. The new Code is divided into two sections, Part A and Part B. Both sections are cross referenced directly to the articles and regulations of the Convention (*for example: part A-II/1 and part B-II/1 of the Code correspond with Regulation II/1 of the Annex to the STCW Convention*). Each part of the Code fulfills a different role and is designed to be used in conjunction with the Convention.

Part A - contains the mandatory provisions which give, in detail, the minimum standards required to be maintained by Parties in order to effectively implement the requirements of the STCW Convention. This includes the specific standards of competency to be maintained by various members of a ship's crew (i.e. master, deck officers, engineers, radio personnel, etc.) and the methods of demonstrating and the criteria for assessing compliance with those standards of competency.

Part B - contains recommended guidance to assist Parties to the STCW Convention and those involved in implementing, applying, or enforcing its measures to give the STCW Convention full and complete effect in a uniform manner. These are not mandatory; instead, they are only intended to demonstrate how certain Convention requirements may be complied with. However, the recommendations represent an approach which has been harmonized through discussions within IMO involving, where appropriate, consultation with the International Labor Organization (ILO), the International Telecommunication Union and the World Health Organization. Because this material is recommended guidance only, it is not enclosed in this NVIC.

(2) Tonnage limitations were changed from the old "200 gross registered tons" and "1,600 gross registered tons" to "500 gross tonnage" and "3000 gross tonnage" as determined under the International Convention on the Tonnage Measurement of Ships, 1969 (ITC).

(3) Certification and Endorsements.

(a) Changes made by the 1995 amendments regarding certification include 3 new types of STCW certificates and other more specific requirements for the issuance of certificates and endorsements. The new STCW certificates (1995 Endorsements) may be in any one of 3 forms as illustrated in section A-I/2 of the Code. The first variation may contain the endorsement as a separate document to accompany a national certificate. The second type of certificate may be an STCW endorsement combined with a national document in a single document. The third type of certificate encountered will have a Flag state STCW endorsement on a foreign issued certificate. These documents must be original and must expire every five years.

(b) Although the formats of the certificates may vary, all information relating to the identity and personal description of the holder, including name, date of birth, photograph and signature, along with the date on which the document was issued, shall be displayed on the same side of the STCW documents; and all information relating to the capacity or capacities in which the holder is entitled to serve, in accordance with the applicable safe manning requirements of the Administration, as well as any limitations, shall be prominently and easily identified. In addition to the above, valid endorsements issued under the 1978 Convention (1978 STCW endorsements) are also accepted until February 1, 2002.

(c) The 1995 Amendments also provide requirements for Flag Administrations that choose to issue alternative certificates rather than those prescribed by the Convention for masters, deck officers and engineers. In this case, the associated functions and levels of responsibility for the alternative certificates must be selected from and identical to those for masters, deck officers, and engineers as prescribed in the Convention.

(4) Rest Periods. Under regulation VIII/1 of the Convention and section A-VIII/1 of the Code, all persons assigned duty as officer in charge of a watch or as a rating forming part of a watch are to be provided a minimum of 10 hours of rest in any 24 hour period. The 10 hours may be divided into two periods, as long as one period is at least 6 hours in length. Ships may deviate from the required rest period for emergencies, drills or other overriding operational conditions that may require more people on watch. The 10 hour period may also be reduced to not less than 6 hours per day, for a two day period, as long as 70 hours of rest are provided in a 7 day period. Rest periods must be posted where they are easily accessible.

(5) English Proficiency. Prior to the 1995 Amendments, adequate knowledge of the English language was identified as one of the standards for qualification for an officer in charge of a navigational watch. The 1995 Amendments clarified that adequate knowledge includes the ability to enable the officer to:

(a) use charts and other nautical publications;

(b) to understand meteorological information and messages concerning ship's safety and operation;

(c) to communicate with other ships and coast stations;

(d) to perform the officer's duties with a multilingual crew; and use and understand the Standard Marine Communication Phrases or the Standard Navigational Vocabulary (encl. 1, part III). Unlicensed personnel must understand helm orders in English.

(6) Basic Safety Training. Regulation VI/1 of the Convention and A-VI/1 of the Code requires all crew members who have designated safety or pollution prevention duties to receive appropriate basic safety training or instruction in the following four areas before they are assigned to these duties (i - iv are described in section 8 of encl. 2):

(a) personal survival techniques;

(b) basic fire fighting;

(c) elementary first aid; and

(d) personal safety and social responsibilities.

(e) Some examples of crew members who shall have received appropriate basic

safety training or instruction include:

(i) all members of the deck and engineer departments required on the safe manning document;

(ii) crew members designated as active fire fighters on all fire fighting teams;

(iii) all crew members in charge of lifeboat and life raft muster stations;

(iv) all crew members in charge of lifeboats and life rafts;

(v) all crew members with pollution prevention duties, including those responsible for the proper disposal of garbage and cleaning materials; and

(vi) all crew members assigned duties on a muster list or station bill. On cruise ships, this includes those personnel who may be involved in the hotel services of the ship during normal operations, but who are designated to assist passengers in emergencies. In these cases, the training instruction should be related to their specific duties as assigned on the muster list or station bill. Training in firefighting or first aid that falls beyond the instruction needed to perform their tasks properly, and understanding the overall emergency response systems in which they play a part, is not required. Everyone with a safety or pollution prevention duty should also have an appropriate amount of training or instruction in the area of personal safety, social responsibility and personal survival.

(7) Vessel Familiarization. Regulation VI/1 of the Convention and section A-VI/1 of the Code require all persons employed or engaged on a seagoing ship, to receive training or instruction in vessel familiarization or personal survival techniques to be able to:

(a) communicate with other persons on board on elementary safety matters and understand safety information, symbols, signs and alarm signals;

(b) know what to do if a person falls overboard, fire or smoke is detected, or the fire or abandon ship alarm is sounded;

(c) identify muster and embarkation stations and emergency escape routes;

(d) locate and don lifejackets; raise the alarm and have basic knowledge of the use of portable fire extinguishers;

(e) take immediate action upon encountering an accident or other medical emergency before seeking further medical assistance on board; and

(f) close and open the fire, weathertight and watertight doors fitted in the particular ship, other than those for hull openings.

(8) Fast Rescue Boat Certification. If a ship is equipped with a fast rescue boat, those crew members assigned responsibilities/duties for its operation shall hold a fast rescue boat certificate issued under STCW regulation VI/2.

(9) Ro-Ro Passenger Ships. Regulation V/2 requires specific training, in addition to that training required for all ships, in accordance with their capacity, duties and responsibilities. This includes training in crowd management, communications, passenger safety, cargo safety, hull integrity, and crisis management.

(10) Recognition of Certificates. Prior to the 1995 Amendments, the Convention required all certificates issued by Parties to the Convention to be endorsed as meeting the requirements of the Convention. However, it did not explicitly require individual endorsements from the Flag State Administrations of the vessels the seafarers were serving on. Regulation I/10 of the Convention now requires such an endorsement. In addition, it stipulates that such an endorsement shall only be made after the vessel's Flag State Administration has confirmed that the requirements of the Convention concerning standards of competence, the issuance and endorsement of certificates and record keeping, are complied with by the party issuing the original certificate. There is, however, a transitional period. STCW regulation I/15 permits parties to recognize certificates for foreign seafarers in accordance with the 1978 STCW convention until February 1, 2002. The 1995 STCW recognition endorsements are required first for those who begin training or sea service after August 1, 1998. Therefore, they may not become common until 1999 or 2000. In the meantime, PSCOs may still request verification from the Flag state administration that it is satisfied with a document issued by another country as is currently done.

(11) Register of Certificates. Regulation I/9 requires each Party to maintain a register of all certificates and endorsements it issues to masters, officers and qualified ratings. The register is required to track, among other things, the issue and expiration dates, revalidation dates, suspensions, and cancellations of certificates. This information is to be made available to companies and parties (Port States & Flag States) upon request for verification of the authenticity and validity of certificates. PSCOs should not expect registries to be very reliable until they start to see 1995 STCW endorsements/certificates

(12) Company Responsibility. Under Reg. I/14 and Section A-I/14 of the STCW Code, ship owners and operators are required to ensure that: (1) All newly assigned seafarers are familiar with their specific duties and with all ship arrangements, installations, equipment, procedures and characteristics relevant to their routine or emergency duties; and (2) that the ship's complement can effectively coordinate their activities in an emergency situation, and are able to perform the vital functions necessary for safe operation and prevention or mitigation of pollution. The company shall also provide written instructions to the master of each ship (of flags that are parties to STCW) outlining the policies and procedures to be followed to ensure that all seafarers who are newly employed onboard the ship are given an opportunity to

become familiar with shipboard equipment, operating procedures and other arrangements needed for the proper performance of their duties, before being assigned those duties.

(13) Transitional Provisions. Regulation I/15 allows parties to STCW to continue issuing, recognizing, and endorsing certificates in accordance with the provisions of the Convention, before the 1995 Amendments entered into force, for those seafarers who commenced training/seagoing service before August 1, 1998. This transition period expires on February 1, 2002. As a result of this regulation, PSCOs can expect to see a variety of STCW endorsements and certificates until February 1, 2002.

B. Procedures During Port State Control (PSC) Examinations. The following procedures and guidance are to be followed by PSCOs while conducting PSC examinations to ensure compliance with the requirements of the STCW Convention and Code. Enclosure (1) provides a checklist which may be used as an addendum to the foreign vessel examination books used during PSC examinations.

(1) General Examination. During all foreign vessel examinations, PSCOs will compare the crew certificates and endorsements with the requirements of the Safe Manning Document, check posted watch arrangements for appropriate rest periods, and examine the specific new crew-member familiarization procedures.

(2) Reasons to Expand a General Examination. If, during the general examination, the PSCO encounters a situation that establishes clear grounds that watchkeeping standards are not being maintained, the examination will be expanded. Situations encountered during a general examination that establish clear grounds are those that prevent the PSCO from completing a general examination and include:

(a) the ship has been involved in a collision, grounding, or stranding;

(b) there has been a discharge of substances from the ship when under way, at anchor or at berth which is illegal under any international convention;

(c) the ship has been maneuvered in an erratic or unsafe manner whereby safe navigation practices and procedures have not been followed;

(d) the ship is otherwise being operated in such a manner as to pose a danger to persons, property or the environment. Items which may be deemed to pose a danger to persons, property or the environment include:

(i) failure of a crewmember to hold a certificate, to have an appropriate certificate, or to have a valid dispensation or documentary proof that an application for a recognition certificate has been submitted to the Flag State Administration within the prior three months;

(ii) failure to comply with the safe manning requirements of the Flag State Administration;

(iii) failure of navigational or engineering watch arrangements to conform to the requirements specified for the ship by the Flag State Administration;

(iv) absence in a watch of a person qualified to operate equipment essential to safe navigation, safety radiocommunications or the prevention of marine pollution;

(v) the inability to provide sufficiently rested or otherwise fit personnel for the first watch at the commencement of a voyage, and for subsequent relieving watches;

(vi) the inability of crewmember(s) to perform their assigned duties during abandon ship or fire fighting drills;

(vii) the inability of watchkeeping officer(s) to communicate with the PSCO in English;

(viii) the inability of crewmember(s) to operate shipboard equipment necessary to complete operational tests as required during the general examination;

(ix) a clear, indication, based on personal observations of performance during the boarding, that the master and/or crew are not familiar with their specific duties and with ship arrangements, installations, equipment, procedures and ship characteristics that are relevant to their routine or emergency duties out;

(x) and indications that key crew members are not able to communicate or coordinate with each other or with other persons on board.

(3) Expanded Examinations. When clear grounds are established that watchkeeping standards are not being maintained or the ship is otherwise being operated in such a manner as to pose a danger to persons, property or the environment, the examination will be expanded to focus on correcting the apparent deficiencies. The PSCO shall notify the master and provide an opportunity to correct the deficiencies at that time (e.g. allow the crew to receive instruction and repeat a fire and boat drill after failing the first time, or substitution of one crewmember by another who is qualified to hold that position). If the situation can be corrected and is corrected, the PSCO will return to completing the general examination.

(4) If the deficiency relates to a crewmember's professional incompetence or inability to communicate in English (if required), an advanced assessment shall be conducted. An advanced assessment of professional skills shall be performed by a senior PSCO with skills similar to that being assessed (e.g. former Deck Watch Officer, Coast Guard Licensed Officer, etc.). If assessment of English speaking skills is necessary,

the standard marine phrases in enclosure (1) can be used to verify a watchstander's English competence.

(5) Detention Criteria. Ships may be detained under STCW authority if the uncorrected deficiencies pose a danger to persons, property or the environment. These deficiencies are described in Reg. I/4 (paragraph B(2)(d)(i-x) above) of STCW Reg. I/4. If it is necessary to detain the ship, the flag State shall be notified. The following is an example provided to illustrate a common STCW situation.

(a) Example:

Stage 1: A vessel is boarded for an annual, priority III, port state control examination. After the boarding team reviews the ship's certificates and documents, they begin the navigation safety portion of the general examination, assisted by the ship's second mate. Because of the mate's apparent inability to understand English, the boarding team is unable to complete that portion of the general examination.

Stage 2: Since the ability to use English is a specific requirement for an Officer in Charge of a Navigational Watch, and the general examination cannot be completed, the PSCO determines that clear grounds have been established and that an expanded examination should be pursued. The PSCO notifies the master of the situation.

Stage 3: The master stipulates that the second mate will not stand navigation watches, and produces another licensed deck officer with satisfactory English proficiency. If the vessel can still meet STCW watchkeeping requirements and requirements of the ship safe manning document, the examination is completed. However, if the second mate is retained on the posted watch schedule, the PSCO should arrange for an on board assessment of watchkeeping skills (see paragraph 4 above).

Stage 4: The outcome of the assessment is discussed with the master and deficiencies which posed a danger to persons, property or the environment are corrected, or the ship is detained until the deficiencies are corrected (and appropriate reports are filed). With the situation resolved, the PSCO returns to conduct the general examination.

(6) Reporting Obligations. Officers in Charge, Marine Inspection (OCMIs) and Captains of the Port (COTPs) shall use the reporting requirements provided in Marine Safety Manual, Volume II, Chapter 24, when deficiencies with the requirements of STCW have been identified during foreign vessel examinations. When citing deficiencies with the requirements of the STCW Convention, field units shall cite the regulation in the Convention, not the section of the STCW Code. Commandant (G-MOC) will include foreign vessels detained for deficiencies with the requirements of STCW in its reports to the International Maritime Organization

and Flag States.

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Assistant Commandant for Marine Safety and
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Encl: (1) STCW Addendum to Foreign Vessel Examination Books
(2) Standards of Competency, Methods of Demonstration, and Criteria for Assessment

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I. General Examination

A.___ Safe Manning Document

_____

_____

Ship is manned in accordance with its Safe Manning Document (STCW I/14.2)

_____

_____

B.___ Certificates and Endorsements

_____

_____

Master and Chief Engineer (STCW II/2, III/2)
Navigating and Engineering Officer (STCW II/1, III/1)

_____

_____

- All Certificates are valid and for appropriate duties assigned

_____

_____

- All Certificates have appropriate Flag Endorsements

_____

_____

C.___ Crew

Certificates for ratings (STCW II/4, III/4)

_____

_____

Minimum age (16 yrs)

_____

_____

D.___ Rest Periods

Watch Schedule provides for appropriate amount of rest

_____

_____

(STCW VIII/1). Watch schedule to be posted

- at least 10 hrs in any 24 hr period

_____

_____

- if divided into 2 periods, one at least 6hrs in length
- exceptions?

_____

_____

II. <u>Expanded Examination</u>

A. Clear Grounds for Expanded Examination (notify the master):

_____

_____
_____
_____
_____
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_____

B. Basic Assessment - Can the situation be corrected at the time of the examination?

___ Yes ___ No

If Yes, how corrected?

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_____

If No, Advanced Assessment Required? ___ Yes ___ No

C. Advanced Assessment (Notify Flag State)

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III Commonly Used Standard Marine Communication Phrases (IMO ANNEX 18)

Failure of officers in charge of a navigation watch to understand or communicate in basic marine communication phrases in English may indicate a need to expand the exam**.** The examples given below are taken from IMO's "Standard Marine Communication Phrases" which deck officers holding a 1995 STCW endorsement must be able to use and understand. The examples are representative. The full IMO document contains hundreds of phrases for shipboard routine and emergency situations.

A. Operative Shiphandling. Phrases commonly used to conduct a steering test**:**

1. Place rudder amidships

2. Helmsman, hard-a-port

3. Helmsman, hard-a-starboard

B. Propulsion System.

1. Is the engine diesel or turbine?

2. Is extra power available in an emergency?

C. Maneuvering (for navigation safety exam).

1. I require maneuvering data. (for navigation safety exam).

2. Where is the whistle control?

3. Does helmsman understand English?

D. Radar (for navigation safety exam).

1. Is the radar operational?

2. Change radar to ... miles range scale.

3. Change radar to relative head-up.

E. Draft and air draft.

1. What is the present draft?

F. Raising alarm.

1. Operate the general emergency alarm.

G. Abandon Ship and Fire Drills.

1. Operate the lifeboat engine(s).

2. Is the emergency power supply operational?

3. Check the firemen's outfits.

4. Is there Fire on board?

5. Is there Smoke/fire/explosion in engine room?

6. Is there Smoke/fire/explosion in no. ... hold(s)/tank(s)?

7. Is there Smoke/fire/explosion in superstructure?

8. Is there Smoke/fire/explosion in accommodation?

9. Is there Smoke/fire/explosion in ... space/area?

10. Is there Smoke/fire/explosion on deck?

11. Is there Smoke from ventilator(s)?

12. What is on fire?

13. Is the fire under control?

14. How is the pressure on fire mains?.

15. Close damper(s) (in...).

16. Switch off ventilator(s) (in...).

The following tables provide the specifications of minimum standards of competence for crew members serving on foreign vessels, the methods of demonstrating competency in those

standards, and the criteria for evaluating competency with those standards as prescribed in Part A of the STCW Code.

The Tables are broken down into specific Functions. These functions are, in order:

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1. Officers in Charge of a Navigational Watch:

Standard of competence

1 every candidate for certification shall:

.1 be required to demonstrate the competence to undertake, at the operational level, the tasks, duties and responsibilities listed in the first column of the following table;

.2 at least hold an appropriate certificate for performing VHF radio-communications in accordance with the requirements of the Radio regulations; and

.3 if designated to have primary responsibility for radiocommunications during distress incidents, hold an appropriate certificate issued or recognized under the provisions of the Radio Regulations.

2 The minimum knowledge, understanding and proficiency required for certification is listed in the second column of the following table.

3 The level of knowledge of the subjects listed in the second column of the following table shall be sufficient for officers of the watch to carry out their watch-keeping duties.

4 Training and experience to achieve the necessary level of theoretical knowledge, understanding and proficiency shall be based on section A-VIII/2, part 3-1, Principles to be observed in keeping a navigational watch, and shall also take into account the relevant requirements of this part and the guidance given in part B of this Code.

5 Every candidate for certification shall be required to provide evidence of having achieved the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in the third and fourth columns of the following table.

On board training

6 Every candidate for certification as officer in charge of a navigational watch of ships of 500 gross tonnage or more whose seagoing service, in accordance with paragraph 2.2 of regulation II/1, forms part of a training program approved as meeting the requirements of this section shall follow an approved program of on-board training which:

.1 ensures that during the required period of seagoing service the candidate receives systematic training and experience in the tasks, duties and responsibilities of an officer in charge of a navigational watch, taking into account the guidance given in section B-II/1 of the STCW Code;

.2 is closely supervised and monitored by qualified officers aboard the ships in which the approved seagoing service is performed; and

.3 is adequately documented in a training record book or similar document.

Near-coastal voyages

7 The following subjects may be omitted from those listed in the second column of the following table for issue of restricted certificates for service on near-coastal voyages, bearing in mind the safety of all ships which may be operating in the same waters:

.1 celestial navigation; and

.2 those electronic systems of position fixing and navigation that do not cover the waters for which the certificate is to be valid.

1. Officers in Charge of a Navigational Watch:

Function: Navigation

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and conduct a passage and determine position	*Celestial Navigation* Ability to use celestial bodies to determine the ship's position *Terrestrial and coastal navigation* Ability to determine the ship's position by use of: • landmarks • aids to navigation, including lighthouses, beacons and buoys • dead reckoning, taking into account winds, tides, currents and estimated speed Thorough knowledge of and ability to use navigational charts and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ships' routing information NOTE: ECDIS systems are considered to be included under the term "charts" *Electronic systems of position fixing and navigation* Ability to determine the ship's position by use of electronic navigational aids *Echo-sounders* Ability to operate the equipment and apply the information correctly *Compass - magnetic and gyro* Knowledge of the principles of magnetic and gyro-compasses Ability to determine errors of the magnetic and gyro-compasses, using celestial and terrestrial means, and to allow for such errors *Steering control systems* Knowledge of steering control systems, operational procedures and change-over from manual to automatic controls and vice-versa. Adjustment of controls for optimum performance *Meteorology* Ability to use and interpret information obtained from shipborne meteorological instruments Knowledge of the characteristics of the various weather systems, reporting procedures and recording systems Ability to apply the meteorological information available	Examination and assessment of evidence obtained from one or more of the following: approved in-service experience approved training ship experience approved simulator training, where appropriate approved laboratory equipment training using: chart catalogues, charts, navigational publications, radio navigational warnings, sextant, azimuth mirror, electronic navigation equipment, echo-sounding equipment, compass	The information obtained from navigational charts and publications is relevant, interpreted correctly and properly applied. All potential navigational hazards are accurately identified The primary method of fixing the ship's position is the most appropriate to the prevailing circumstances and conditions The position is determined within the limits of acceptable instrument/system errors The reliability of the information obtained from the primary method of position fixing is checked at appropriate intervals Calculations and measurements of navigational information are accurate The charts selected are the largest scale suitable for the area of navigation and charts and publications are corrected in accordance with the latest information available Performance checks and tests to navigation systems comply with manufacturer's recommendations and good navigational practice Errors in magnetic and gyro-compasses are determined and correctly applied to courses and bearings The selection of the mode of steering is the most suitable for the prevailing weather, sea and traffic conditions and intended maneuvers Measurements and observations of weather conditions are accurate and appropriate to the passage Meteorological information is correctly interpreted and applied

1. Officers in Charge of a Navigational Watch:
Function: Navigation (contd.)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Maintain a safe navigational watch	*Watchkeeping* Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea Thorough knowledge of the Principles to be observed in keeping a navigational watch Through knowledge of effective bridge teamwork procedures The use of routing in accordance with the General Provisions on Ships' Routing	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved training ship experience • approved simulator training, where appropriate • approved laboratory equipment training	The conduct, hand over and relief of the watch conforms with accepted principles and procedures A proper look-out is maintained at all times and in such a way as to conform to accepted principles and procedures Lights, shapes and sound signals conform with the requirements contained in the International Regulations for Preventing Collisions at Sea and are correctly recognized The frequency and extent of monitoring of traffic, the ship and the environment conform with accepted principles and procedures A proper record is maintained of the movements and activities relating to the navigation of the ship Responsibility for the safety of navigation is clearly defined at all times, including periods when the master is on the bridge and while under pilotage
Use of radar and ARPA to maintain safety of navigation *Note*: Training and assessment in the use of ARPA is not required for those who serve exclusively on ships not fitted with ARPA. This limitation shall be reflected in the endorsement issued to the seafarer concerned	*Radar navigation* Knowledge of the fundamentals of radar and automatic radar plotting aids (ARPA) Ability to operate and to interpret and analyze information obtained from radar, including the following: Performance including: • factors affecting performance and accuracy • setting up and maintaining displays • detection of misrepresentation of information, false echoes, sea return, etc., racons and SARTs Use, including: • range and bearing; course and speed of other ships; time and distance to closest approach of crossing, meeting overtaking ships • identification of critical echoes; detecting course and speed changes of other ships; effect of changes in own ship's course or speed or both • application of the International Regulations for Preventing Collisions at Sea	Assessment of evidence obtained from approved radar simulator and ARPA simulator training plus in-service experience	Information obtained from radar and ARPA is correctly interpreted and analyzed, taking into account the limitations of the equipment and prevailing circumstances and conditions Action taken to avoid a close encounter or collision with other vessels is in accordance with the International Regulations for Preventing Collisions at Sea Decisions to amend course and/or speed are both timely and in accordance with accepted navigational practice Adjustments made to the ship's course and speed maintain safety of navigation Communication is clear, concise and acknowledged at all times in a seaman-like manner Maneuvering signals are made at the appropriate time and are in accordance with the International Regulations for Preventing Collisions at Sea

1. Officers in Charge of a Navigational Watch:
Function: Navigation (contd.)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Use of radar and ARPA to maintain safety of navigation (*continued*) *Note*: Training and assessment in the use of ARPA is not required for those who serve exclusively on ships not fitted with ARPA. This limitation shall be reflected in the endorsement issued to the seafarer concerned	• plotting techniques and relative and true motion concepts • parallel indexing Principal types of ARPA, their display characteristics, performance standards and the dangers of over-reliance on ARPA Ability to operate and to interpret and analyze information obtained from ARPA, including: • system performance and accuracy, tracking capabilities and limitations, and processing delays • use of operational warnings and system tests • methods of target acquisition and their limitations • true and relative vectors, graphic representation of target information and danger areas • deriving and analyzing information, critical echoes, exclusion areas and trial maneuvers		
Respond to emergencies	*Emergency procedures* Precautions for the protection and safety of passengers in emergency situations Initial action to be taken following a collision or a grounding; initial damage assessment and control Appreciation of the procedures to be followed for rescuing persons from the sea, assisting a ship in distress, responding to emergencies which arise in port	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved training ship experience • approved simulator training, where appropriate • practical training	The type and scale of the emergency is promptly identified Initial actions and, if appropriate, maneuvering of the ship are in accordance with contingency plans and are appropriate to the urgency of the situation and nature of the emergency
Respond to a distress signal at sea	*Search and rescue* Knowledge of the contents of the IMO *Merchant Ship Search and Rescue Manual* (MERSAR)	Examination and assessment of evidence obtained from practical instruction or approved simulator training, where appropriate	The distress or emergency signal is immediately recognized Contingency plans and instructions in standing orders are implemented and complied with
Use the Standard Marine Navigation Vocabulary as replaced by the IMO Standard Marine Communication Phrases and use English in written and oral form	*English language* Adequate knowledge of the English language to enable the officer to use charts and other nautical publications, to understand meteorological information and messages concerning ship's safety and operation, to communicate with other ships and coast stations and to perform the officer's duties also with a multilingual crew, including the ability to use and understand the Standard Marine Navigational Vocabulary as replaced by the IMO Standard Marine Communication Phrases	Examination and assessment of evidence from practical instruction	English language navigational publications and messages relevant to the safety of the ship are correctly interpreted or drafted Communications are clear and understood

1. Officers in Charge of a Navigational Watch:
Function: Navigation (contd.)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Transmit and receive information by visual signaling	*Visual signaling* Ability to transmit and receive signals by Morse light Ability to use the International Code of Signals	Assessment of evidence obtained from practical instruction	Communications within the operator's area of responsibility are consistently successful
Maneuver the ship	*Ship maneuvering and handling* Knowledge of: • the effects of deadweight, draught, trim, speed and under-keel clearance on turning circles and stopping distances • the effects of wind and current on ship handling • maneuvers and procedures for the rescue of person overboard • squat, shallow-water and similar effects • proper procedures for anchoring and mooring	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved training ship experience • approved simulator training, where appropriate • approved training on a manned scale ship model where appropriate	Safe operating limits of ship propulsion, steering and power systems are not exceeded in normal maneuvers Adjustments made to the ship's course and speed maintain safety of navigation

1. Officers in Charge of a Navigational Watch:

Function: Cargo Handling and Stowage

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Monitor the loading, stowage, securing and unloading of cargoes and their care during the voyage	*Cargo handling, stowage and securing* Knowledge of the effect of cargo including heavy lifts on the seaworthiness and stability of the ship Knowledge of safe handling, stowage and securing of cargoes including dangerous, hazardous and harmful cargoes and their effect on the safety of life and of the ship	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved training ship experience • approved simulator training, where appropriate	Cargo operations are carried out in accordance with the cargo plan or other documents and established safety rules/regulations, equipment operating instructions and shipboard stowage limitations The handling of dangerous, hazardous and harmful cargoes complies with international regulations and recognized standards and codes of safe practice

1. Officers in Charge of a Navigational Watch:

Function: Controlling the Operation of the Ship and Care of Persons on Board

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Ensure compliance with pollution-prevention requirements	*Prevention of pollution of the marine environment and anti-pollution procedures* Knowledge of the precautions to be taken to prevent pollution of the marine environment Anti-pollution procedures and all associated equipment	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved training ship experience	Procedures for monitoring shipboard operations ensuring compliance with MARPOL requirements are fully observed
Maintain seaworthiness of the ship	*Ship stability* Working knowledge and application of stability, trim and stress tables, diagrams and stress-calculating equipment Understanding of fundamental actions to be taken in the event of partial loss of intact buoyancy Understanding of the fundamentals of watertight integrity *Ship construction* General knowledge of the principal structural members of a ship and the proper names for the various parts	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved training ship experience • approved simulator training, where appropriate • approved laboratory equipment training	The stability conditions comply with the IMO intact stability criteria under all conditions of loading Actions to ensure and maintain the watertight integrity of the ship are in accordance with accepted practice
Prevent, control and fight fires on board	*Fire prevention and fire-fighting appliances* Knowledge of fire prevention Ability to organized fire drills Knowledge of classes and chemistry of fire Knowledge of fire-fighting systems Knowledge of action to be taken in the event of fire, including fires involving oil systems	Assessment of evidence obtained from approved fire-fighting training and experience as set out in the section for Advanced Fire Fighting	The type and scale of the problem is promptly identified and initial actions conform with the emergency procedures and contingency plans for the ship Evacuation, emergency shutdown and isolation procedures are appropriate to the nature of the emergency and are implemented promptly The order of priority, and the levels and time-scales of making reports and informing personnel on board, are relevant to the nature of the emergency and reflect the urgency of the problem
Operate life-saving appliances	*Life-saving* Ability to organize abandon ship drills and knowledge of the 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 protective aids Knowledge of survival at sea techniques	Assessment of evidence obtained from approved training and experience as set out in the section for Survival Craft and Rescue Boats	Actions responding to abandon ship and survival situations are appropriate to the prevailing circumstances and conditions and comply with accepted safety practices and standards
Apply medical first aid on board ship	*Medical aid* Practical application of medical guides and advice by radio, including the ability to take effective action based on such knowledge in the case of accidents or illnesses that are likely to occur on board ship	Assessment of evidence obtained from approved training set out in the section for Medical First Aid	The identification of probable cause, nature and extent of injuries or conditions is prompt and treatment minimizes immediate threat to life
Monitor compliance with legislative requirements	Basic working knowledge of the relevant IMO conventions concerning safety of life at sea and protection of the environment	Assessment of evidence obtained from examination or approved training	Legislative requirements relating to safety of life at sea and protection of the marine environment correctly identified

2. Masters/Chief Mates:

Standard of competence

1 Every candidate for certification as master or chief mate of ships of 500 gross tonnage or more shall be required to demonstrate the competence to undertake, at the management level, the tasks, duties and responsibilities listed in the first column of the following table.

2 The minimum knowledge, understanding and proficiency required for certification is listed in the second column of the following table. This incorporates, expands and extends in depth the subjects listed in the second column of the table in section 1 for Officers in Charge of a Navigational Watch.

3 Bearing in mind that the master has ultimate responsibility for the safety of the ship, its passengers, crew and cargo, and for the protection of the marine environment against pollution by the ship and that a chief mate shall be in a position to assume that responsibility at any time, assessment in these subjects shall be designed to test their ability to assimilate all available information that affects the safety of the ship, its passengers, crew and cargo, or the protection of the marine environment.

4 The level of knowledge of the subjects listed in the second column of the following table shall be sufficient to enable the candidate to serve in the capacity of master or chief mate.

5 The level of theoretical knowledge, understanding and proficiency required under the different sections in the second column of the following table may be varied according to whether the certificate is to be valid for ships of 3,000 gross tonnage or more for ships of between 500 gross tonnage and 3,000 gross tonnage.

6 Training and experience to achieve the necessary level of theoretical knowledge, understanding and proficiency shall take into account the relevant requirements of this part and the guidance given in part B of the STCW Code.

7 Every candidate for certification shall be required to provide evidence of having achieved the required standard of competence in accordance with the methods for demonstrating competence and criteria for evaluating competence tabulated in the third and fourth columns of the following table.

Near-coastal voyages

8 An Administration may issue a certificate restricted to service on ships engaged exclusively on near-coastal voyages and, for issue of such a certificate, may exclude such subjects as are not applicable to the waters or ships concerned, bearing in mind the effect on the safety of all ships which may be operating in the same waters.

2. Masters/Chief Mates:
Function: Navigation

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan a voyage and conduct navigation	Voyage planning and navigation for all conditions by acceptable methods of plotting ocean tracks, taking into account, e.g.: • restricted waters • meteorological conditions • ice • restricted visibility • traffic separation schemes • areas of extensive tidal effects Routing in accordance with the General Principles on Ships' Routing Reporting in accordance with the Guidelines and Criteria for Ship Reporting Systems	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved simulator training, where appropriate • approved laboratory equipment training using: chart catalogues, charts, nautical publications and ships particulars	The equipment, charts and nautical publications required for the voyage are enumerated and appropriate to the safe conduct of the voyage. The reasons for the planned route are supported by facts and statistical data obtained from relevant sources and publications. Positions, courses, distances and time calculations are correct within acceptable accuracy standards for navigational equipment. All potential navigational hazards are accurately identified.
Determine position and the accuracy of resultant position fix by any means	*Position determination in all conditions*: • by celestial observations • by terrestrial observations, including the ability to use appropriate charts, notices to mariners and other publications to assess the accuracy of the resulting position fix • using modern electronic navigation aids, with specific knowledge of their operating principles, limitations, sources of error, detection of misrepresentation of information and methods of correction to obtain accurate position fixing	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved simulator training, where appropriate • approved laboratory equipment training using: • charts nautical almanac, plotting sheets, chronometer, sextant and calculator • charts, navigational publications and instruments (azimuth mirror, sextant, log, sounding equipment, compass) and manufacturers manuals • radar, Decca, Loran, satellite navigation systems and appropriate navigational charts and publications	The primary method chosen for fixing the ship's position is the most appropriate to the prevailing circumstances and conditions The fix obtained by celestial observations is within accepted accuracy levels The fix obtained by terrestrial observations is within accepted accuracy levels The accuracy of the resulting fix is properly assessed The fix obtained by the use of electronic navigational aids is within the accuracy standards of the systems in use. The possible errors affecting the accuracy of the resulting position are stated and methods of minimizing the effects of system errors on the resulting position are properly applied
Determine and allow for compass errors	Ability to determine and allow for errors of the magnetic and gyro-compasses Knowledge of the principles of magnetic and gyro-compasses An understanding of systems under the control of the master gyro and a knowledge of the operation and care of the main types of gyro-compass	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved simulator training, where appropriate • approved laboratory equipment training using: celestial observations, terrestrial bearings and comparison between magnetic and gyro-compasses	The method and frequency of checks for errors of magnetic and gyro-compasses ensures accuracy of information

2. Masters/Chief Mates:
Function: Navigation (contd.)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Coordinate search and rescue operations	A thorough knowledge of and ability to apply the procedures contained in the IMO *Merchant Ship Search and Rescue Manual (MERSAR).*	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved simulator training, where appropriate • approved laboratory equipment training using: relevant publications, charts, meteorological data, particulars of ships involved, radio communication equipment and other available facilities and one or more of the following: • approved SAR training course • approved simulator training, where appropriate • approved laboratory equipment training	The plan for coordinating search and rescue operations is in accordance with international guidelines and standards. Radio communications are established and correct communications procedures are followed at all stages of the search and rescue operations.
Establish watch-keeping arrangements and procedures	Thorough knowledge of content, application and intent of the International regulations for Preventing Collisions at Sea. Thorough knowledge of the content, application and intent of the Principles to be observed in keeping a navigational watch. Effective bridge teamwork procedures.	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved simulator training, where appropriate	Watch-keeping arrangements and procedures are established and maintained in compliance with international regulations and guidelines so as to ensure the safety of navigation, protection of the marine environment and safety of the ship and persons on board.
Maintain safe navigation through the use of radar and ARPA and modern navigation systems to assist command decision-making *Note*: Training and assessment in the use of ARPA is not required for those who serve exclusively on ships not fitted with ARPA. This limitation shall be reflected in the endorsement issued to the seafarer concerned.	An appreciation of system errors and thorough understanding of the operational aspects of modern navigational systems, including radar and ARPA. Blind pilotage techniques Evaluation of navigational information derived from all sources, including radar and ARPA, in order to make and implement command decisions for collision avoidance and for drecting the safe navigation of the ship. The inter-relationship and optimum use of all navigational data available for conducting navigation.	Assessment of evidence obtained from approved radar simulator and ARPA simulator training.	Information obtained from radar and ARPA is correctly interpreted and analyzed, taking into account the limitations of the equipment and prevailing circumstances and conditions. Action taken to avoid a close encounter or collision with another vessel is in accordance with the International Regulations for Preventing Collisions at Sea.

2. Masters/Chief Mates:
Function: Navigation (contd.)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Forecast weather and oceanographic conditions	Ability to understand and interpret a synoptic chart and to forecast area weather, taking into account local weather conditions and information received by weather fax. Knowledge of the characteristics of various weather systems, including tropical revolving storms and avoidance of storm centers and the dangerous quadrants. Knowledge of ocean current systems Ability to calculate tidal conditions Use all appropriate navigational publications on tides and currents	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved laboratory equipment training	The likely weather conditions predicted for a determined period are based on all available information. Actions taken to maintain safety of navigation minimize any risk to safety of the ship. Reasons for intended action are backed by statistical data and observations of the actual weather conditions.
Respond to navigational emergencies	Precautions when beaching a ship Action to be taken if grounding is imminent, and after grounding Re-floating a grounded ship with and without assistance Action to be taken if collision is imminent and following a collision or impairment of the watertight integrity of the hull by any cause Assessment of damage control Emergency steering Emergency towing arrangements and towing procedures	Examination and assessment of evidence obtained from practical instruction, in-service experience and practical drills in emergency procedures	The type and scale of any problem is promptly identified and decisions and actions minimize the effects of any malfunction of the ship's systems Communications are effective and comply with established procedures Decisions and actions maximize safety of persons on board
Maneuver and handle a ship in all conditions	Maneuver and handling a ship in all conditions, including: • maneuvers when approaching pilot stations and embarking or disembarking pilots, with due regard to weather, tide, headreach and stopping distances • handling ship in rivers, estuaries and restricted waters, having regard to the effects of current, wind and restricted water on helm response • application of constant rate of turn techniques • maneuvering in shallow water, including the reduction in under-keel clearance caused by squat, rolling and pitching • interaction between passing ships and between own ship and nearby banks (canal effect) • berthing and unberthing under various conditions of wind, tide and current with and without tugs • ship and tug interaction • use of propulsion and maneuvering systems	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved simulator training, where appropriate • approved manned scale ship model, where appropriate	All decisions concerning berthing and anchoring are based on a proper assessment of the ship's maneuvering and engine characteristics and the forces to be expected while berthed alongside or lying at anchor While under way, a full assessment is made of possible effects of shallow and restricted waters, ice, banks, tidal conditions, passing ships and own ship's bow and stern wave so that the ship can be safely maneuvered under various conditions of loading and weather

2. Masters/Chief Mates:

Function: Navigation (contd.)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Maneuver and handle a ship in all conditions (*continued*)	• choice of anchorage; anchoring with one or two anchors in limited anchorages and factors involved in determining the length of anchor cable to be used • dragging anchor; clearing fouled anchors • dry-docking, both with and without damage • management and handling of ships in heavy weather, including assisting a ship or aircraft in distress; towing operations; means of keeping an unmanageable ship out of trough of the sea, lessening drift and use of oil • precautions in maneuvering to launch rescue boats or survival craft in bad weather • methods of taking on board survivors from rescue boats and survival craft • ability to determine the maneuvering and propulsion characteristics of common types of ships with special reference to stopping distances and turning circles at various draughts and speeds • importance of navigating at reduced speed to avoid damage caused by own ship's bow wave and stern wave • practical measures to be taken when navigating in or near ice or in conditions of ice accumulation on board • use of, and maneuvering in and near, traffic separation schemes and in vessel traffic service (VTS) areas		
Operate remote controls of propulsion plant and engineering systems and services	Operating principles of marine power plants Ships' auxiliary machinery General knowledge of marine engineering terms	Examination and assessment of evidence from one or more of the following: approved in-service experience approved simulator training, where appropriate	Plant, auxiliary machinery and equipment is operated in accordance with technical specifications and within safe operating limits at all times

2. Masters/Chief Mates:

Function: Cargo Handling and Stowage

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Knowledge of and ability to apply relevant international regulations, codes and standards concerning the safe handling, stowage, securing and transport of cargoes Knowledge of the effect on trim and stability of cargoes and cargo operations Use of stability and trim diagrams and stress-calculating equipment, including automatic data-based (ADB) equipment, and knowledge of loading cargoes and ballasting in order to keep hull stress within acceptable limits Stowage and securing of cargoes on board ships, including cargo-handling gear and securing and lashing equipment Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing General knowledge of tankers and tanker operations	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved simulator training, where applicable using: stability, trim and stress tables, diagrams and stress-calculating equipment.	The frequency and extent of cargo condition monitoring is appropriate to its nature and prevailing conditions Unacceptable or unforeseen variations in the condition or specification of the cargo is promptly recognized and remedial action is immediately taken and designed to safeguard the safety of the ship and those on board Cargo operations are planned and executed in accordance with established procedures and legislative requirements Stowage and securing of cargoes ensures that stability and stress conditions remain within safe limits at all times during the voyage
Carriage of dangerous cargoes	International regulations, standards, codes and recommendations on the carriage of dangerous cargoes, including the International Maritime Dangerous Goods (IMDG) Code and the Code for Safe Practice for Solid Bulk Cargoes (BC Code) Carriage of dangerous, hazardous and harmful cargoes; precautions during loading and unloading and care during the voyage	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved simulator training, where appropriate • approved specialist training	Planned distribution of cargo is based on reliable information and is in accordance with established guidelines and legislative requirements Information on dangers, hazards and special requirements is recorded in a format suitable for easy reference in the event of an incident

2. Masters/Chief Mates:

Function: Controlling Operation of the Ship and Care for Persons on Board

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Control trim, stability and stress	Understanding of fundamental principles of ship construction and the theories and factors affecting trim and stability and measures necessary to preserve trim and stability Knowledge of the effect on trim and stability of a ship in the event of damage to and consequent flooding of a compartment and countermeasures to be taken Knowledge of IMO recommendations concerning ship stability	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved training ship experience • approved simulator training, where appropriate	Stability and stress conditions are maintained within safe limits at all times
Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions Regard shall be paid especially to the following subjects: • certificates and other documents required to be carried on board ships by international conventions, how they may be obtained and their period of validity • responsibilities under the relevant requirements of the International Convention on Load Lines • responsibilities under the relevant requirements of the International Convention for the Safety of Life at Sea • responsibilities under the International Convention for the Prevention of Pollution from Ships • maritime declarations of health and requirements of the International Health regulations • responsibilities under international instruments affecting the safety of the ship, passengers, crew and cargo • methods and aids to prevent pollution of the marine environment by ships • national legislation for implementing international agreements and conventions	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved training ship experience • approved simulator training, where appropriate	Procedures for monitoring operations and maintenance comply with legislative requirements Potential non-compliance is promptly and fully identified Planned renewal and extension of certificates ensures continued validity of surveyed items and equipment
Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems	A thorough knowledge of life-saving appliance regulations (International Convention for the Safety of Life at Sea) Organization of fire and abandon ship drills Maintenance of operational condition of life-saving, fire-fighting and other safety systems Actions to be taken to protect and safeguard all persons on board in emergencies Actions to limit damage and salve the ship following a fire, explosion, collision or grounding	Examination and assessment of evidence obtained from practical instruction and approved in-service training and experience	Procedures for monitoring fire-detection and safety systems ensure that all alarms are detected promptly and acted upon in accordance with established emergency procedures

2. <u>Masters/Chief Mates</u>:

Function: Controlling the Operation of the Ship and Care for Persons on Board (contd.)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Develop emergency and damage control plans and handle emergency situations	Preparation of contingency plans for response to emergencies Ship construction, including damage control Methods and aids for fire prevention, detection and extinction functions and use of life-saving appliances	Examination and assessment of evidence obtained from approved in-service training and experience	Emergency procedures are in accordance with the established plans for emergency situations
Organize and manage the crew	A knowledge of personnel management, organization and training on board ship A knowledge of related international maritime conventions and recommendations, and national legislation	Examination and assessment of evidence obtained from approved in-service training and experience	The crew are allocated duties and informed of expected standards of work and behavior in a manner appropriate to the individuals concerned Training objectives and activities are based on an assessment of current competence and capabilities and operational requirements
Organize an manage the provision of medical care on board	A thorough knowledge of the use and contents of the following publications: • *International Medical Guide for Ships* or equivalent national publication • Medical section of the *International Code of Signals* • *Medical First Aid Guide for Use in Accidents Involving Dangerous Goods*	Examination and assessment of evidence obtained from approved training	Action taken and procedures followed correctly apply and make full use of advice available

3. <u>Ratings Forming Part of a Navigational Watch</u>:

Standard of competence

1 Every rating forming part of a navigational watch on a seagoing ship of 500 gross tonnage or more shall be required to demonstrate the competence to perform the navigation function at the support level, as specified in the first column of the following table.

2 The minimum knowledge, understanding and proficiency required of ratings forming part of a navigational watch on a seagoing ship of 500 gross tonnage or more is listed in the second column of the following table.

3 Every candidate for certification shall be required to provide evidence of having achieve the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence specified in the third and fourth columns of the following table. The reference to "practical test" in the third column may include approved shore-based training in which the students undergo practical testing.

4 Where there are no tables of competence for the support level in respect to certain functions, it remains the responsibility of the Administration to determine the appropriate training, assessment and certification requirements to be applied to personnel designated to perform those functions at the support level.

3. <u>Ratings Forming Part of a Navigational Watch</u>:
Function: Navigation

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Steer the ship and comply with helm orders also in the English language	Use of magnetic and gyro-compasses Helm orders Change-over from automatic pilot to hand steering and vice versa	Assessment of evidence obtained from: • practical test, or • approved in-service experience or approved training ship experience	A steady course is steered within acceptable limits having regard to the area of navigation and prevailing sea state. Alterations of course are smooth and controlled Communications are clear and concise at all times and orders are acknowledged in a seaman-like manner
Keep a proper look-out by sight and hearing	Responsibilities of a look-out, including reporting the approximate bearing of a sound signal, light or other object in degrees or points	Assessment of evidence obtained from: practical test, or approved in-service experience or approved training ship experience	Sound signals, lights and other objects are promptly detected and their appropriate bearing in degrees or points is reported to the officer of the watch
Contribute to monitoring and controlling a safe watch	Shipboard terms and definitions Use of appropriate internal communication and alarm systems Ability to understand orders and to communicate with the officer of the watch in matters relevant to watch-keeping duties Procedures for the relief, maintenance and hand-over of a watch Information required to maintain a safe watch Basic environmental protection procedures	Assessment of evidence obtained from approved in-service experience or approved training ship experience	Communications are clear and concise and advice/clarification is sought from the officer on watch where watch information or instructions are not clearly understood Maintenance, hand-over and relief of the watch is in conformity with accepted practices and procedures
Operate emergency equipment and apply emergency procedures	Knowledge of emergency duties and alarm signals Knowledge of pyrotechnic distress signals; satellite EPIRBs and SARTs Avoidance of false distress alerts and action to be taken in event of accidental activation	Assessment of evidence obtained from demonstration and approved in-service experience or approved training ship experience	Initial action on becoming aware of an emergency or abnormal situation is in conformity with established practices and procedures Communications are clear and concise at all times and orders are acknowledged in a seaman-like manner the integrity of emergency and distress alerting systems is maintained at all times

4. Officers in Charge of an Engineering Watch:

Training

1 The education and training required by paragraph 2.3 of regulation III/1 shall include training in mechanical and electrical workshop skills relevant to the duties of an engineer officer.

On-board training

2 Every candidate for certification as officer in charge of an engineering watch in a manned engine-room or as designated duty engineer in a periodically unmanned engine-room of ships powered by main propulsion machinery of 750 kW or more shall follow an approved program of on-board training which:

.1 ensures that during the required period of seagoing service the candidate receives systematic practical training and experience in the tasks, duties and responsibilities of an officer in charge of an engine-room watch, taking into account the guidance given in section B-III/1 of the STCW code;

.2 is closely supervised and monitored by a qualified and certificated engineer officer aboard the ships in which the approved seagoing service is performed; and

.3 is adequately documented in a training record book.

Standard of competence

3 Every candidate for certification as officer in charge of an engineering watch in a manned engine-room or as designated duty engineer in a periodically unmanned engine-room on a seagoing ship powered by main propulsion machinery of 750 kW propulsion power or more shall be required to demonstrate ability to undertake, at the operational level, the tasks, duties and responsibilities listed in the first column of the following table.

4 The minimum knowledge, understanding and proficiency required for certification is listed in the second column of the following table.

5 The level of knowledge of the material listed in the second column of the following table shall be sufficient for engineer officers to carry out their watch-keeping duties.

6 Training and experience to achieve the necessary theoretical knowledge, understanding and proficiency shall be based on section A-VIII/2, part 3-2, Principles to be observed in keeping an engineering watch, and shall take into account the relevant requirements of this part and the guidance given in part B of the STCW Code.

7 Candidates for certification for service in ships in which steam boilers do not form part of their machinery may omit the relevant requirements of the following table. A certificate

awarded on such a basis shall not be valid for service on ships in which steam boilers form part of a ship's machinery until the engineer officer meets the standard of competence in the items omitted from the following table. Any such limitation shall be stated on the certificate and in the endorsement.

8 Every candidate for certification shall be required to provide evidence of having achieved the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in the third and fourth columns of the following table.

Near-coast voyages

9 the requirements of paragraphs 2.2 and 2.3 of regulation III/1 may be varied for engineer officers of ships powered by main propulsion machinery of less than 3,000 kW propulsion power engaged on near-coastal voyages, bearing in

Near-coast voyages (contd.)

mind the effect on the safety of all ships which may be operating in the same waters. Any such limitation shall be stated on the certificate and in the endorsement.

4. Officers in Charge of an Engineering Watch:
Function: Marine Engineering

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Use appropriate tools for fabrication and repair operations typically performed on ships	Characteristics and limitations of materials used in construction and repair of ships and equipment Characteristics and limitations of processes used for fabrication and repair Properties and parameters considered in the fabrication and repair of systems and components Application of safe working practices in the workshop environment	Assessment of evidence obtained from one or more of the following: • approved workshop skills training • approved practical experience and tests	Identification of important parameters for fabrication of typical ship related components is appropriate Selection of material is appropriate Fabrication is to designated tolerances Use of equipment and machine tools is appropriate and safe
Use hand tools and measuring equipment for dismantling, maintenance, repair and re-assembly of shipboard plant and equipment	Design characteristics and selection of materials in construction of equipment Interpretation of machinery drawings and handbooks Operational characteristics of equipment and system	Assessment of evidence obtained from one or more of the following: • approved workshop skills training • approved practical experience and tests	Safety procedures followed are appropriate Selection of tools and spare gear is appropriate Dismantling, inspecting, repairing and re-assembling equipment is in accordance with manuals and good practice Re-commissioning and performance testing is in accordance with manuals and good practice
Use hand tools, electrical and electronic measuring and test equipment for fault finding, maintenance and repair operations	Safety requirements for working on shipboard electrical systems Construction and operational characteristics of shipboard AC and DC electrical systems and equipment Construction and operation of electrical test and measuring equipment	Assessment of evidence obtained from one or more of the following: approved workshop skills training approved practical experience and tests	Implementation of safety procedures is satisfactory Selection and use of test equipment is appropriate and interpretation of results is accurate Selection of procedures for the conduct of repair and maintenance is in accordance with manuals and good practice Commissioning and performance testing of equipment and systems brought back into service after repair is in accordance with manuals and good practice
Maintain a safe engineering watch	Thorough knowledge of Principles to be observed in keeping an engineering watch, including: • duties associated with taking over and accepting a watch • routine duties undertaken during a watch • maintenance of the machinery space logbook and the significance of the readings taken • duties associated with handing over a watch Safety and emergency shutdown procedures; change-over of remote/automatic to local control of all systems	Assessment of evidence obtained from one or more of the following: approved in-service experience approved training ship experience approved simulator training, where appropriate approved laboratory equipment training	The conduct, hand-over and relief of the watch conforms with accepted principles and procedures The frequency and extent of monitoring of engineering equipment and systems conforms to manufacturers' recommendations and accepted principles and procedures, including Principles to be observed in keeping an engineering watch A proper record is maintained of the movements and activities relating to the ship's engineering systems

4. Officers in Charge of an Engineering Watch:

Function: Marine Engineering

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Maintain a safe engineering watch (*continued*)	Safety precautions to be observed during a watch and immediate actions to be taken in the event of fire or accident, with particular reference to oil systems		
Use English in written and oral form	Adequate knowledge of the English language to enable the officer to use engineering publications and to perform engineering duties	Examination and assessment of evidence from practical instruction	English language publications relevant to engineering duties are correctly interpreted Communications are clear and understood
Operate main and auxiliary machinery and associated control systems	Main and auxiliary machinery: • preparation of main machinery and preparation of auxiliary machinery for operation • operation of steam boilers, including combustion systems • methods of checking water level in steam boilers and action necessary if water level is abnormal • location of common faults in machinery and plant in engine and boiler rooms and action necessary to prevent damage	Examination and assessment of evidence obtained from one or more of the following: approved in-service experience approved training ship experience approved simulator training, where appropriate approved laboratory equipment training	Operations are planned and carried out in accordance with established rules and procedures to ensure safety of operations and avoid pollution of the marine environment Deviations from the norm are promptly identified The output of plant and engineering systems consistently meets requirements, including bridge orders relating to changes in speed and direction The causes of machinery malfunctions are promptly identified and actions are designed to ensure the overall safety of the ship and the plant, having regard to the prevailing circumstances and conditions
Operate pumping systems and associated control systems	Pumping systems: • routine pumping operations • operation of bilge, ballast and cargo pumping systems	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved training ship experience • approved simulator training, where appropriate • approved laboratory equipment training	Operations are planned and carried out in accordance with established rules and procedures to ensure safety of operations and avoid pollution of the marine environment

4. <u>Officers in Charge of an Engineering Watch</u>:
Function: Electrical, Electronic and Control Engineering

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Operate alternators, generators and control systems	*Generating plant* Appropriate basic electrical knowledge and skills Preparing, starting, coupling and changing over alternators or generators Location of common faults and actions to prevent damage *Control systems* Location of common faults and action to prevent damage	Examination and assessment of evidence obtained from on or more of the following: • approved in-service experience • approved training ship experience • approved simulator training, where appropriate • approved laboratory equipment training	Operations are planned and carried out in accordance with established rules and procedures to ensure safety of operations

4. <u>Officers in Charge of an Engineering Watch</u>:
Function: Maintenance and Repair

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Maintain marine engineering systems, including control systems	*Marine systems* Appropriate basic mechanical knowledge and skills *Safety and emergency procedures* Safe isolation of electrical and other types of plant and equipment required before personnel are permitted to work on such plant or equipment Undertake maintenance and repair to plant and equipment	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved training ship experience • approved simulator training, where appropriate • approved laboratory equipment training	Isolation, dismantling and re-assembly of plant and equipment is in accordance with accepted practices and procedures. Action taken leads to the restoration of plant by the method most suitable and appropriate to the prevailing circumstances and conditions

4. Officers in Charge of an Engineering Watch:

Function: Controlling the Operation of the Ship and Care for Persons on Board

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Ensure compliance with pollution prevention requirements	*Prevention of pollution of the marine environment* Knowledge of the precautions to be taken to prevent pollution of the marine environment Anti-pollution procedures and all associated equipment	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved training ship experience	Procedures for monitoring shipboard operations and ensuring compliance with MARPOL requirements are fully observed
Maintain sea-worthiness of the ship	*Ship stability* Working knowledge and application of stability, trim and stress tables, diagrams and stress-calculating equipment Understanding of the fundamentals of watertight integrity Understanding of fundamental actions to be taken in the event of partial loss of intact buoyancy Ship construction General knowledge of the principal structural members of a ship and the proper names for the various parts	Examination and assessment of evidence obtained from one or more of the following: • approved in-service experience • approved training ship experience • approved simulator training, where appropriate • approved laboratory equipment training	The stability conditions comply with the IMO intact stability criteria under all conditions of loading Actions to ensure and maintain the watertight integrity of the ship are in accordance with accepted practice.
Prevent, control and fight fires on board	*Fire prevention and fire-fighting appliances* Knowledge of fire prevention Ability to organize fire drills Knowledge of classes and chemistry of fire Knowledge of fire-fighting systems Action to be taken in the event of fire, including fires involving oil systems	Assessment of evidence obtained from approved fire-fighting training and experience set out in the section for Advanced Fire Fighting	The type and scale of the problem is promptly identified and initial actions conform with the emergency procedures and contingency plans for the ship Evacuation, emergency shutdown and isolation procedures are appropriate to the nature of the emergency and are implemented promptly The order of priority, and the levels and time-scales of making reports and informing personnel on board, are relevant to the nature of the emergency and reflect the urgency of the problem
Operate life-saving appliances	*Life-saving* Ability to organize abandon ship drills and knowledge of the 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 protective aids Knowledge of survival at sea techniques	Assessment of evidence obtained from approved training and experience as set out in the section on Survival Craft and Rescue Boats	Actions in responding to abandon ship and survival situations are appropriate to the prevailing circumstances and conditions and comply with accepted safety practices and standards
Apply medical first aid on board ship	*Medical aid* Practical application of medical guides and advice by radio, including the ability to take effective action based on such knowledge in the case of accidents or illnesses that are likely to occur on board ship	Assessment of evidence obtained from approved training as set out in the section on Medical First Aid	Identification of probable cause, nature and extent of injuries or conditions is prompt and treatment minimizes immediate threat to life
Monitor compliance with legislative requirements	Basic working knowledge of the relevant IMO conventions concerning safety of life at sea and protection of the marine environment	Assessment of evidence obtained from examination or approved training	Legislative requirements relating to safety of life at sea and protection of the marine environment are correctly identified

5. Chief Engineer Officers/Second Engineer Officers:

Standard of Competence

1 Every candidate for certification as chief engineer officer and second engineer officer of seagoing ships powered by main propulsion machinery of 3,000kW power or more shall be required to demonstrate ability to undertake, at the management level, the tasks, duties and responsibilities listed in the first column of the following table.

2 The minimum knowledge, understanding and proficiency required for certification is listed in the second column of the following table. This incorporates, expands and extends in depth the subjects listed in the second column of the table for Officers in Charge of an Engineering Watch.

3 Bearing in mind that a second engineer officer shall be in a position to assume the responsibilities of the chief engineer at any time, assessment in these subjects shall be designed to test the candidate's ability to assimilate all available information that affects the safe operation of the ship's machinery and the protection of the marine environment.

4 The level of knowledge of the subjects listed in the second column of the following table shall be sufficient to enable the candidate to serve in the capacity of chief engineer officer or second engineer officer.

5 Training and experience to achieve the necessary level of theoretical knowledge, understanding and proficiency shall take into account the relevant requirements of this part and the guidance given in part B of this Code.

6 The Administration may omit knowledge requirements for types of propulsion machinery other than those machinery installations for which the certificate to be awarded shall be valid. A certificate awarded on such a basis shall not be valid for any category of machinery installation which has been omitted until the engineer officer proves to be competent in these knowledge requirements. Any such limitation shall be stated on the certificate and in the endorsement.

7 Every candidate for certification shall be required to provide evidence of having achieved the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in the third and fourth columns of the following table.

Near-coastal voyages

8 The level of knowledge, understanding and proficiency required under the different sections listed in the second column of the following table may be varied for officers of ships with limited propulsion power engaged on near-coastal voyages, as considered necessary, bearing in mind the effect on the safety of all ships that may be operating in the same waters. Any such limitation shall be stated on the certificate and in the endorsement.

5. Chief Engineer Officers/Second Engineer Officers

Function: Marine Engineering

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and schedule operations	*Theoretical knowledge* Thermodynamics and heat transmission Mechanics and hydromechanics Operating principles of ship power installations (diesel, steam and gas turbine) and refrigeration Physical and chemical properties of fuels and lubricants Technology of materials Naval architecture and ship construction, including damage control	Examination and assessment of evidence from one or more of the following: • approved in-service experience; • approved training ship experience • approved simulator training, where appropriate	The planning and preparation of operations is suited to the design parameters of the power installation and to the requirements of the voyage
Start up and shut down main propulsion and auxiliary machinery, including associated systems		Examination and assessment of evidence from one or more of the following: • approved in-service experience; • approved training ship experience • approved simulator training, where appropriate	The methods of preparing the start-up and of making available fuels, lubricants, cooling water and air are the most appropriate Checks of pressures, temperatures and revolutions during the start-up and warm-up period are in accordance with technical specifications and agreed work plans Surveillance of main propulsion plant and auxiliary systems is sufficient to maintain safe operating conditions The methods of preparing the shut-down and of supervising the cooling down of the engine are the most appropriate
Operate, monitor and evaluate engine performance and capacity	*Practical knowledge* Operation and maintenance of: • marine diesel engines • marine steam propulsion plant • marine gas turbines Operation and maintenance of auxiliary machinery, including pumping and piping systems, auxiliary boiler plant and steering-gear systems	Examination and assessment of evidence from one or more of the following: • approved in-service experience; • approved training ship experience • approved simulator training, where appropriate	The methods of measuring the load capacity of the engines are in accordance with technical specifications Performance is checked against bridge orders Performance levels are in accordance with technical specifications
Maintain safety of engine equipment, systems and services	Operation, testing and maintenance of control systems Operation and maintenance of cargo-handling equipment and deck machinery	Examination and assessment of evidence from one or more of the following: • approved in-service experience; • approved training ship experience	Arrangements for ensuring the safe and efficient operation and condition of the machinery installation are suitable for all modes of operation
Manage fuel and ballast operations	Operation and maintenance of machinery, including pumps and piping systems	Examination and assessment of evidence from one or more of the following: • approved in-service experience; • approved training ship experience • approved simulator training, where appropriate	Fuel and ballast operations meet operational requirements and are carried out so as to prevent pollution of the marine environment

5. Chief Engineer Officers/Second Engineer Officers

Function: Marine Engineering (contd.)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Use internal communication systems	Operation of all internal communication systems on board	Examination and assessment of evidence from one or more of the following: • approved in-service experience; • approved training ship experience • approved simulator training, where appropriate • approved laboratory equipment training	Transmission and reception of messages are consistently successful Communication records are complete, accurate and comply with statutory requirements

5. Chief Engineer Officers/Second Engineer Officers

Function: Electrical, Electronic and control Engineering

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Operate electrical and electronic control equipment	*Theoretical knowledge* Marine electrotechnology, electronics and electrical equipment Fundamentals of automation, instrumentation and control systems *Practical knowledge* Operation, testing and maintenance of electrical and electronic control equipment, including fault diagnostics	Examination and assessment of evidence from one or more of the following: • approved in-service experience; • approved training ship experience • approved simulator training, where appropriate • approved laboratory equipment training	Operation of equipment and system is in accordance with operating manuals Performance levels are in accordance with technical specifications
Test, detect faults and maintain and restore electrical and electronic control equipment to operating condition		Examination and assessment of evidence from one or more of the following: • approved in-service experience; • approved training ship experience • approved simulator training, where appropriate • approved laboratory equipment training	Maintenance activities are correctly planned in accordance with technical, legislative, safety and procedural specifications The effect of malfunctions on associated plant and systems is accurately identified, ship's technical drawings are correctly interpreted, measuring and calibrating instruments are correctly used and actions taken are justified

5. Chief Engineer Officers/Second Engineer Officers

Function: Maintenance and Repair

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Organize safe maintenance and repair procedures	*Theoretical knowledge* Marine engineering practice *Practical knowledge* Organizing and carrying out safe maintenance and repair procedures	Examination and assessment of evidence from one or more of the following: • approved in-service experience; • approved training ship experience • approved workshop training	Maintenance activities are correctly planned and carried out in accordance with technical, legislative, safety and procedural specifications Appropriate plans, specifications, materials and equipment are available for maintenance and repair Action taken leads to the restoration of plant by the most suitable method
Detect and identify the cause of machinery malfunctions and correct faults	*Practical knowledge* Detection of machinery malfunction, location of faults and action to prevent damage	Examination and assessment of evidence from one or more of the following: • approved in-service experience; • approved training ship experience • approved simulator training, where appropriate	The methods of comparing actual operating conditions are in accordance with recommended practices and procedures Actions and decisions are in accordance with recommended operating specifications and limitations
Ensure safe working practices	*Practical knowledge* Safe working practices	Examination and assessment of evidence from one or more of the following: • approved in-service experience; • approved training ship experience	Working practices are in accordance with legislative requirements, codes of practice, permits to work and environmental concerns

5. Chief Engineer Officers/Second Engineer Officers

Function: Controlling the Operation of the Ship and Care for Persons on Board

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Control trim, stability and stress	Understanding of fundamental principles of ship construction and the theories and factors affecting trim and stability and measures necessary to preserve trim and stability Knowledge of the effect on trim and stability of a ship in the event of damage to and consequent flooding of a compartment and countermeasures to be taken Knowledge of IMO recommendations concerning ship stability	Examination and assessment of evidence from one or more of the following: • approved in-service experience; • approved training ship experience • approved simulator training, where appropriate	Stability and stress conditions are maintained within safety limits at all times
Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea and protection of the marine environment	Knowledge of relevant international maritime law embodied in international agreements and conventions Regard shall be paid especially to the following subjects: • certificates and other documents required to be carried on board ships by international conventions, how they may be obtained and the period of their legal validity • responsibilities under the relevant requirements of the International Convention on Load Lines • responsibilities under the relevant requirements of the International Convention for the Safety of Life at Sea • responsibilities under the International Convention for the Prevention of Pollution from Ships • maritime declarations of health and the requirements of the International Health Regulations • responsibilities under international instruments affecting the safety of the ships, passengers, crew and cargo • methods and aids to prevent pollution of the environment by ships • knowledge of national legislation for implementing international agreements and conventions	Examination and assessment of evidence from one or more of the following: • approved in-service experience; • approved training ship experience • approved simulator training, where appropriate	Procedures for monitoring operations and maintenance comply with legislative requirements Potential non-compliance is promptly and fully identified Requirements for renewal and extension of certificates ensure continued validity of survey items and equipment
Maintain safety and security of the vessel, crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems	A thorough knowledge of life-saving appliance regulations (SOLAS) Organization of fire and abandon ship drills Maintenance of operational condition of life-saving, fire-fighting and other safety systems Actions to be taken to protect and safeguard all persons on board in emergencies Actions to limit damage & save the ship following fire, explosion, collision or grounding.	Examination and assessment of evidence obtained from practical instruction and approved in-service training and experience	Procedures for monitoring fire-detection and safety systems ensure that all alarms are detected promptly and acted upon in accordance with established emergency procedures

5. Chief Engineer Officers/Second Engineer Officers

Function: Controlling the Operation of the Ship and Care for Persons on Board (contd.)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Develop emergency and damage control plans and handle emergency situations	Ship construction, including damage control Methods and aids for fire prevention, detection and extinction Functions and use of life-saving appliances	Examination and assessment of evidence obtained from approved in service training and experience	Emergency procedures are in accordance with the established plans for emergency situations
Organize and manage the crew	A knowledge of personnel management, organization and training on board ships A knowledge of international maritime conventions and recommendations, and related national legislation	Examination and assessment of evidence obtained from approved in-service training and experience	The crew are allocated duties and informed of expected standards of work and behavior in a manner appropriate to the individuals concerned Training objectives and activities are based on an assessment of current competence and capabilities and operational requirements

6. Ratings Forming Part of an Engineering Watch:

Standard of Competence

1 Every rating forming part of an engine-room watch on a seagoing ship shall be required to demonstrate the competence to perform the marine engineering function at the support level, as specified in the first column of the following table.

2 The minimum knowledge, understanding and proficiency required of ratings forming part of an engine-room watch is listed in the second column of the following table.

3 Every candidate for certification shall be required to provide evidence of having achieved the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence specified in the third and fourth columns of the following table. The reference to "practical" test in the third column may include approved shore-based training in which the students undergo practical testing.

Where there are no standards of competence for the support level in respect to certain functions, it remains the responsibility of the Aministration to determine the appropriate training, assessment and certification requirements to be applied to personnel designated to perform those functions at the support level.

6. Ratings Forming Part of an Engineering Watch

Function: Marine Engineering

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Carry out a watch routine appropriate to the duties of a rating forming part of an engine-room watch Understand orders and be understood in matter relevant to watchkeeping duties	Terms used in machinery spaces and names of machinery and equipment Engine-room watch-keeping procedures Safe working practices as related to engine-room operations Basic environmental protection procedures Use of appropriate internal communication system Engine-room alarm systems and ability to distinguish between the various alarms, with special reference to fire-extinguishing gas alarms	Assessment of evidence obtained from one or more of the following: • approved in-service experience; • approved training ship experience; or • practical test	Communications are clear and concise and advice or clarification is sought from the officer of the watch where watch information or instructions are not clearly understood Maintenance, hand-over and relief of the watch is in conformity with accepted principles and procedures
For keeping a boiler watch: Maintain the correct water levels and steam pressures	Safe operation of boilers	Assessment of evidence obtained from one or more of the following: • approved in-service experience; • approved training ship experience; or • practical test	Assessment of boiler condition is accurate and based on relevant information available from local and remote indicators and physical inspections The sequence and timing of adjustments maintains safety and optimum efficiency
Operate emergency equipment and apply emergency procedures	Knowledge of emergency duties Escape routes from machinery spaces Familiarity with the location and use of fire-fighting equipment in the machinery spaces	Assessment of evidence obtained from demonstration and approved in-service experience or approved training ship experience	Initial action on becoming aware of an emergency or abnormal situation conforms with established procedures Communications are clear and concise at all times and orders are acknowledged in a seaman-like manner

7. <u>Radio Personnel/GMDSS Radio Operators</u>:

Standard of Competence

1 The minimum knowledge, understanding and proficiency required for certification of GMDSS radio personnel shall be sufficient for radio personnel to carry out their radio duties. The knowledge required for obtaining each type of certificate defined in the Radio Regulations shall be in accordance with those regulations. In addition, every candidate for certification shall be required to demonstrate ability to undertake the tasks, duties and responsibilities listed in the first column of the following table.

2 The knowledge, understanding and proficiency for endorsement under the Convention of certificates issued under the provisions of the Radio Regulations are listed in the second column of the following table.

3 The level of knowledge of the subjects listed in the second column of the following table shall be sufficient for the candidate to carry out his duties.

4 Every candidate shall provide evidence of having achieved the required standard of competence through:

.1 demonstration of competence to perform the tasks and duties and to assume responsibilities listed in the first column of the following table, in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in the third and fourth columns of the following table; and

.2 examination or continuous assessment as part of an approved course of training based on the material set out in the second column of the following table.

7. Radio Personnel/GMDSS Radio Operators

Function: Radiocommunications

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Transmit and receive information using GMDSS subsystems and equipment and fulfilling the functional requirements of GMDSS	In addition to the requirements of the Radio Regulations, a knowledge of: • search and rescue radiocommunications, including procedures in the *IMO Merchant Ship Search and Rescue Manual (MERSAR)* • the means to prevent the transmission of false distress alerts and the procedures to mitigate the effects of such alerts • ship reporting systems • radio medical services • use of the International Code of Signals and the Standard Marine Navigational Vocabulary as replaced by the Standard Marine Communication Phrases • the English language, both written and spoken, for the communication of information relevant to safety of life at sea *Note*: This requirement may be reduced in the case of the Restricted Radio Operator's Certificate	Examination and assessment of evidence obtained from practical demonstration of operational procedures using: • approved equipment • GMDSS communication simulator, where appropriate • radiocommunication laboratory equipment	Transmission and reception of communications comply with international regulations and procedures and are carried out efficiently and effectively English language messages relevant to the safety of the ship and persons on board and protection of the marine environment are correctly handled
Provide radio services in emergencies	The provision of radio services in emergencies such as: • abandon ship • fire on board • partial or full breakdown of radio installations Preventive measures for the safety of ship and personnel in connection with hazards related to radio equipment, including electrical and non-ionizing radiation hazards	Examination and assessment of evidence obtained from practical demonstration of operational procedures using: • approved equipment • GMDSS communication simulator, where appropriate • radiocommunication laboratory equipment	Response is carried out efficiently and effectively

8. <u>Emergency, Occupational Safety, Medical Care, and Survival Functions</u>:

FAMILIARIZATION TRAINING

1 Before being assigned to shipboard duties, all persons employed or engaged on a seagoing ship other than passengers, shall receive approved familiarization training in personal survival techniques or receive sufficient information and instruction, taking account of the guidance given in part B of the STCW Code, to be able to:

.1 communicate with other persons on board on elementary safety matters and understand safety information symbols, signs and alarm signals;

.2 know what to do if:
.2.1 a person falls overboard
.2.2 fire or smoke is detected, or
.2.3 the fire or abandon ship alarm is sounded;

.3 identify muster and embarkation stations and emergency escape routes;

.4 locate and don lifejackets;

.5 raise the alarm and have basic knowledge of the use of portable fire extinguishers;

.6 take immediate action upon encountering an accident or other medical emergency before seeking further medical assistance on board; and

.7 close and open fire, weathertight and watertight doors fitted in the particular ship other than those for hull openings.

BASIC TRAINING

2 Seafarers employed or engaged in any capacity on board ship on the business of that ship as part of the ship's complement with designated safety or pollution-prevention duties in the operation of the ship shall, before being assigned to any shipboard duties:

.1 receive appropriate approved basic training or instruction in:
.1.1 personal survival techniques as set out in the following section on Personal Survival Techniques
.1.2 fire prevention and fire fighting as set out in the following section on Fire Prevention and Fire Fighting
.1.3 elementary first aid as set out in the following section on Elementary First Aid
.1.4 personal safety and social responsibilities as set out in the following section on Personal Safety and Social Responsibilities

.2 be required to provide evidence of having achieved the required standard of competence to undertake the tasks, duties and responsibilities listed in the first column of the following tables within the previous five years through:

.2.1 demonstration of competence, in accordance with the methods and the criteria for evaluating competence tabulated in the third and fourth columns of the following table; and

.2.2 examination or continuous assessment as part of an approved training program in the subjects listed in the second column of the following table.

3 The Administration may, in respect of ships other than passenger ships of more than 500 gross tons engaged on international voyages and tankers, if it considers that a ship's size and the length or character of its voyage are such as to render the application of the full requirements of this section unreasonable or impracticable, exempt to that extent the seafarers on such a ship or class of ships from some of the requirements, bearing in mind the safety of people on board, the ship and property and the protection of the marine environment.

8. Emergency, Occupational Safety, Medical Care, and Survival Functions

Function: Personal Survival Techniques

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Survive at sea in the event of ship abandonment	Types of emergency situations which may occur, such as collision, fire, foundering Types of life-saving appliances normally carried on ships Equipment in survival craft Location of personal life-saving appliances Principles concerning survival, including: • value of training and drills • personal protective clothing and equipment • need to be ready for any emergency • actions to be taken when called to survival craft stations • actions to be taken when required to abandon ship • actions to be taken when in the water • actions to be taken when aboard a survival craft • main dangers to survivors	Assessment of evidence obtained from approved instruction or during attendance at an approved course or approved in-service experience and examination, including practical demonstration of competence to: • don a lifejacket • don and use an immersion suit • safely jump from a height into the water • right an inverted liferaft while wearing a lifejacket • swim while wearing a lifejacket • keep afloat without a lifejacket • board a survival craft from ship and water while wearing a lifejacket • take initial actions on boarding a survival craft to enhance chance of survival • stream a drogue or sea-anchor • operate survival craft equipment • operate location devices, including radio equipment	Actions taken on identifying muster signals is appropriate to the indicated emergency and complies with established procedures The timing and sequence of individual actions are appropriate to the prevailing circumstances and conditions and minimize potential dangers and threats to survival Method of boarding survival craft is appropriate and avoids dangers to other survivors Initial actions after leaving the ship and procedures and actions in water minimize threats to survival

8. Emergency, Occupational Safety, Medical Care, and Survival Functions

Function: Fire Prevention and Fire Fighting

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Minimize the risk of fire and maintain a state of readiness to respond to emergency situations involving fire	Shipboard fire-fighting organization Location of fire-fighting appliances and emergency escape routes The elements of fire and explosion (the fire triangle) Types and sources of ignition Flammable materials, fire hazards and spread of fire The need for constant vigilance Actions to be taken on board ship fire and smoke detection and automatic alarm systems Classification of fire and applicable extinguishing agents	Assessment of evidence obtained form approved instruction or attendance at an approved course	Initial actions on becoming aware of an emergency conform with accepted practices and procedures Action taken on identifying muster signals is appropriate to the indicated emergency and complies with established procedures
Fight and extinguish fires	Fire-fighting equipment and its location on board Instruction in: • fixed installations • firefighter's outfits • personal equipment • fire-fighting appliances and equipment • fire-fighting methods • fire-fighting agents • fire-fighting procedures • use of breathing apparatus for fighting fires and effecting rescues	Assessment of evidence obtained from approved instruction or during attendance at an approved course, including practical demonstration in spaces which provide truly realistic training conditions (e.g. simulated shipboard conditions) and, whenever possible and practical, in darkness, of the ability to: • use various types of portable fire extinguishers • use self-contained breathing apparatus • extinguish smaller fires, e.g. electrical fires, oil fires, propane fires • extinguish extensive fires with water, using jet and spray nozzles • extinguish fires with foam, powder or any other suitable chemical agent • enter and pass through, with life-line but without breathing apparatus, a compartment into which high-expansion foam has been injected • fight fire in smoke-filled enclosed spaces wearing self-contained breathing apparatus • extinguish fire with water fog or any other suitable fire-fighting agent in an accommodation room or simulated engine-room with fire and heavy smoke • extinguish oil fire with fog applicator and spray nozzles, dry chemical powder or foam applicator • effect a rescue in a smoke-filled space wearing breathing apparatus	Clothing and equipment are appropriate to the nature of the fire-fighting operations The timing and sequence of individual actions are appropriate to the prevailing circumstances and conditions Extinguishment of fire is achieved using appropriate procedures, techniques and fire-fighting agents Breathing apparatus procedures and techniques comply with accepted practices and procedures

8. Emergency, Occupational Safety, Medical Care, and Survival Functions

Function: Elementary First Aid

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Take immediate action upon encountering an accident or other medical emergency	Assessment of needs of casualties and threats to own safety Appreciation of body structure and functions Understanding of immediate measures to be taken in cases of emergency, including the ability to: • position casualty • apply resuscitation techniques • control bleeding • apply appropriate measures of basic shock management • apply appropriate measures in event of burns and scalds, including accidents caused by electrical current • rescue and transport a casualty • improvise bandages and use materials in emergency kit	Assessment of evidence obtained form approved instruction or during attendance at an approved course	The manner and timing of raising the alarm is appropriate to the circumstances of the accident or medical emergency The identification of probable cause, nature and extent of injuries is prompt and complete and the priority and sequence of actions is proportional to any potential threat to life Risk of further harm to self and casualty is minimized at all times

8. Emergency, Occupational Safety, Medical Care, and Survival Functions

Function: Personal Safety and Social Responsibilities

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Comply with emergency procedures	Types of emergency which may occur, such as collision, fire, foundering Knowledge of shipboard contingency plans for response to emergencies Emergency signals and specific duties allocated to crew members in the muster list; muster stations; correct use of personal safety equipment Action to take on discovering potential emergency, including fire, collision, foundering and ingress of water into the ship Action to take on hearing emergency alarm signals Value of training and drills Knowledge of escape routes and internal communication and alarm systems	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Initial action on becoming aware of an emergency conforms to established emergency response procedures Information given on raising alarm is prompt, accurate, complete and clear
Take precautions to prevent pollution of the marine environment	Effects of operational or accidental pollution of the marine environment Basic environmental protection procedures	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Organizational procedures designed to safeguard the marine environment are observed at all times
Observe safe working practices	Importance of adhering to safe working practices at all times Safety and protective devices available to protect against potential hazards aboard ship Precautions to be taken prior to entering enclosed spaces Familiarization with international measures concerning accident prevention and occupational health	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Safe working practices are observed and appropriate safety and protective equipment is correctly used at all times
Understand orders and be understood in relation to shipboard duties	ability to understand orders and to communicate with others in relation to shipboard duties	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Communications are clear and effective at all times
Contribute to effective human relationships on board ship	Importance of maintaining good human and working relationships aboard ship Social responsibilities; employment conditions; individual rights and obligations; dangers of drug and alcohol abuse	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Expected standards of work and behavior are observed at all times

8. <u>Emergency, Occupational Safety, Medical Care, and Survival Functions</u>:

PROFICIENCY IN SURVIVAL CRAFT AND RESCUE BOATS OTHER THAN FAST RESCUE BOATS

Standard of competence

1 Every candidate for a certificate of proficiency in survival craft and rescue boats other than fast rescue boats shall be required to demonstrate competence to undertake the tasks, duties and responsibilities listed in column 1 of the following table

2 The level of knowledge of subjects listed in the second column of the following table shall be sufficient to enable the candidate to launch and take charge of a survival craft or rescue boat in emergency situations.

3 Training and experience to achieve the necessary level of theoretical knowledge, understanding and proficiency shall take account of the guidance given in part B of the STCW Code.

4 Every candidate for certification shall be required to provide evidence of having achieved the required standard of competence within the previous five years through:

.1 demonstration of competence to undertake the tasks, duties and responsibilities listed in the first column of the following table, in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in the third and fourth columns of the following table; and

.2 examination or continuous assessment as part of an approved training program covering the material set out in the second column of the following table.

8. Emergency, Occupational Safety, Medical Care, and Survival Functions

Function: Survival Craft and Rescue Boats

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Take charge of a survival craft or rescue boat during and after launch	Construction and outfit of survival craft and rescue boats and individual items of their equipment Particular characteristics and facilities of survival craft and rescue boats Various types of device used for launching survival craft and rescue boats Methods of launching survival craft into a rough sea Methods of recovering survival craft Action to be taken after leaving the ship Methods of launching and recovering rescue boats in a rough sea	Assessment of evidence obtained from practical demonstration of ability to: • right an inverted liferaft while wearing a lifejacket • interpret the markings on survival craft as to the number of persons they are intended to carry • give correct commands for launching and boarding survival craft, clearing the ship and handling and disembarking persons from survival craft • prepare and safely launch survival craft and clear the ship's side quickly • safely recover survival craft and rescue boats using: inflatable liferaft and open or enclosed lifeboat with inboard engine	Preparation, boarding and launching of survival craft are within equipment limitations and enable survival craft to clear the ship safely Initial actions on leaving the ship minimize threat to survival Recovery of survival craft and rescue boats is within equipment limitations
Operate a survival craft engine	Methods of starting and operating a survival craft engine and its accessories together with the use of the fire extinguisher provided	Assessment of evidence obtained from practical demonstration of ability to start and operate an inboard engine fitted in an open or enclosed lifeboat	Propulsion is available and maintained as required for maneuvering
Manage survivors and survival craft after abandoning ship	Handling survival craft in rough weather Use of painter, sea-anchor and all other equipment Apportionment of food and water in survival craft Action taken to maximize detectability and location of survival craft Method of helicopter rescue Effects of hypothermia and its prevention; use of protective covers and garments, including immersion suits and thermal protective aids Use of rescue boats and motor lifeboats for marshaling liferafts and rescue of survivors and persons in the sea Beaching survival craft	Assessment of evidence obtained from practical demonstration of ability to: • row and steer a boat and steer by compass • use individual items of equipment of survival craft • rig devices to aid location	Survival management is appropriate to prevailing circumstances and conditions
Use locating devices, including communication and signaling apparatus and pyrotechnics	Radio life-saving appliances carried in survival craft, including satellite EPIRBs and SARTs Pyrotechnic distress signals	Assessment of evidence obtained from practical demonstration of ability to: • use portable radio equipment for survival craft • use signaling equipment, including pyrotechnics	Use and choice of communication and signaling apparatus is appropriate to prevailing circumstance and conditions
Apply first aid to survivors	Use of the first-aid kit and resuscitation techniques Management of injured persons, including control of bleeding and shock	Assessment of evidence obtained from practical demonstration of ability to deal with injured persons both during and after abandonment, using first-aid kit and resuscitation techniques	Identification of the probable cause, nature and extent of injuries or condition is prompt and accurate Priority and sequence of treatment minimizes any threat to life

8. <u>Emergency, Occupational Safety, Medical Care, and Survival Functions</u>:

PROFICIENCY IN FAST RESCUE BOATS

Standard of competence

5 Every candidate for a certificate of proficiency in fast rescue boats shall be required to demonstrate competence to undertake the tasks, duties and responsibilities listed in column 1 of the following table.

6 The level of knowledge of the subjects listed in the second column of the following table shall be sufficient to enable the candidate to launch and take charge of a fast rescue boat in emergency situations.

7 Training and experience to achieve the necessary level of theoretical knowledge, understanding and proficiency shall take account of the guidance given in part B of the STCW Code.

8 Every candidate for certification shall be required to provide evidence of having achieved the required standard of competence within the previous five years through:

.1 demonstration of competence to undertake the tasks, duties and responsibilities listed in the first column of the following table, in accordance with the methods of demonstrating competence and the criteria for evaluating competence tabulated in the third and fourth columns of the following table; and

.2 examination or continuous assessment as part of an approved training program covering the material set out in the second column of the following table.

8. Emergency, Occupational Safety, Medical Care, and Survival Functions

Function: Fast Rescue Boats

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Take charge of a fast rescue boat during and after launch	Construction and outfit of fast rescue boats and individual items of their equipment Particular characteristics and facilities of fast rescue boats Safety precautions during launch and recovery of a fast rescue boat Procedures for righting a capsized fast rescue boat How to handle a fast rescue boat in prevailing and adverse weather and sea conditions Navigational and safety equipment available in a fast rescue boat Search patterns and environmental factors affecting their execution Assessment of the readiness of fast rescue boats and related equipment for immediate use Knowledge of the maintenance, emergency repairs, normal inflation and deflation of buoyancy compartments of inflated fast rescue boats	Assessment of evidence obtained from practical demonstrations of ability to: • control safe launching and recovery of a fast rescue boat • right a capsized fast rescue boat • handle a fast rescue boat in prevailing weather and sea conditions • swim in special equipment • use communication and signaling equipment between the fast rescue boat and a helicopter and a ship • use the emergency equipment carried • recover a casualty from the water and transfer a casualty to a rescue helicopter or to a ship or to a place of safety • carry out search patterns, taking account of environmental factors	Preparation, boarding, launching and operation of fast rescue boats is within equipment limitations
Operate a fast rescue boat engine	Methods of starting and operating a fast rescue boat engine and its accessories	Assessment of evidence obtained from practical demonstration of ability to start and operate a fast rescue boat engine	Engine is started and operated as required for maneuvering

8. Emergency, Occupational Safety, Medical Care, and Survival Functions:

ADVANCED FIRE FIGHTING

Standard of competence

1 Seafarers designated to control fire-fighting operations shall have successfully completed advanced training in techniques for fighting fires, with particular emphasis on organization, tactics and command, and shall be required to demonstrate competence to undertake the tasks, duties and responsibilities listed in the first column of the following table.

2 The level of knowledge and understanding of the subjects listed in the second column of the following table shall be sufficient for the effective control of fire-fighting operations on board ship.

3 Training and experience to achieve the necessary level of theoretical knowledge, understanding and proficiency shall take account of the guidance given in part B of the STCW Code.

4 Every candidate for certification shall be required to provide evidence of having achieved the required standard of competence within the previous five years, in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in the third and fourth columns of the following table.

8. Emergency, Occupational Safety, Medical Care, and Survival Functions

Function: Advanced Fire Fighting

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Control fire-fighting operations aboard ship	Fire-fighting procedures at sea and in port with particular emphasis on organization, tactics and command Use of water for fire-extinguishing, the effect on ship stability, precautions and corrective procedures Communication and coordination during fire-fighting operations Ventilation control, including smoke extractor Control of fuel and electrical systems Fire-fighting process hazards (dry distillation, chemical reactions, boiler uptake fires, etc.) Fire fighting involving dangerous goods Fire precautions and hazards associated with the storage and handling of materials (paints, etc.) Management and control of injured persons Procedures for coordination with shore-based fire fighters	Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g. simulated shipboard conditions) and, whenever possible and practicable, in darkness	Actions taken to control fires are based on a full and accurate assessment of the incident, using all available sources of information The order of priority, timing and sequence of actions are appropriate to the overall requirements of the incident and to minimize damage and potential damage to the ship, injuries to personnel and impairment of the operational effectiveness of the ship Transmission of information is prompt, accurate, complete and clear Personal safety during fire control activities is safeguarded at all times
Organize and train fire parties	Preparation of contingency plans Composition and allocation of personnel to fire parties Strategies and tactics for control of fires in various parts of the ship	Practical exercises and instruction conducted under approved and truly realistic training conditions, e.g. simulated shipboard conditions	Composition and organization of fire control parties ensure the prompt and effective implementation of emergency plans and procedures
Inspect and service fire-detection and -extinguishing systems and equipment	Fire-detection systems; fixed fire-extinguishing systems; portable and mobile fire-extinguishing equipment including appliances, pumps, and rescue, salvage, life-support, personal protective and communication equipment Requirements for statutory and classification surveys	Practical exercises using approved equipment and systems in a realistic training environment	Operational effectiveness of all fire-detection and -extinguishing systems and equipment is maintained at all times in accordance with performance specifications and legislative requirements
Investigate and complies reports on incidents involving fire	Assessment of cause of incidents involving fire	Practical exercises in a realistic training environment	Causes of fire are identified and the effectiveness of countermeasures is evaluated

8. Emergency, Occupational Safety, Medical Care, and Survival Functions:

MEDICAL FIRST AID

1 Every seafarer who is designated to provide medical first aid on board ship shall be required to demonstrate the competence to undertake the tasks, duties and responsibilities listed in the first column of the following table.

2 The level of knowledge of the subjects listed in the second column of the following table shall be sufficient to enable the designated seafarer to take immediate effective action in the case of accidents or illness likely to occur on board ship.

3 Every candidate for certification under the provisions of regulation VI/4, paragraph 1, of the STCW Convention shall be required to provide evidence that the required standard of competence has been achieved in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in the third and fourth columns of the following table.

8. Emergency, Occupational Safety, Medical Care, and Survival Functions

Function: Medical First Aid

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Apply immediate first aid in the event of accident or illness on board	First aid kit Body structure and function Toxicological hazards on board, including use of the Medical First Aid Guide for Use in Accidents Involving Dangerous Goods (MFAG) or its national equivalent Examination of casualty or patient Spinal injuries Burns, scalds, and effects of heat and cold Fractures, dislocations and muscular injuries Medical care of rescued persons Radio medical advice Pharmacology Sterilization Cardiac arrest, drowning and asphyxia	Assessment of evidence obtained from practical instruction	The identification of probable cause, nature and extent of injuries is prompt, complete and conforms to current first-aid practice Risk of harm to self and others is minimized at all times Treatment of injuries and the patient's condition is appropriate, conforms to recognized first-aid practice and international guidelines

8. <u>Emergency, Occupational Safety, Medical Care, and Survival Functions</u>:

PERSON IN CHARGE OF MEDICAL CARE

4 Every seafarer who is designated to take charge of medical care on board ship shall be required to demonstrate the competence to undertake the tasks, duties and responsibilities listed in the first column of the following table.

5 The level of knowledge of the subjects listed in the second column of the following table shall be sufficient to enable the designated seafarer to take immediate effective action in the case of accidents or illness likely to occur on board ship.

6 Every candidate for certification under the provision of regulation VI/4, paragraph 2, of the STCW Convention, shall be required to provide evidence that the required standard of competence has been achieved in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in the third and fourth columns of the following table.

8. Emergency, Occupational Safety, Medical Care, and Survival Functions

Function: Person in Charge of Medical Care

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Provide medical care to the sick and injured while they remain on board	Care of casualty involving: • head and spinal injuries • injuries to ear, nose, throat and eyes • external and internal bleeding • burns, scalds and frostbite • fractures, dislocations and muscular injuries • wounds, wound healing and infection • pain relief • techniques of sewing and clamping • management of acute abdominal conditions • minor surgical treatment • dressing and bandaging Aspects of nursing: • general principles • nursing care Diseases, including: • medical conditions and emergencies • sexually transmitted diseases • tropical and infectious diseases Alcohol and drug abuse Dental care Gynecology, pregnancy and childbirth Medical care of rescued persons Death at sea Hygiene Disease prevention, including: • disinfection, disinfestation, de-ratting • vaccinations Keeping records and copies of applicable regulations: • keeping medical records • international and national maritime medical regulations	Assessment of evidence obtained from practical instruction and demonstration Where practicable, approved practical experience at a hospital or similar establishment	Identification of symptoms is based on the concepts of clinical examination and medical history Protection against infection and spread of diseases is complete and effective Personal attitude is calm, confident and reassuring Treatment of injury or condition is appropriate and conforms to accepted medical practice and relevant national and international medical guides The dosage and application of drugs and medication complies with manufacturers' recommendations and accepted medical practice The significance of changes in patient's condition is promptly recognized
Participate in coordinated schemes for medical assistance to ships	External assistance, including: radio medical advice transportation of the ill and injured, including helicopter evacuation medical care of sick seafarers involving cooperation with port health authorities or out-patient wards in port		Clinical examination procedures are complete and comply with instructions received The method and preparation for evacuation is in accordance with recognized procedures and is designed to maximize the welfare of the patient Procedures for seeking radio medical advice conform to established practice and recommendations