

## COUNCIL DIRECTIVE 94/58/EC

of 22 November 1994

on the minimum level of training of seafarers

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 84 (2) thereof,

Having regard to the proposal from the Commission (1),

Having regard to the opinion of the Economic and Social Committee (2),

Acting in accordance with the procedure referred to in Article 189c of the Treaty (3),

Whereas in its conclusions of 25 January 1993 on maritime safety and pollution prevention in the Community, the Council noted the importance of the human element in the safe operation of ships;

Whereas in its resolution of 8 June 1993 on a common policy on safe seas (4), the Council set the objective of removing substandard crews and gave priority to Community action aiming at enhancing training and education by developing common standards for minimum training levels of key personnel, including the question of a common language on board Community vessels;

Whereas the standards of training for the award of vocational competency certificates to seafarers vary from one Member State to another; whereas such a diversity of national laws in the area of training covered by this Directive does not ensure the consistent level of training required in the interests of maritime safety;

Whereas Council Directive 89/48/EEC (5) and 92/51/EEC (6) on the general systems for the recognition of professional education and training apply to maritime

occupations covered by this Directive; whereas they will help promote compliance with the obligations laid down in the Treaty abolishing obstacles to the free movement of persons and services between Member States;

Whereas the mutual recognition of diplomas and certificates provided for under the general systems Directives does not always ensure a standardized level of training for all seafarers serving on board vessels flying the flag of a Member State including ships registered in Euros once that register is approved by the Council; whereas this is, however, vital from the viewpoint of maritime safety;

Whereas it is therefore essential to define a minimum level of training for seafarers in the Community; whereas it is appropriate that the action in this field should be based on the standards of training already agreed at international level, namely the IMO Convention on Standards of Training, certification and Watchkeeping for Seafarers, 1978, (STCW Convention); whereas all Member States are parties to that Convention;

Whereas the amendment to STCW of 22 May 1991 (Resolution MSC 21 (59)) introduces the function of radio operator in order to conform to the GMDSS-requirements;

Whereas in order to enhance maritime safety and prevent loss of human life and maritime pollution, communication among crew members on board ships sailing in Community waters should be improved;

Whereas personnel on board passenger ships nominated to assist passengers in emergency situations should be able to communicate with the passengers; whereas in this context, all relevant provisions of IMO Resolution A.770 (18) on minimum training requirements for personnel nominated to assist passengers in emergency situations on passenger ships should be taken into account;

(1) OJ No C 212, 5. 8. 1993, p. 1.

(2) OJ No C 34, 2. 2. 1994, p. 10.

(3) Opinion of the European Parliament of 9 March 1993 (OJ No C 91, 28. 3. 1994, p. 120), Council common position of 19 September 1994 (OJ No C 301, 27. 10. 1994, p. 41) and Decision of the European Parliament of 16 November 1994 (not yet published in the Official Journal).

(4) OJ No C 271, 7. 10. 1993, p. 1

(5) OJ No L 19, 24. 1. 1989, p. 16

(6) OJ No L 209, 24. 7. 1992, p. 25

Whereas crews serving on board tankers carrying noxious or polluting cargo should be capable of coping efficiently with accident prevention and emergency situations; whereas it is paramount that a proper communication link between the master, officers and ratings is established, covering the requirements provided for in Article 8;

Whereas Article 8 (3) is necessitated by the fact that the relevant standards, to be established through an amendment to the 1978 STCW Convention, have not yet been agreed in the IMO;

Whereas measures should be taken to ensure that seafarers holding certificates issued by third countries have a level of competence commensurate with that required by the STCW Convention;

Whereas in order to attain this objective, common criteria should be defined for the recognition of foreign certificates in the Community; whereas for this purpose, the Council should decide on the common criteria acting in accordance with the conditions of the Treaty;

Whereas a committee should be established to assist the Commission in carrying out the tasks related to the exercise of the recognition of certificates issued by training institutes or administrations of third countries;

Whereas measures should be taken for allowing seafarers serving on board ships flying the flag of a Member State, including ships registered in Euros once that register is approved by the Council, and holding certificates not issued according to this Directive, to continue their work during a transitional period up to and beyond the adoption of the common criteria;

Whereas Member States, as port authorities, are required to enhance safety and prevention of pollution in Community waters through priority inspection of vessels flying the flag of a third country which has not ratified the STCW Convention, or which have crews holding certificates which have not been recognized under the provisions of this Directive, thereby ensuring no more favourable treatment to vessels flying the flag of a third State;

Whereas it is necessary to provide for procedures for adapting the Directive to changes in international conventions and codes,

HAS ADOPTED THIS DIRECTIVE:

#### *Article 1*

This Directive shall apply to seafarers as mentioned in this Directive serving on board seagoing ships flying the flag of a Member State with the exception of:

- warships, naval auxiliaries or other ships owned or operated by a Member State and engaged only on government non-commercial service,
- fishing vessels,
- pleasure yachts not engaged in trade,
- wooden ships of primitive build.

#### *Article 2*

Member States shall take the measures necessary to ensure that masters, officers, ratings forming part of the navigational watch or the engine room watch and lifeboatmen, serving on a ship referred to in Article 1, are trained as a minimum in compliance with the requirements of the STCW Convention, as laid down in the Annex to this Directive, and hold a certificate as defined in Article 3.

#### *Article 3*

A certificate shall be a valid document by whatever name it may be known, issued by or under the authority of the competent authority of a Member State, authorizing the holder to serve as stated in that document or as authorized by national regulations.

#### *Article 4*

For the purpose of this Directive:

- (a) 'master' means the person having command of a ship;
- (b) 'officer' means a member of the crew, other than the master, designated as such by national law or regulations or, in the absence of such designation, by collective agreement or custom;
- (c) 'deck officer' means a qualified officer in the deck department;
- (d) 'chief mate' means the deck officer next in rank to the master and upon whom the command of a ship will fall in the event of the incapacity of the master;

- (e) 'engineer officer' means a qualified officer in the engine department;
- (f) 'chief engineer officer' means the senior engineer officer responsible for the mechanical propulsion of the ship;
- (g) 'second engineer officer' means the engineer officer next in rank to the chief engineer officer and upon whom the responsibility for the mechanical propulsion of the ship will fall in the event of the incapacity of the chief engineer officer;
- (h) 'assistant engineer officer' means a person under training to become an engineer officer and designated as such by national law or regulations;
- (i) 'radio operator' means a person holding an appropriate certificate related to the global maritime distress and safety system issued or recognized by the competent authority or body designated by a Member State under the provisions of the Radio Regulations;
- (j) 'rating' means a member of the ship's crew other than the master or an officer;
- (k) 'lifeboatman' means a Member of the ship's crew holding a certificate of proficiency in survival craft and rescue boats issued as a separate document or as included in his certificate of competency;
- (l) 'sea-going ship' means a ship other than those which navigate exclusively in inland waters or in waters within, or closely adjacent to, sheltered waters or areas where port regulations apply;
- (m) 'ship flying the flag of a Member State' means a ship registered in and flying the flag of a Member State in accordance with its legislation, including ships registered in Europort once that Register is approved by the Council. Ships not corresponding to this definition are assimilated to ships flying the flag of a third country;
- (n) 'near-coastal voyages' means voyages in the vicinity of a Member State as defined by that Member State;
- (o) 'propulsion power' means the power in kilowatts which appears on a ship's Certificate of Registry or other official document;
- (p) 'oil tanker' means a ship constructed and used for the carriage of petroleum and petroleum products in bulk;
- (q) 'chemical tanker' means a ship constructed and used for the carriage in bulk of any liquid chemical listed in the 'Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk' as it is in force at the time of adoption of this Directive;
- (r) 'liquefied gas tanker' means a ship constructed and used for the carriage in bulk of any liquefied gas listed in the 'Code for the Construction and Equipment of Ships carrying Liquefied Gases in Bulk' as it is in force at the time of adoption of this Directive;
- (s) 'Radio Regulations' means the revised radio regulations, adopted by the World Administrative Radio Conference for the Mobile Service;
- (t) 'passenger ship' means a sea-going ship which carries more than 12 passengers;
- (u) 'fishing vessel' means a vessel used for catching fish, whales, seals, walrus or other living resources of the sea;
- (v) 'STCW Convention' means the IMO International Convention on Standards of Training Certification and Watchkeeping for Seafarers, 1978, as it is in force at the time of adoption of this Directive.

#### Article 5

The training required by Article 2 shall be in a form appropriate to the theoretical knowledge and practical skills required by the Annex to this Directive, in particular the use of life saving and firefighting equipment, and approved by the competent authority or body designated by each Member State.

#### Article 6

1. In circumstances of exceptional necessity, competent authorities may, if in their opinion this does not cause danger to persons, property or the environment, issue a dispensation permitting a specified seafarer to serve in a specified ship for a specified period not exceeding six months in a capacity, other than that of the radio operator, except as provided by the relevant Radio Regulations, for which he does not hold the appropriate certificate, provided that the person to whom the dispensation is issued shall be adequately qualified to fill the vacant post in a safe manner to the satisfaction of the competent authorities. However, dispensations shall not be granted to a master or chief engineer officer, except in circumstances of *force majeure* and then only for the shortest possible period.

2. Any dispensation granted for a post shall be granted only to a person properly certificated to fill the post immediately below. Where certification of the post below is not required, a dispensation may be issued to a person whose qualification and experience are, in the opinion of the competent authorities, of a clear equivalence to the requirements for the post to be filled, provided that, if such a person holds no appropriate certificate, he or she shall be required to pass a test accepted by the competent authorities as demonstrating that such a dispensation may safely be issued. In addition, competent authorities shall ensure that the post in question is filled by the holder of an appropriate certificate as soon as possible.

#### Article 7

Member States shall designate the authorities or bodies which shall:

- give the training referred to in Article 5,
- organize and/or supervise the examinations where required. The Member State shall ensure that all examiners are properly qualified,
- issue the certificate of competence,
- grant the dispensations provided for in Article 6.

#### Article 8

Member States shall ensure that:

1. on board all ships flying the flag of a Member State and on all passenger ships starting and/or finishing a voyage in a Member State port, there are at any time means in place for effective oral communication related to the safety between all members of the ship's company particularly with regard to the correct and timely reception and understanding of messages and instructions. Furthermore, there should be adequate means for communication between the ship and the shore-based authorities, either in a common language or in the language of those authorities;
2. on board passenger ships, personnel nominated on muster lists to assist passengers in emergency situations are readily identifiable and have communication skills that are sufficient for that purpose, taking into account an appropriate and adequate combination of any of the following criteria:
  - (a) the language or languages appropriate to the principal nationalities of passengers carried on a particular route;
  - (b) the likelihood that an ability to use elementary English vocabulary for basic instructions can provide a means of communicating with a

passenger in need of assistance whether or not the passenger and crew member share a common language;

- (c) the possible need to communicate during an emergency by some other means (e.g. by demonstration, or hand signals, or calling attention to the location of instructions, muster stations, life-saving devices or evacuation routes when verbal communication is impractical;
  - (d) the extent to which complete safety instructions have been provided to passengers in their native language or languages; and
  - (e) the languages in which emergency announcements may be broadcast during an emergency or drill to convey critical guidance to passengers and to facilitate crew members in assisting passengers;
3. on board oil tankers, chemical tankers and liquefied gas tankers flying the flag of a Member State, the master, officers and ratings are able to communicate with each other in (a) common working language(s). Furthermore, there should be adequate means for communication between the ship and the shore-based authorities either in a common language or in the language of those authorities;
  4. when carrying out a ship inspection in their capacity of State of the port, Member States shall check that ships flying the flag of a State other than a Member State also comply with this Article.

#### Article 9

1. Mutual recognition among Member States of certificates referred to in Article 3 held by seafarers who are nationals of Member States shall be subject to the provisions of Directives 89/48/EEC and 92/51/EEC.
2. Mutual recognition among Member States of certificates referred to in Article 3 held by seafarers who are not nationals of Member States shall also be subject to the provisions of Directives 89/48/EEC and 92/51/EEC.
3. Seafarers who do not possess the certificate provided for in Article 3, may be allowed to serve on ships flying the flag of a Member State provided a decision on the recognition of their type of certificate has been adopted through the procedure set out below:
  - (a) A set of criteria for the recognition of types of certificates issued by institutes or administrations will be defined by the Council before 1 July 1995, acting in accordance with the conditions of the Treaty.

(b) Member States shall notify the Commission and the other Member States of the types of certificates they have recognized or intend to recognize in compliance with the criteria mentioned under (a).

(c) If, within a period of three months following that notification, an objection is raised by a Member State or the Commission on the basis of the criteria referred to in (a), the matter shall be submitted by the Commission to the procedure in Article 13. The Member State concerned shall take the appropriate measures to implement the decisions taken in accordance with the procedure in that Article.

(d) The Commission shall draw up and update a list of the certificates notified by the Member States. The list shall be published in the *Official Journal of the European Communities*.

4. Seafarers who do not possess the certificates provided for in Article 3 but who are serving on a ship flying the flag of a Member State may be allowed to continue to serve on ships flying the flag of that Member State until two years after the common criteria provided for in paragraph 3 (a) have been fixed. After that date they shall possess either a type of certificate provided for in Article 3 or a type of certificate recognized in accordance with the procedure mentioned in paragraph 3 above.

#### Article 10

Member States shall take the measures necessary to ensure that ships flying the flag of a third country which has not ratified the STCW Convention, or which have a master, officers and ratings holding certificates which have not been recognized under the provisions of Article 9, are inspected, as a matter of priority, by the competent authority of the port State to check whether the level of vocational training and competence of their crews meet the standards laid down in the STCW Convention and in Article 8.

#### Article 11

Member States shall take appropriate steps, including the possible detention of a ship, if the competent authorities of the port State discover in the course of an inspection that crews are unable to provide proof of professional proficiency for the duties assigned to them for the safety of the ship and the prevention of pollution.

#### Article 12

1. This Directive may be amended in accordance with the procedure laid down in Article 13, in order to apply, for the purposes of this Directive, subsequent amendments to the international codes referred to in Article 4 (q), (r) and (s) which have entered into force.

2. Following the adoption of new instruments or protocols to the STCW Convention referred to in Article 4 (v), the Council, acting on a proposal from the Commission, shall decide, taking into account the Member States' parliamentary procedures, as well as the relevant procedures within IMO on the detailed arrangements for ratifying those new instruments or protocols, while ensuring that they are applied uniformly and simultaneously in the Member States.

#### Article 13

1. The Commission shall be assisted by a committee composed of representatives of the Member States and chaired by the representative of the Commission.

2. The representative of the Commission shall submit to the committee a draft of the measures to be taken. The committee shall deliver its opinion on the draft within a time limit which the chairman may lay down according to the urgency of the matter. The opinion shall be delivered by the majority laid down in Article 148 (2) of the Treaty in the case of decisions which the Council is required to adopt on a proposal from the Commission. The votes of the representatives of the Member States within the committee shall be weighted in the manner set out in that Article. The chairman shall not vote.

3. (a) The Commission shall adopt the measures envisaged if they are in accordance with the opinion of the committee.

(b) If the measures envisaged are not in accordance with the opinion of the committee, or if no opinion is delivered, the Commission shall, without delay, submit to the Council a proposal relating to the measures to be taken. The Council shall act by a qualified majority.

(c) If, on the expiry of eight weeks from the date of referral to the Council, the Council has not acted, the proposed measures shall be adopted by the Commission.

#### Article 14

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive no later than 31 December 1995.

2. When Member States adopt these provisions they shall contain a reference to this Directive or shall be announced by such reference at the time of their official publication. The methods of making such a reference shall be laid down by the Member States

3. The Member States shall immediately communicate to the Commission the texts of all the provisions which they adopt in the field governed by this Directive. The Commission shall inform the other Member States thereof.

*Article 15*

This Directive is addressed to the Member States.

Done at Brussels, 22 November 1994.

*For the Council*

*The President*

M. WISSMANN

## ANNEX

TRAINING REQUIREMENTS OF THE STCW CONVENTION, REFERRED TO IN  
ARTICLE 2 OF THE DIRECTIVE

## CHAPTER II

## MASTER — DECK DEPARTMENT

## REGULATION II/2

Mandatory minimum requirements for certification of masters and chief mates of ships of 200 gross register  
tons (GRT) or more

## Master and chief mate of ships of 1 600 GRT or more

1. Every master and chief mate of a sea-going ship of 1 600 GRT or more shall hold an appropriate certificate.
2. Every candidate for certification shall:
  - (a) satisfy the Administration as to medical fitness, particularly regarding eyesight and hearing;
  - (b) meet the requirements for certification as an officer in charge of a navigational watch on ships of 200 GRT or more and have approved sea-going service in that capacity:
    - (i) for certification as chief mate, not less than 18 months; however, this period may be reduced to not less than 12 months if the Administration requires special training which it considers to be equivalent to at least six months' service as officer in charge of a navigational watch;
    - (ii) for certification as master, not less than 36 months; however, this period may be reduced to not less than 24 months if not less than 12 months of such sea-going service has been served as chief mate, or if the Administration requires special training which it considers to be equivalent to such service;
  - (c) have passed appropriate examination to the satisfaction of the Administration. Such examination shall include the material set out in the Appendix to this Regulation, except that the Administration may vary these examination requirements for masters and chief mates of ships of limited size engaged on near-coastal voyages, as it considers necessary, bearing in mind the effect on the safety of all ships which may be operating in the same waters.

## Master and chief mate of ships of between 200 and 1 600 GRT

3. Every master and chief mate of a sea-going ship of between 200 and 1 600 GRT shall hold an appropriate certificate.
4. Every candidate for certification shall:
  - (a) satisfy the Administration as to medical fitness, particularly regarding eyesight and hearing;
  - (b) (i) for certification as chief mate, meet the requirements of an officer in charge of a navigational watch on ships of 200 GRT or more;
  - (ii) for certification as master, meet the requirements of an officer in charge of a navigational watch on ships of 200 GRT or more and have approved sea-going service in that capacity of not less than 36 months; however, this period may be reduced to not less than 24 months if not less than 12 months of such sea-going service has been served as chief mate, or if the Administration requires special training which it considers to be equivalent to such service;

- (c) have passed appropriate examination to the satisfaction of the Administration. Such examination shall include the material set out in the Appendix, except that the Administration may vary these examination requirements for masters and chief mates of ships engaged on near-coastal voyages, as it considers appropriate, to exclude such material as is 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.

#### General

5. The level of knowledge required under the different headings of the Appendix may be varied according to whether the certificate is being issued at master or chief mate level, and according to whether the certificate or certificates is applicable to ships of 1 600 gross register tons or more, or to ships of between 200 and 1 600 gross register tons.

### APPENDIX TO REGULATION II/2

#### Minimum knowledge required for certification of masters and chief mates of ships of 200 GRT or more

1. The syllabus given below is compiled for examination of candidates for certification as master or chief mate of ships of 200 GRT or more. It is intended to expand and extend in depth the subjects contained in Regulation II/4 — 'Mandatory minimum requirements for certification of officers in charge of a navigational watch on ships of 200 GRT or more'. Bearing in mind that a master has ultimate responsibility for the safety of the ship, its passengers, crew and cargo, and that a chief mate shall be in a position to assume that responsibility at any time, examination in these subjects shall be designed to test their ability to assimilate all available information that affects the safety of the ship.
2. *Navigation and position determination*
  - (a) Voyage planning and navigation for all conditions:
    - (i) by acceptable methods of plotting ocean tracks;
    - (ii) within restricted waters;
    - (iii) in ice;
    - (iv) in restricted visibility;
    - (v) in traffic separation schemes;
    - (vi) in areas of extensive tidal effects.
  - (b) Position determination:
    - (i) by celestial observations, including the use of sun, stars, moon and planets;
    - (ii) by terrestrial observations, including the ability to use bearings from landmarks and aids to navigation such as lighthouses, beacons and buoys in conjunction with appropriate charts, notices to mariners and other publications to assess the accuracy of the resulting position fix;
    - (iii) using all modern ship electronic navigational aids to the satisfaction of the Administration, 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.
3. *Watchkeeping*
  - (a) Demonstrate thorough knowledge of content, application and intent of the International Regulations for Preventing Collisions at Sea, including those Annexes concerned with safe navigation.
  - (b) Demonstrate knowledge of Regulation II/1 'Basic principles to be observed in keeping a navigational watch'.

#### 4. *Radar equipment*

Demonstrate in conjunction with the use of radar simulator or, when not available, manoeuvring board, knowledge of the fundamentals of radar and ability in the operation and use of radar, and in the interpretation and analysis of information obtained from this equipment, including:

- (a) factors affecting performance and accuracy;
- (b) setting-up and maintaining displays;
- (c) detection of misrepresentation of information, false echoes, sea return, etc.;
- (d) range and bearing;
- (e) identification of critical echoes;
- (f) course and speed of other ships;
- (g) time and distance of closest approach of crossing, meeting or overtaking ships;
- (h) detecting course and speed changes of other ships;
- (i) effect of changes in own ship's course or speed or both;
- (j) application of the International Regulation for preventing collisions at sea.

#### 5. *Compasses — magnetic and gyro*

Ability to determine and correct the errors of the magnetic and gyro-compasses and knowledge of the means for correcting such errors.

#### 6. *Meteorology and oceanography*

- (a) Demonstrate the ability to understand and interpret a synoptic chart and to forecast area weather, taking into account local weather conditions.
- (b) Knowledge of the characteristics of various weather systems, including tropical revolving storms and avoidance of storm centres and the dangerous quadrants.
- (c) Knowledge of ocean current systems.
- (d) Ability to use all appropriate navigational publications on tides and currents, including those in the English language.
- (e) Ability to calculate tidal conditions.

#### 7. *Ship manoeuvring and handling*

Manoeuvring and handling of a ship in all conditions, including the following:

- (a) manoeuvres when approaching pilot vessels or stations with due regard to weather, tide headreach and stopping distances;
- (b) handling a ship in rivers, estuaries, etc., having regard to the effects of current, wind and restricted water on the response to the helm;
- (c) manoeuvring in shallow water, including the reduction in keel clearance due to the effect of squat <sup>(1)</sup>, rolling and pitching;
- (d) interaction between passing ships and between own ship and nearby banks (canal effect);
- (e) berthing and unberthing under various conditions of wind and tide with and without tugs;
- (f) 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;

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<sup>(1)</sup> Squat: the decrease in clearance beneath a ship which occurs when the ship moves through the water and is caused both by bodily sinkage and by change of trim. The effect is accentuated in shallow water and is reduced with a reduction in ship's speed.

- (g) dragging; clearing fouled anchors;
- (h) dry-docking, both with and without damage;
- (i) 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 a sea trough, lessening drift and use of oil;
- (j) precautions in manoeuvring for launching rescue boats or survival craft in bad weather;
- (k) methods of taking on board survivors from rescue boats or survival craft;
- (l) ability to determine the manoeuvring and engine characteristics of major types of ships with special reference to stopping distances and turning circles at various draughts and speeds;
- (m) the importance of navigating at reduced speed to avoid damage caused by own ship's bow or stern wave;
- (n) practical measures to be taken when navigating in ice or conditions of ice accumulation on board;
- (o) the use of, and manoeuvring in, traffic separation schemes.

8. *Ship stability (1), construction and damage control*

- (a) Understanding fundamental principles of ship construction and the theories and factors affecting trim and stability and measures necessary to preserve safe trim and stability.
- (b) 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.
- (c) Demonstrate use of stability, trim and stress tables, diagrams and stress calculating equipment, including knowledge of loading cargoes and ballasting in order to keep hull stresses within acceptable limits.
- (d) General knowledge of the principal structural members of a ship and the proper names of the various parts.
- (e) Knowledge of the recommendations of the organization concerning ship stability.

9. *Ship power plants*

- (a) Operating principles of marine power plants.
- (b) Ships' auxiliary machinery.
- (c) General knowledge of marine engineering terms.

10. *Cargo handling and stowage*

- (a) The stowage and securing of cargoes on board ships, including cargo gear.
- (b) Loading and discharging operations, with special regard to loading and discharging of heavy weights.
- (c) International regulations and recommendations relating to the carriage of cargoes, in particular the International Maritime Dangerous Goods Code (IMDG).
- (d) Carriage of dangerous goods; precautions to be taken during loading and discharging operations and the care of dangerous goods during a voyage.
- (e) Working knowledge of contents and application of current relevant tanker safety guides.
- (f) Working knowledge of commonly used cargo piping and pumping arrangements.

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(1) Masters and chief mates serving on small ships should be fully acquainted with the basic stability requirements of such ships.

- (g) Terms and definitions used to describe properties of common oil cargoes, such as crude oil, middle distillates, naphtha.
- (h) Pollution regulations; ballasting, tank cleaning and gas freeing operations.
- (i) Load-on-top procedures.

11. *Fire prevention and fire-fighting appliances*

- (a) Organization of fire drills.
- (b) Classes and chemistry of fire.
- (c) Fire-fighting systems.
- (d) Attendance at an approved fire-fighting course.
- (e) Knowledge of regulations concerning fire-fighting equipment.

12. *Emergency procedures*

- (a) Precautions when beaching a ship.
- (b) Action to be taken prior to, and after, grounding.
- (c) Floating a grounded ship, with and without assistance.
- (d) Action to be taken following a collision.
- (e) Temporary plugging of leaks.
- (f) Measures for the protection and safety of passengers and crew in emergencies.
- (g) Limiting damage and salvaging the ship following a fire or explosion.
- (h) Abandoning ship.
- (i) Emergency steering, rigging and use of jury steering and the means of rigging a jury rudder, where practicable.
- (j) Rescuing persons from a ship in distress or from a wreck.
- (k) Man-overboard procedures.

13. *Medical care*

A thorough knowledge of the use of the contents of the following publications:

- (a) International Medical Guide for Ships or equivalent national publications;
- (b) Medical section of the International Code of Signals;
- (c) Medical First Aid Guide for Use in Accidents Involving Dangerous Goods.

14. *Maritime law*

- (a) A knowledge of international maritime law as embodied in international agreements and conventions as they affect the specific obligations and responsibilities of the master, particularly those concerning safety and the protection of the marine environment. Regard shall be paid especially to the following subjects:
  - (i) 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;
  - (ii) responsibilities under the relevant requirements of the International Convention on Load Lines;
  - (iii) responsibilities under the relevant requirements of the International Convention for the Safety of Life at Sea;

- (iv) responsibilities under international conventions for the prevention of pollution from ships;
  - (v) maritime declarations of health; the requirements of the International Health Regulations;
  - (vi) responsibilities under the Convention on the International Regulations for Preventing Collisions at Sea;
  - (vii) responsibilities under other international instruments affecting the safety of the ship, passengers, crew and cargo.
- (b) The extent of knowledge of national maritime legislation is left to the discretion of the Administration but shall include national arrangements for implementing international agreements and conventions.
15. *Personnel management and training responsibilities*
- A knowledge of personnel management, organization and training aboard ships.
16. *Radiocommunications and visual signalling*
- (a) Ability to transmit and receive messages by morse light and to use the International Code of Signals; where the Administration has examined candidates in these subjects at the lower levels of certification, they may have the option of not re-examining in these subjects for certification as master.
  - (b) Knowledge of procedures used in radio communications and ability to use radio equipment for distress, urgency, safety and navigational messages.
  - (c) A knowledge of the procedures for emergency distress signals as prescribed in the Radio Regulations.
17. *Life-saving*
- A thorough knowledge of life-saving appliance regulations (International Convention for the Safety of Life at Sea), organization of abandon ship drills, survival craft, rescue boats and other life-saving equipment.
18. *Search and rescue*
- A thorough knowledge of the Merchant Ship Search and Rescue Manual (Mersar).
19. *Methods for demonstration of proficiency*
- (a) Navigation
    - Demonstrate the use of sextant, pelorus, azimuth mirror and ability to plot position, course, bearings.
  - (b) International Regulations for Preventing Collisions at Sea
    - (i) use of small models displaying proper signals or lights, or navigation light simulator;
    - (ii) manoeuvring board or radar simulator.
  - (c) Radar
    - (i) radar simulator; or
    - (ii) manoeuvring boards.
  - (d) Fire-fighting
    - Attendance at an approved fire-fighting course.
  - (e) Communications
    - Visual and vocal practical test.
  - (f) Life-saving
    - Launching and handling of survival craft, rescue boats and other life-saving appliances, including the donning of life-jackets.

## REGULATION II/3

**Mandatory minimum requirements for certification of officers in charge of a navigational watch and of masters of ships of less than 200 GRT****1. *Ships not engaged on near-coastal voyages***

- (a) Every master serving on a sea-going ship of less than 200 GRT not engaged on near-coastal voyages shall hold a certificate recognized by the Administration for service as master of ships of between 200 and 1 600 GRT.
- (b) Every officer in charge of a navigational watch serving on a sea-going ship of less than 200 GRT not engaged on near-coastal voyages shall hold an appropriate certificate for ships of 200 GRT or more.

**2. *Ships engaged on near-coastal voyages*****(a) Master**

- (i) Every master serving in a sea-going ship of less than 200 GRT engaged on near-coastal voyages shall hold an appropriate certificate.
- (ii) Every candidate for certification shall:
  - (1) be not less than 20 years of age;
  - (2) have approved sea-going service of not less than 12 months as officer in charge of a navigational watch;
  - (3) satisfy the Administration that he possesses adequate knowledge appropriate to his duties on the ships concerned which shall include the subjects contained in the Appendix to this Regulation.

**(b) Officer in charge of a navigational watch**

- (i) Every officer in charge of a navigational watch on a sea-going ship of less than 200 GRT engaged on near coastal voyages shall hold an appropriate certificate.
- (ii) Every candidate for certification shall:
  - (1) be not less than 18 years of age;
  - (2) satisfy the Administration as to medical fitness, particularly regarding eyesight and hearing;
  - (3) satisfy the Administration that he has:
    - successfully undergone special training, including an adequate period of appropriate sea-going services as required by the Administration, or
    - completed approved sea-going service in the deck department of not less than three years;
  - (4) satisfy the Administration that he possesses adequate knowledge appropriate to his duties on the ships concerned, which shall include the subjects contained in the Appendix.

**3. *Training***

Training to achieve the necessary knowledge and practical experience shall be based on Regulation II/1 'Basic principles to be observed in keeping a navigational watch' and relevant international regulations and recommendations.

**4. *Exemptions***

The Administration, if it considers that a ship's size and the conditions of its voyage are such as to render the application of the full requirements of this Regulation and its Appendix unreasonable or impracticable, may to that extent exempt the master and the officer in charge of a navigational watch on such a ship or class of ships from some of the requirements, bearing in mind the safety of all ships which may be operating in the same waters.

## APPENDIX TO REGULATION II/3

**Minimum knowledge required for certification of officers in charge of a navigational watch and of masters of ships of less than 200 GRT****1. (a) Knowledge of the following:**

- (i) coastal navigation and, to the extent required, celestial navigation;
- (ii) International Regulations for Preventing Collisions at Sea;

- (iii) International Maritime Dangerous Goods Code (IMDG);
  - (iv) magnetic compass;
  - (v) radiotelephony and visual signalling;
  - (vi) fire prevention and fire-fighting appliances;
  - (vii) life-saving;
  - (viii) emergency procedures;
  - (ix) ship manoeuvring;
  - (x) ship stability;
  - (xi) meteorology;
  - (xii) small ship power plants;
  - (xiii) first aid;
  - (xiv) search and rescue;
  - (xv) prevention of pollution of the marine environment.
- (b) In addition to the requirements of subparagraph (a), sufficient knowledge to operate safely all navigational aids and equipment fitted aboard the ships concerned.
- (c) The level of knowledge to be required in the subjects specified in subparagraphs (a) and (b) shall be sufficient for the officer of the watch to carry out his duties safely.
2. Every master serving on a sea-going ship of less than 200 GRT shall, in addition to the requirements of paragraph 1 above, satisfy the Administration that he possesses the knowledge to carry out all the duties of such a master safely.

#### REGULATION II/4

##### Mandatory minimum requirements for certification of officers in charge of a navigational watch on ships of 200 GRT or more

1. Every officer in charge of a navigational watch serving on a sea-going ship of 200 GRT or more shall hold an appropriate certificate.
2. Every candidate for certification shall:
  - (a) be not less than 18 years of age;
  - (b) satisfy the Administration as to medical fitness, particularly regarding eyesight and hearing;
  - (c) have approved sea-going service in the deck department of not less than three years which shall include at least six months of bridge watchkeeping duties under the supervision of a qualified officer; however, an Administration may allow the substitution of a period of special training for not more than two years of this approved sea-going service, provided the Administration is satisfied that such training is at least equivalent in value to the period of sea-going service it replaces;
  - (d) satisfy the Administration by passing an appropriate examination that he possesses adequate theoretical and practical knowledge appropriate to his duties.

##### 3. *Certificates for service without restriction*

For issue of certificates for service without restriction as to area of operation, the examination shall test the adequacy of the candidate's theoretical and practical knowledge in the subjects shown in the Appendix to this Regulation.

##### 4. *Restricted certificates*

For issue of restricted certificates for service on near-coastal voyages, the Administration may omit the following subjects from those shown in the Appendix, bearing in mind the effect on the safety of all ships which may be operating in the same waters:

- (a) celestial navigation;
- (b) electronic systems of position fixing and navigation for waters not covered by such systems.

### 5. *Level of knowledge*

- (a) The level of knowledge to be required in the subjects shown in the Appendix shall be sufficient for the officer of the watch to carry out his watchkeeping duties safely. In determining the appropriate level of knowledge the Administration shall take into account the remarks under each subject in the Appendix.
- (b) Training to achieve the necessary theoretical knowledge and practical experience shall be based on Regulation II/1 'Basic principles to be observed in keeping a navigational watch' and relevant international regulations and recommendations.

## APPENDIX TO REGULATION II/4

### Minimum knowledge required for certification of officers in charge of a navigational watch on ships of 200 GRT or more

#### 1. *Celestial navigation*

Ability to use celestial bodies to determine the ship's position and compass errors.

#### 2. *Terrestrial and coastal navigation*

- (a) Ability to determine the ship's position by the use of:
  - (i) landmarks;
  - (ii) aids to navigation, including lighthouses, beacons and buoys;
  - (iii) dead reckoning, taking into account winds, tides, currents and speed by propeller revolutions per minute and by log.
- (b) 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.

#### 3. *Radar navigation*

Knowledge of the fundamentals of radar and ability in the operation and use of radar and ability to interpret and analyse information obtained by use of radar including the following:

- (a) factors affecting performance and accuracy;
- (b) setting up and maintaining displays;
- (c) detection of misrepresentation of information, false echoes, sea return, etc.;
- (d) range and bearing;
- (e) identification of critical echoes;
- (f) course and speed of other ships;
- (g) time and distance of closest approach of crossing, meeting or overtaking ships;
- (h) detecting course and speed changes of other ships;
- (i) effect of changes in own ship's course or speed or both;
- (j) application of the International Regulations for Preventing Collisions at Sea.

#### 4. *Watchkeeping*

- (a) Demonstrate thorough knowledge of content, application and intent of the International Regulations for Preventing Collisions at Sea, including those Annexes concerned with safe navigation.
- (b) Demonstrate knowledge of content of 'Basic principles to be observed in keeping a navigational watch'.

#### 5. *Electronic systems of position fixing and navigation*

Ability to determine the ship's position by the use of electronic navigational aids to the satisfaction of the Administration.

#### 6. *Radio direction-finders and echo-sounders*

Ability to operate the equipment and apply the information correctly.

7. *Meteorology*

Knowledge of shipborne meteorological instruments and their application. Knowledge of the characteristics of various weather systems, reporting procedures and recording systems and the ability to apply the meteorological information available.

8. *Compasses — magnetic and gyro*

Knowledge of the principles of magnetic and gyro-compasses including errors and corrections. With regard to gyro-compasses, an understanding of the systems under the control of the master gyro and a knowledge of the operation and care of the main types of gyro-compasses.

9. *Automatic pilot*

Knowledge of automatic pilot systems and procedures.

10. *Radiocommunications and visual signalling*

(a) Ability to transmit and receive messages by morse light.

(b) Ability to use the International Code of Signals.

(c) Knowledge of procedures used in radiocommunications and ability to use radio equipment for distress, urgency, safety and navigational messages.

11. *Fire prevention and fire-fighting appliances*

(a) Ability to organize fire drills.

(b) Knowledge of classes and chemistry of fire.

(c) Knowledge of fire-fighting systems.

(d) Attendance at an approved fire-fighting course.

12. *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 emergency position-indicating radio beacons (EPIRBs), immersion-suits and thermal protective aids. Knowledge of survival at sea techniques.

13. *Emergency procedures*

Knowledge of the items listed in the appropriate appendix of the current edition of the ILO/IMO 'Document for Guidance'.

14. *Ship manoeuvring and handling*

Knowledge of:

(a) the effects of various deadweights, draughts, trim, speed and under keel clearance on turning circles and stopping distances;

(b) effects of wind and current on ship handling;

(c) manoeuvres for the rescue of man-overboard;

(d) squat, shallow water and similar effects;

(e) proper procedures for anchoring and mooring.

15. *Ship stability*

(a) Working knowledge and application of stability, trim and stress tables, diagrams and stress calculating equipment.

(b) Understanding of fundamental actions to be taken in the event of partial loss of intact buoyancy.

16. *English language*

Adequate knowledge of the English language enabling the officer to use charts and other nautical publications, to understand meteorological information and messages concerning ship's safety and operation and to express himself clearly in his communications with other ships or coast stations. Ability to understand and use the Standard Marine Navigational Vocabulary.

17. *Ship construction*

General knowledge of the principal structural members of a ship and the proper names of the various parts.

18. *Cargo handling and stowage*

Knowledge of safe handling and stowage of cargoes and the effect of these factors on the safety of the ship.

19. *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.

20. *Search and rescue*

Knowledge of the Merchant Ship Search and Rescue Manual (Mersar).

21. *Prevention of pollution of the marine environment*

Knowledge of the precautions to be observed to prevent pollution of the marine environment.

## REGULATION II/5

**Mandatory minimum requirements to ensure the continued proficiency and updating of knowledge for masters and deck officers**

1. Every master and every deck officer holding a certificate who is serving at sea or intends to return to sea after a period ashore shall, in order to continue to qualify for sea-going service, be required at regular intervals not exceeding five years to satisfy the Administration as to:
  - (a) medical fitness, particularly regarding eyesight and hearing; and
  - (b) professional competence:
    - (i) by approved sea-going service as master or deck officer of at least one year during the preceding five years; or
    - (ii) by virtue of having performed functions relating to the duties appropriate to the grade of certificate held which are considered to be at least equivalent to the sea-going service required in paragraph 1 (b) (i); or
    - (iii) by one of the following:
      - passing an approved test, or
      - successfully completing an approved course or courses, or
      - having completed approved sea-going service as a deck officer for a period of not less than three months in a supernumerary capacity immediately prior to taking up the rank to which he is entitled by virtue of his certificate.
2. The Administration shall, in consultation with those concerned, formulate or promote the formulation of a structure of refresher and updating courses, either voluntary or mandatory, as appropriate, for masters and deck officers who are serving at sea, especially for re-entrants to sea-going service. The Administration shall ensure that arrangements are made to enable all persons concerned to attend such courses as appropriate to their experience and duties. Such courses shall be approved by the Administration and include changes in marine technology and relevant international regulations and recommendations concerning the safety of life at sea and the protection of the marine environment.

3. Every master and deck officer shall, for continuing sea-going service on board ships for which special training requirements have been internationally agreed upon, successfully complete an approved relevant training.
4. The Administration shall ensure that the texts of recent changes in international regulations concerning the safety of life at sea and the protection of the marine environment are made available to ships under its jurisdiction.

#### REGULATION II/6

##### Mandatory minimum requirements for ratings forming part of a navigational watch

1. The minimum requirements for a rating forming part of a navigational watch on a sea-going ship of 200 GRT or more are set out in paragraph 2. These requirements are not those for certification of able seamen <sup>(1)</sup>, nor, except for ships of limited size, are they minimum requirements for a rating who is to be the sole rating of a navigational watch. Administrations may require additional training and qualifications for a rating who is to be the sole rating of a navigational watch.
2. Every rating forming part of a navigational watch on a sea-going ship of 200 GRT or more shall:
  - (a) be not less than 16 years of age;
  - (b) satisfy the Administration as to medical fitness, particularly regarding eyesight and hearing;
  - (c) satisfy the Administration that he has:
    - (i) completed approved sea-going service, including not less than six months' sea experience associated, in particular, with navigational watchkeeping duties; or
    - (ii) successfully undergone special training, either pre-sea or aboard ship, including an adequate period of sea-going service as required by the Administration which shall be not less than two months;
  - (d) have experience or training which includes:
    - (i) basic principles of fire-fighting, first aid, personal survival techniques, health hazards and personal safety;
    - (ii) ability to understand orders and make himself understood by the officer of the watch in matters relevant to his duties;
    - (iii) ability to steer and comply with helm orders, together with sufficient knowledge of magnetic and gyro-compasses for performance of these duties;
    - (iv) ability to keep a proper look-out by sight and hearing and report the approximate bearing of a sound signal, light or other object in degrees or points;
    - (v) familiarity with the change-over from automatic pilot to hand steering and vice versa;
    - (vi) knowledge of the use of appropriate internal communication and alarm systems;
    - (vii) knowledge of rocket parachute flares, hand flares and buoyant smoke signals;
    - (viii) knowledge of his emergency duties;
    - (ix) knowledge of shipboard terms and definitions appropriate to his duties.
3. The experience, service or training required by paragraph 2 (c) and (d) may be acquired through performance of duties associated with navigational watchkeeping, but only if such duties are carried out under the direct supervision of the master, officer in charge of the navigational watch or a qualified rating.
4. Administrations shall ensure that an authorized document is issued to every seafarer who by experience or training is qualified in accordance with this Regulation to serve as a rating forming part of a navigational watch, or that his existing document is duly endorsed.

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(<sup>1</sup>) Reference is made to ILO Certification of Able Seamen Convention, 1946 or any successive convention.

5. A seafarer may be considered by the Administration to have met the requirements of this Regulation if he has served in a relevant capacity in the deck department for a period of not less than one year within the last five years preceding the entry into force of the STCW Convention for that Administration.

### CHAPTER III

#### ENGINE DEPARTMENT

#### REGULATION III/2

##### **Mandatory minimum requirements for certification of chief engineer officers and second engineer officers of ships powered by main propulsion machinery of 3 000 kW propulsion power or more**

1. Every chief engineer officer and second engineer officer of a sea-going ship powered by main propulsion machinery of 3 000 kW propulsion power or more shall hold an appropriate certificate.
2. Every candidate for certification shall:
  - (a) satisfy the Administration as to medical fitness, including eyesight and hearing;
  - (b) meet the requirements for certification as an engineer officer in charge of a watch; and
    - (i) for certification as second engineer officer, have not less than 12 months' approved sea-going service as assistant engineer officer or engineer officer;
    - (ii) for certification as chief engineer officer, have not less than 36 months' approved sea-going service of which not less than 12 months shall be served as an engineer officer in a position of responsibility while qualified to serve as second engineer officer;
  - (c) have attended an approved practical fire-fighting course;
  - (d) have passed appropriate examination to the satisfaction of the Administration. Such examination shall include the material set out in the Appendix to this Regulation, except that the Administration may vary these examination requirements for officers of ships with limited propulsion power that are engaged on near-coastal voyages, as it considers necessary, bearing in mind the effect on the safety of all ships which may be operating in the same waters.
3. Training to achieve the necessary theoretical knowledge and practical experience shall take into account relevant international regulations and recommendations.
4. The level of knowledge required under the different paragraphs of the appendix may be varied according to whether the certificate is being issued at chief engineer officer or second engineer officer level.

#### APPENDIX TO REGULATION III/2

##### **Minimum knowledge required for certification of chief engineer officers and second engineer officers of ships powered by main propulsion machinery of 3 000 kW propulsion power or more**

1. The syllabus given below is compiled for examination of candidates for certification as chief engineer officer or second engineer officer of ships powered by main propulsion machinery of 3 000 kW propulsion power or more. Bearing in mind that a second engineer officer shall be in a position to assume the responsibilities of a chief engineer officer at any time, examination 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.

2. With respect to paragraph 4 (a) below, 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 items to the satisfaction of the Administration. Any such limitation shall be stated in the certificate.
3. Every candidate shall possess theoretical knowledge in the following subjects:
  - (a) thermodynamics and heat transmission;
  - (b) mechanics and hydromechanics;
  - (c) operational principles of ships' power installations (diesel, steam and gas turbine) and refrigeration;
  - (d) physical and chemical properties of fuels and lubricants;
  - (e) technology of materials;
  - (f) chemistry and physics of fire and extinguishing agents;
  - (g) marine electrotechnology, electronics and electrical equipment;
  - (h) fundamentals of automation, instrumentation and control systems;
  - (i) naval architecture and ship construction, including damage control.
4. Every candidate shall possess adequate practical knowledge in at least the following subjects:
  - (a) operation and maintenance of:
    - (i) marine diesel engines;
    - (ii) marine steam propulsion plant;
    - (iii) marine gas turbines;
  - (b) operation and maintenance of auxiliary machinery, including pumping and piping systems, auxiliary boiler plant and steering gear systems;
  - (c) operation, testing and maintenance of electrical and control equipment;
  - (d) operation and maintenance of cargo handling equipment and deck machinery;
  - (e) detection of machinery malfunction, location of faults and action to prevent damage;
  - (f) organization of safe maintenance and repair procedures;
  - (g) methods of, and aids for, fire prevention, detection and extinction;
  - (h) methods and aids to prevent pollution of the environment by ships;
  - (i) regulations to be observed to prevent pollution of the marine environment;
  - (j) effects of marine pollution on the environment;
  - (k) first aid related to injuries which might be expected in machinery spaces and use of first aid equipment;
  - (l) functions and use of life-saving appliances;
  - (m) methods of damage control;
  - (n) safe working practices.
5. Every candidate shall possess a knowledge of international maritime law embodied in international agreements and conventions as they affect the specific obligations and responsibilities of the engine department, particularly those concerning safety and the protection of the marine environment. The extent of knowledge of national maritime legislation is left to the discretion of the Administration but shall include national arrangements for implementing international agreements and conventions.
6. Every candidate shall possess a knowledge of personnel management, organization and training aboard ships.

## REGULATION III/3

**Mandatory minimum requirements of certification of chief engineer officers and second engineer officers of ships powered by main propulsion machinery between 750 kW and 3 000 kW propulsion power**

1. Every chief engineer officer and second engineer officer of a sea-going ship powered by main propulsion machinery of between 750 and 3 000 kW propulsion power shall hold an appropriate certificate.
2. Every candidate for certification shall:
  - (a) satisfy the Administration as to medical fitness, including eyesight and hearing;
  - (b) meet the requirements for certification as an engineer officer in charge of a watch; and
    - (i) for certification as second engineer officer, have not less than 12 months' approved sea-going service as assistant engineer officer or engineer officer;
    - (ii) for certification as chief engineer officer, have not less than 24 months' approved sea-going service of which not less than 12 months shall be served while qualified to serve as second engineer officer;
  - (c) have attended an approved practical fire-fighting course;
  - (d) have passed appropriate examination to the satisfaction of the Administration. Such examination shall include the material set out in the Appendix to this Regulation, except that the Administration may vary the requirements for examination and sea-going service for officers of ships engaged on near-coastal voyages, bearing in mind the types of automatic and remotely operated controls with which such ships are fitted and the effect on the safety of all ships which may be operating in the same waters.
3. Training to achieve the necessary theoretical knowledge and practical experience shall take into account relevant international regulations and recommendations.
4. The level of knowledge required under the different paragraphs of the Appendix may be varied according to whether the certificate is being issued at chief engineer officer or second engineer officer level.
5. Every engineer officer who is qualified to serve as second engineer officer of ships powered by main propulsion machinery of 3 000 kW propulsion power or more, may serve as chief engineer officer of ships powered by main propulsion machinery of less than 3 000 kW propulsion power provided that not less than 12 months' approved sea-going service shall have been served as an engineer officer in a position of responsibility.

## APPENDIX TO REGULATION III/3

**Minimum knowledge required for certification of chief engineer officers and second engineer officers of ships powered by main propulsion machinery of between 750 kW and 3 000 kW propulsion power**

1. The syllabus given below is compiled for examination of candidates for certification as chief engineer officer or second engineer officer of ships powered by main propulsion machinery of between 750 kW and 3 000 kW propulsion power. Bearing in mind that a second engineer officer shall be in a position to assume the responsibilities of the chief engineer officer at any time, examination 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.
2. With respect to paragraphs 3 (d) and 4 (a) below, 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 items to the satisfaction of the Administration. Any such limitation shall be stated in the certificate.

3. Every candidate shall possess sufficient elementary theoretical knowledge to understand the basic principles involved in the following subjects:
  - (a) combustion processes;
  - (b) heat transmission;
  - (c) mechanics and hydromechanics;
  - (d) (i) marine diesel engines;  
(ii) marine steam propulsion plant;  
(iii) marine gas turbines;
  - (e) steering gear systems;
  - (f) properties of fuels and lubricants;
  - (g) properties of materials;
  - (h) fire-extinguishing agents;
  - (i) marine electrical equipment;
  - (j) automation, instrumentation and control systems;
  - (k) ship construction, including damage control;
  - (l) auxiliary systems.
  
4. Every candidate shall possess adequate practical knowledge, in at least the following subjects:
  - (a) operation and maintenance of:
    - (i) marine diesel engines;
    - (ii) marine steam propulsion plant;
    - (iii) marine gas turbines;
  - (b) operation and maintenance of auxiliary machinery systems, including steering gear systems;
  - (c) operation, testing and maintenance of electrical and control equipment;
  - (d) operation and maintenance of cargo handling equipment and deck machinery;
  - (e) detection of machinery malfunction, location of faults and action to prevent damage;
  - (f) organization of safe maintenance and repair procedures;
  - (g) methods of, and aids for, fire prevention, detection and extinction;
  - (h) regulations to be observed regarding pollution of the marine environment and methods and aids to prevent such pollution;
  - (i) first aid related to injuries which might be expected in machinery spaces and use of first aid equipment;
  - (j) functions and use of life-saving appliances;
  - (k) methods of damage control with specific reference to action to be taken in the event of flooding of sea water into the engine room;
  - (l) safe working practices.
  
5. Every candidate shall possess a knowledge of international maritime law as embodied in international agreements and conventions as they affect the specific obligations and responsibilities of the engine department, particularly those concerning safety and the protection of the marine environment. The extent of knowledge of national maritime legislation is left to the discretion of the Administration but shall include national arrangements for implementing international agreements and conventions.
  
6. Every candidate shall possess a knowledge of personnel management, organization and training aboard ship.

## REGULATION III/4

**Mandatory minimum requirements for certification of engineer officers in charge of a watch in a traditionally manned engine room or designated duty engineer officers in a periodically unmanned engine room**

1. Every engineer officer in charge of a watch in a traditionally manned engine room or the designated duty engineer officer in a periodically unmanned engine room on a sea-going ship powered by main propulsion machinery of 750 kW propulsion power or more shall hold an appropriate certificate.
2. Every candidate for certification shall:
  - (a) be not less than 18 years of age;
  - (b) satisfy the Administration as to medical fitness, including eyesight and hearing;
  - (c) have not less than a total of three years approved education or training, relevant to the duties of a marine engineer;
  - (d) have completed an adequate period of sea-going service which may have been included within the period of three years stated in subparagraph (c);
  - (e) satisfy the Administration that he has the theoretical and practical knowledge of the operation and maintenance of marine machinery appropriate to the duties of an engineer officer;
  - (f) have attended an approved practical fire-fighting course;
  - (g) have knowledge of safe working practices.

The Administration may vary the requirement of subparagraphs (c) and (d) 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 mind the effect on the safety of all ships which may be operating in the same waters.

3. Every candidate shall have knowledge of the operation and maintenance of main and auxiliary machinery, which shall include knowledge of relevant regulatory requirements and also knowledge of at least the following specific items:
  - (a) Watchkeeping routines
    - (i) duties associated with taking over and accepting a watch;
    - (ii) routine duties undertaken during a watch;
    - (iii) maintenance of the machinery space logbook and the significance of readings taken;
    - (iv) duties associated with handing over a watch.
  - (b) Main and auxiliary machinery
    - (i) assisting in the preparation of main machinery and preparation of auxiliary machinery for operation;
    - (ii) operation of steam boilers, including combustion system;
    - (iii) methods of checking water level in steam boilers and action necessary if water level is abnormal;
    - (iv) location of common faults of machinery and plant in engine and boiler rooms and action necessary to prevent damage.
  - (c) Pumping systems
    - (i) routine pumping operations;
    - (ii) operation of bilge, ballast and cargo pumping systems.
  - (d) Generating plant  
Preparing, starting, coupling and changing over alternators or generators.
  - (e) Safety and emergency procedures
    - (i) safety precautions to be observed during a watch and immediate actions to be taken in the event of a fire or accident, with particular reference to oil systems;
    - (ii) safe isolation of electrical and other types of plant and equipment required before personnel are permitted to work on such plant and equipment.

(f) Anti-pollution procedures

The precautions to be observed to prevent pollution of the environment by oil, cargo residue, sewage, smoke or other pollutants. The use of pollution prevention equipment, including oily water separators, sludge tank systems and sewage disposal plant.

(g) First aid

Basic first aid related to injuries which might be expected in machinery spaces.

4. Where steam boilers do not form part of a ship's machinery, the Administration may omit the knowledge requirements of paragraphs 3 (b) (ii) and (iii). 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 proves to be competent in the omitted items to the satisfaction of the Administration. Any such limitations shall be stated in the certificate.
5. The training to achieve the necessary theoretical knowledge and practical experience shall take into account relevant international regulations and recommendations.

#### REGULATION III/5

##### **Mandatory minimum requirements to ensure the continued proficiency and updating of knowledge for engineer officers**

1. Every engineer officer holding a certificate who is serving at sea or intends to return to sea after a period ashore shall, in order to continue to qualify for sea-going service in the rank appropriate to his certificate, be required at regular intervals not exceeding five years to satisfy the Administration as to:
  - (a) medical fitness, including eyesight and hearing; and
  - (b) professional competence:
    - (i) by approved service as an engineer officer of at least one year during the preceding five years; or
    - (ii) by virtue of having performed functions relating to the duties appropriate to the grade of certificate held which is considered to be at least equivalent to the sea-going service required in paragraph 1 (b) (i); or
    - (iii) by one of the following:
      - passing an approved test, or
      - successfully completing an approved course or courses, or
      - having completed approved sea-going service as an engineer officer for a period of not less than three months in a supernumerary capacity, or in a lower rank than that for which he holds the certificate, immediately prior to taking up the rank to which he is entitled by virtue of his certificate.
2. The course or courses referred to in paragraph 1 (b) (iii) shall include, in particular, changes in the relevant international regulations and recommendations concerning the safety of life at sea and the protection of the marine environment.
3. The Administration shall ensure that the texts of recent changes in international regulations concerning the safety of life at sea and the protection of the marine environment are made available to ships under its jurisdiction.

#### REGULATION III/6

##### **Mandatory minimum requirements for ratings forming part of an engine room watch**

1. The minimum requirements for a rating if forming part of an engine room watch shall be as set out in paragraph 2. These requirements are not for:

- (a) a rating nominated as the assistant to the engineer officer in charge of the watch <sup>(1)</sup>;
  - (b) a rating who is under training;
  - (d) a rating whose duties while on watch are of an unskilled nature.
2. Every rating forming part of an engine room watch shall:
- (a) be not less than 16 years of age;
  - (b) satisfy the Administration as to medical fitness, including eyesight and hearing;
  - (c) satisfy the Administration as to:
    - (i) experience or training regarding fire-fighting, basic first aid, personal survival techniques, health hazards and personal safety;
    - (ii) ability to understand orders, and make himself understood in matters relevant to his duties;
  - (d) satisfy the Administration that he has:
    - (i) shore experience relevant to his sea-going duties supplemented by an adequate period of sea-going service as required by the Administration; or
    - (ii) undergone special training either pre-sea or on board ship, including an adequate period of sea-going service as required by the Administration; or
    - (iii) approved sea-going service of at least six months.
3. Every such rating shall have knowledge of:
- (a) engine room watchkeeping procedures and the ability to carry out a watch routine appropriate to his duties;
  - (b) safe working practices as related to engine room operations;
  - (c) terms used in machinery spaces and names of machinery and equipment relative to his duties;
  - (d) basic environmental protection procedures.
4. Every rating required to keep a boiler watch shall have knowledge of the safe operation of boilers, and shall have the ability to maintain the correct water levels and steam pressures.
5. Every rating forming part of an engine room watch shall be familiar with his watchkeeping duties in the machinery spaces on the ship on which he is to serve. In particular, with respect to that ship the rating shall have:
- (a) knowledge of the use of appropriate internal communication systems;
  - (b) knowledge of escape routes from machinery spaces;
  - (c) knowledge of engine room alarm systems and ability to distinguish between the various alarms with special reference to fire extinguishing gas alarms;
  - (d) familiarity with the location and use of fire-fighting equipment in the machinery spaces.
6. A seafarer may be considered by the Administration to have met the requirements of this Regulation if he has served in a relevant capacity in the engine department for a period of not less than one year within the last five years preceding the entry into force of the STCW Convention for that Administration.

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<sup>(1)</sup> Reference is made to Resolution 9 — 'Recommendation on minimum requirements for a rating nominated as the assistant to the engineer officer in charge of the watch' adopted by the International conference on training and certification of seafarers, 1978.

CHAPTER IV  
RADIO PERSONNEL

Explanatory note:

Mandatory provisions relating to radio watchkeeping are set forth in the Radio Regulations and in the International Convention for the Safety of Life at Sea, 1974, as amended. Provisions for radio maintenance are set forth in the International Convention for the Safety of Life at Sea, 1974, as amended, and the guidelines adopted by the Organization <sup>(1)</sup>.

REGULATION IV/1

Application

1. The provisions of this chapter shall apply to radio personnel in a ship operating in the Global Maritime Distress and Safety System (GMDSS) as prescribed by the International Convention for the Safety of Life at Sea, 1974, as amended.
2. Until 1 February 1999, radio personnel on a ship complying with the provisions of the International Convention for the Safety of Life at Sea, 1974, in force prior to 1 February 1992, shall comply with the provisions of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, in force prior to 1 December 1992.

REGULATION IV/2

Mandatory minimum requirements for certification of GMDSS radio personnel

1. Every radio operator in charge of, or performing, radio communication duties on a ship shall hold an appropriate certificate or certificates issued or recognized by the Administration under the provisions of the Radio Regulations.
2. In addition, a radio operator on a ship which is required by the International Convention for the Safety of Life at Sea, 1974, as amended, to have a radio installation shall:
  - (a) be not less than 18 years of age;
  - (b) satisfy the Administration as to medical fitness, particularly regarding eyesight, hearing and speech;
  - (c) meet the requirements of the Appendix to this Regulation.
3. Every candidate for a certificate shall be required to pass an examination or examinations to the satisfaction of the Administration concerned.
4. The level of knowledge required for certification shall be sufficient for radio operators to carry out their radiocommunication duties safely and efficiently. The knowledge required for obtaining each type of certificate defined in the Radio Regulations shall be in accordance with those Regulations. In addition, for all types of certificates defined in the Radio Regulations, the required knowledge and training shall include the subjects listed in the Appendix to this Regulation. In determining the appropriate level of knowledge and the training, the Administration shall take into account the relevant recommendations of the Organization <sup>(2)</sup>.

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<sup>(1)</sup> Reference is made to the Radio maintenance guidelines for the Global Maritime Distress and Safety System (GMDSS) related to sea areas A3 and A4 adopted by the Organization by Resolution A.702 (17).

<sup>(2)</sup> Reference is made to the recommendations on training of radio personnel in the Global Maritime Distress and Safety System (GMDSS) adopted by the Organization by Resolution A. 703 (17).

## APPENDIX TO REGULATION IV/2

**Minimum additional knowledge and training requirements for radio personnel**

1. In addition to satisfying the requirements for the issue of a certificate in compliance with the Radio Regulations, radio operators shall have knowledge and training, including practical training, in the following:
  - (a) the provision of radio services in emergencies, including:
    - (i) abandon ship;
    - (ii) fire aboard ship;
    - (iii) partial or full breakdown of the radio installations;
  - (b) the operation of survival craft and rescue boats and their equipment, with special reference to radio life-saving appliances;
  - (c) survival at sea;
  - (d) first aid;
  - (e) fire prevention and fire-fighting, with particular reference to the radio installations;
  - (f) preventive measures for the safety of ship and personnel in connection with hazards related to radio equipment, including electrical radiation, chemical and mechanical hazards;
  - (g) the use of the Merchant Ship Search and Rescue Manual (Mersar) with particular reference to radiocommunications;
  - (h) ship position-reporting systems and procedures;
  - (i) the use of the International Code of Signals and the Standard Marine Navigational Vocabulary;
  - (j) radio medical systems and procedures.
2. The Administration may vary, as appropriate, the knowledge and training acquired by paragraph 1 for issue of a radio operator's certificate to a holder of a certificate issued under the provisions of Chapters II, III or IV, provided the Administration is satisfied that the standard of training or level of knowledge for issue of the certificate held is adequate.

## REGULATION IV/3

**Mandatory minimum requirements to ensure the continued proficiency and updating of knowledge for GMDSS radio personnel**

1. Every radio operator holding a certificate or certificates issued or recognized by the Administration shall, in order to continue to qualify for sea-going service, be required to satisfy the Administration as to the following:
  - (a) medical fitness, particularly regarding eyesight, hearing and speech, at regular intervals not exceeding five years; and
  - (b) professional competence;
    - (i) by performing radio service in a sea-going ship with no single interruption of service exceeding five years; or
    - (ii) by virtue of having performed functions relating to the duties appropriate to the grade of certificate held which are considered to be at least equivalent to the sea-going service required in paragraph 1 (b) (1); or
    - (iii) by passing an approved test or successfully completing an approved training course or courses at sea or ashore, which shall include elements which are of direct relevance to the safety of life at sea, and which are applicable for the certificate that the person is holding, in accordance with the requirements of the International Convention for the Safety of Life at Sea, 1974, as amended, and the Radio Regulations.

2. When new modes, equipment or practices are becoming mandatory aboard ships entitled to fly the flag of a Party, the Administration may require radio operators to pass an approved test or successfully complete an appropriate training course or courses, at sea or ashore, with particular reference to safety duties.
3. Every radio operator, in order to continue to qualify for sea-going service on board particular types of ships for which special training requirements have been internationally agreed upon, shall successfully complete approved relevant training or examinations which shall take into account relevant international regulations and recommendations.
4. The Administration shall ensure that the texts of recent changes in international regulations relating to radiocommunications and relevant to the safety of life at sea are available to ships entitled to fly its flag.
5. Administrations are encouraged, in consultation with those concerned, to formulate or promote the formulation of a structure of refresher and updating courses, either voluntary or mandatory, as appropriate, at sea or ashore, for radio operators who are serving at sea and especially for re-entrants to sea-going service. The course or courses should include elements that are of direct relevance to radio duties and include changes in marine radiocommunication technology and relevant international regulations and recommendations concerning the safety of life at sea.

## CHAPTER V

### SPECIAL REQUIREMENTS FOR TANKERS

#### REGULATION V/1

##### **Mandatory minimum requirements for the training and qualifications of masters, officers and ratings of oil tankers**

1. Officers and ratings who are to have specific duties, and responsibilities related to those duties, in connection with cargo and cargo equipment on oil tankers and who have not served on board an oil tanker as part of the regular complement, before carrying out such duties shall have completed an appropriate shore-based fire-fighting course; and
  - (a) an appropriate period of supervised shipboard service in order to acquire adequate knowledge of safe operational practices; or
  - (b) an approved oil tanker familiarization course which includes basic safety and pollution prevention precautions and procedures, layouts of different types of oil tankers, type of cargo, their hazard and their handling, equipment, general operational sequence and oil tanker terminology.
2. Masters, chief engineer officers, chief mates, second engineer officers and, if other than the foregoing, any person with the immediate responsibility for loading, discharging and care in transit or handling of cargo, in addition to the provisions of paragraph I, shall have:
  - (a) relevant experience appropriate to their duties on oil tankers; and
  - (b) completed a specialized training programme appropriate to their duties, including oil tanker safety, fire safety measures and systems, pollution prevention and control, operational practice and obligations under applicable laws and regulations.
3. Within two years after the entry into force of the STCW Convention for a Party, a seafarer may be considered to have met the requirements of paragraph 2 (b) if he has served in a relevant capacity on board oil tankers for a period of not less than one year within the preceding five years.

## REGULATION V/2

**Mandatory minimum requirements for the training and qualification of masters, officers and ratings of chemical tankers**

1. Officers and ratings who are to have specific duties, and responsibilities related to those duties, in connection with cargo and cargo equipment on chemical tankers and who have not served on board a chemical tanker as part of the regular complement, before carrying out such duties shall have completed an appropriate shore-based fire-fighting course; and
  - (a) an appropriate period of supervised shipboard service in order to acquire adequate knowledge of safe operational practices; or
  - (b) an approved chemical tanker familiarization course which includes basic safety and pollution prevention precautions and procedures, layouts of different types of chemical tankers, types of cargo, their hazards and their handling equipment, general operational sequence and chemical tanker terminology.
2. Masters, chief engineer officers, chief mates, second engineer officers and, if other than the foregoing, any person with the immediate responsibility for loading, discharging and care in transit or handling of cargo, in addition to the provisions of paragraph 1, shall have:
  - (a) relevant experience appropriate to their duties on chemical tankers; and
  - (b) completed a specialized training programme appropriate to their duties including chemical tanker safety, fire safety measures and systems, pollution prevention and control, operational practice and obligations under applicable laws and regulations.
3. Within two years after the entry into force of the 1978 STCW Convention for a Party, a seafarer may be considered to have met the requirements of paragraph 2 (b) if he has served in a relevant capacity on board chemical tankers for a period of not less than one year within the preceding five years.

## REGULATION V/3

**Mandatory minimum requirements for the training and qualifications of masters, officers and ratings of liquefied gas tankers**

1. Officers and ratings who are to have specific duties, and responsibilities related to those duties, in connection with cargo and cargo equipment on liquefied gas tankers and who have not served on board a liquefied gas tanker as part of the regular complement, before carrying out such duties shall have completed an appropriate shore-based fire-fighting course; and
  - (a) an appropriate period of supervised shipboard service in order to acquire adequate knowledge of safe operational practices; or
  - (b) an approved liquefied gas tanker familiarization course which includes basic safety and pollution prevention precautions and procedures, layouts of different types of liquefied gas tankers, types of cargo, their hazard and their handling equipment, general operational sequence and liquefied gas tanker terminology.
2. Masters, chief engineer officers, chief mates, second engineer officers and, if other than the foregoing, any person with the immediate responsibility for loading, discharging and care in transit or handling of cargo, in addition to the provisions of paragraph 1, shall have:
  - (a) relevant experience appropriate to their duties on liquefied gas tankers; and
  - (b) completed a specialized training programme appropriate to their duties including liquefied gas tanker safety, fire safety measures and systems, pollution prevention and control, operational practice and obligations under applicable laws and regulations.

3. Within two years after the entry into force of the 1978 STCW Convention for a Party, a seafarer may be considered to have met the requirements of paragraph 2 (b) if he has served in a relevant capacity on board liquefied gas tankers for a period of not less than one year within the preceding five years.

## CHAPTER VI

### PROFICIENCY IN SURVIVAL CRAFT

#### REGULATION VI/1

##### **Mandatory minimum requirements for the issue of certificates of proficiency in survival craft and rescue boats**

Every seafarer to be issued with a certificate of proficiency in survival craft shall:

- (a) be not less than 17,5 years of age;
- (b) satisfy the Administration as to medical fitness;
- (c) have approved sea-going service of not less than 12 months or have attended an approved training course and have approved sea-going service of not less than nine months;
- (d) satisfy the Administration by examination or by continuous assessment during an approved training course that he possesses knowledge of the contents of the Appendix to this Regulation;
- (e) demonstrate to the satisfaction of the Administration by examination or by continuous assessment during an approved training course that he possesses the ability to:
  - (i) don a life-jacket correctly; safely jump from a height into the water; board a survival craft from the water while wearing a life-jacket;
  - (ii) right an inverted liferaft while wearing a life-jacket;
  - (iii) interpret the markings on survival craft and rescue boats with respect to the number of persons they are permitted to carry;
  - (iv) make the correct commands required for launching and boarding the survival craft and rescue boats, clearing the ship and handling and disembarking from the survival craft or rescue boats;
  - (v) prepare and launch survival craft and rescue boats safely into the water and clear the ship's side quickly;
  - (vi) deal with injured persons both during and after abandonment;
  - (vii) row and steer, erect a mast, set the sails, manage a boat under sail and steer a boat by compass;
  - (viii) use signalling equipment, including rocket parachute flares, hand flares and buoyant smoke signals;
  - (ix) use radio life-saving appliances;
  - (x) don and use an immersion suit; use a thermal protective aid.

#### APPENDIX TO REGULATION VI/1

##### **Minimum knowledge required for the issue of certificates of proficiency in survival craft**

1. Types of emergency situations which may occur, such as collisions, fire, foundering.
2. Principles of survival including:
  - (a) value of training and drills;
  - (b) need to be ready for any emergency;

- (c) actions to be taken when called to survival craft and rescue boat stations;
  - (d) actions to be taken when required to abandon ship;
  - (e) actions to be taken when in the water;
  - (f) actions to be taken when aboard a survival craft or a rescue boat;
  - (g) main dangers to survivors.
3. Special duties assigned to each crew member as indicated in the muster list, including the differences between the signals calling all crew to survival craft and to fire stations.
  4. Types of life-saving appliances normally carried on board ships.
  5. Construction and outfit of survival craft, rescue boats and individual items of their equipment.
  6. Particular characteristics and facilities of survival craft and rescue boats.
  7. Various types of devices used for launching survival craft and rescue boats.
  8. Methods of launching survival craft and rescue boats into a rough sea.
  9. Action to be taken after leaving the ship.
  10. Handling survival craft and rescue boats in rough weather.
  11. Use of painter, sea anchor and all other equipment.
  12. Apportionment of food and water in survival craft.
  13. Methods of helicopter rescue.
  14. Use of the first aid kit and resuscitation techniques.
  15. Radio life-saving appliances carried in survival craft and rescue boats, including satellite emergency position indicating radio beacons.
  16. Effects of hypothermia and its prevention; use of protective covers and protective garments including immersion suits and thermal protective aids.
  17. Methods of starting and operating a survival craft or rescue boats engine and its accessories together with the use of fire extinguisher provided.
  18. Use of rescue boats and lifeboats for marshalling liferafts and rescue of survivors and persons in the sea.
  19. Beaching survival craft and rescue boats.
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