GENERAL NOTICE

NOTICE 189 OF 2006

Draft Merchant Shipping Regulations: For comment

South African Maritime Safety Authority

Draft Merchant Shipping Regulations: For comment

The South African Maritime Safety Authority (SAMSA) publishes for public comment the proposed measures set out in the accompanying Schedule. Written submissions should reach SAMSA on or **before 31 March 2006 (Note:** late submission may be disregarded). These should be addressed to the Chief Executive Officer (for the attention of Mr C Briesch) and may be either:

- hand-delivered to SAMSA, 161 Lynwood Road, Brooklyn 0181, Pretoria; or
- mailed to SAMSA, PO Box 13186 Hatfield 0028; or
- faxed to (012) 366 2601; or
- emailed to cbriesch@samsa.org.za.

Telephonic enquiries should be directed to Mr C Briesch at (012) 366 2624. Attention is invited to the explanatory note appearing at the end of each set of regulations.

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Part 1A Draft Merchant Shipping (Training and Certification) Amendment Regulations, 2006 (No. 1)

1 Title and commencement

(1) These regulations are called the ***Merchant Shipping (Training and Certification) Amendment Regulations, 2006 (No.** 1).*

(2) These regulations commence on the day they are published in the Gazette.

2 Definitions

In these regulations "**the Regulations**" means the ***Merchant Shipping (Training and Certification) Regulations, 1999,*** published by Government Notice No. R. 1547 of 30 December 1999, as amended by Government Notices Nos. R. 502 of ***26*** April 2002, and 1196 and 1197 of 15 October 2004.

3 Amendment of Regulation 1 of Regulations

Regulation 1 of the Regulations is amended —

(a) by the deletion in subregulation (1) of the definitions of "accelerated training" and "accredited institution";

(b) by the insertion in subregulation (1) before the definition of "approved" of the following definition:

"'**accredited**' means accredited by the Authority;";

(c) by the insertion in subregulation (1) after the definition of "approved" of the following definitions:

"'**approved accelerated training programme',** for certification of a particular kind, means an accelerated training programme approved for certification of that kind;

'**approved training',** for certification of a particular kind, means training programmes and/or courses approved for certification of that kind;

'**approved training record book',** for certification of a particular kind, means a training record book approved for certification of that kind;";

(d) by the deletion in subregulation (1) of the definitions of "approved sea service" and "assessor";

(e) by the insertion in subregulation (1) after the definition of "assistant engineer officer" of the following definitions:

"'**candidate**' means a person desiring certification in terms of these regulations;

'**certificate**' and '**certification**' means a certificate of competency or qualification and includes an endorsement; **";**

(f) by the substitution in subregulation (1) for the definition of "certificated" of the following definition:

"'**certificated',** in relation to—

(a) a deck officer on a ship **of** a particular kind, means holding valid appropriate certification that entitles the holder to serve **as** an officer in charge of a navigational watch on a ship of that kind; and

(b) **an** engineer officer on a ship of a particular kind, means holding valid appropriate certification that entitles the holder to serve as an officer in charge of an engineering watch on a ship of that kind;";

(g) by the substitution in subregulation (1) for the definition of "deck officer" of the following definition:

"'**deck officer**' means a ship's officer serving in the deck department on a ship, and includes the master;";

(h) by the insertion in subregulation (1) after the definition of "deck officer" of the following definition:

"'**deck officer certificate**' means the certification covered by Division 1 **of Part 3;";**

(i) by the deletion in subregulation (1) of the definition of "deck rating";

(j) by the substitution in subregulation (1) for the definitions of "endorsement" and "engineer officer" of the following definitions:

"'**endorsement**' means a document that is appended to a certificate of competency and that modifies the terms **of** the certificate;

'**engineer officer**' means a ship's officer serving in the engine department on a ship;";

(k) by the insertion in subregulation (1) after the definition of "engineer officer" of the following definitions:

"'**engineer officer certificate**' means the certification covered by Division **2** of **Part 3;**

'**equivalent certification**' has the meaning given by regulation 4(1);";

(l) by the deletion in subregulation (1) of the definition of "engineer rating";

(m) by the substitution in subregulation (1) for the definition of "examiner" of the following definition:

"'**examiner**' means a person appointed as an examiner under section 77(4) of the Act;";

(n) by the deletion in subregulation (1) of the definition of "general purpose rating";

(o) by the substitution in subregulation (1) for the definition of "GT" of the following definition:

"'**GT**', for a ship, means its gross tonnage calculated in accordance with the ***Tonnage Regulations, 1986;";***

(p) by the insertion in subregulation (1) after the definition of "GT" of the following definition:

"'**holder**', of a certificate or other document, means the person identified as holder by the certificate or document;";

(q) by the insertion in subregulation (1) after the definition of "**IGC** Code" of the following definition:

"'**length**' has the same meaning as in regulation *2* of the ***Tonnage Regulations, 1986;";***

(r) by the insertion in subregulation (1) after the definition of "oil tanker" of the following definition:

"'**onboard training**' is training that—

(a) is conducted principally on board a vessel during qualifying service; and

(b) is set out, and assessed, in an approved training record book;";

(s) by the substitution in subregulation (1) for the definition of "qualifying service" of the following definition:

"'**qualifying service**', for certification of a particular **kind,** means the sea service or port operations service, as the case may be, required for certification of that kind;";

(t) by the insertion in subregulation (1) after the definition of "unlimited" of the following definition:

"'**valid**', in relation to a certificate or other document, means a certificate or document that is current and that has not been suspended or cancelled;";

(u) by the substitution for subregulation (2) of the following subregulation:

"(2) A reference in these regulations to a particular level of assessment shall be read as a reference to assessment at that level in accordance with regulation 18."; and

(v) by the deletion of subregulation (3).

4 Amendment of regulation 2 of Regulations

Regulation 2 of the Regulations is amended—

(a) by the substitution for subregulations (1) and (2) of the following subregulations:

"(1) These regulations prescribe the conditions to be met and the standards of competence required for the issue of the certification specified in subregulations (3), (4), (5) and (6).

(2) A person is qualified for the purposes of the Act to serve in a certificated capacity covered by these regulations, if—

(a) in the case of a master or ship's officer, the person—

(i) holds a valid appropriate certificate of competency as master or ship's officer as specified in subregulation (3) or (4); or

(ii) holds equivalent certification; or

(iii) has been authorised under section 83(1) of the Act to serve in the capacity concerned; and

(b) in the case of a rating, the person holds—

(i) a valid appropriate certificate of qualification as a rating as specified in subregulation (5); or

(ii) equivalent certification; or

(iii) valid appropriate certification that has been endorsed in accordance with the STCW Convention by or on behalf of the government of another country; or

(iv) valid certification issued by or on behalf of the government of another country that the Authority is satisfied qualifies the person to serve in the capacity concerned.";

(b) by the substitution for paragraphs (h) and (i) of subregulation (3) of the following paragraphs:

"(h) skipper (unlimited)

— master of a ship of less than 200 GT on unlimited voyages *(management* level);

(i) skipper (coastal)

— master of a ship of less than 200 GT on near-coastal voyages *(management level);* and";

(c) by the substitution for subparagraph (i) of subregulation (4)(d) of the following subparagraph:

"(i) officer in charge of an engineering watch on a ship of any kilowatt propulsion power *(operational level);";*

(d) by the substitution for paragraph (e) of subregulation (4) of the following paragraph:

"(e) chief engineer officer (port operations)

— chief engineer officer of a ship of less than 1500kW propulsion power operating within a port operations area;";

(e) by the substitution for subparagraph (ii) of subregulation (4)(f) of the following subparagraph:

"(ii) endorsed chief engineer offieer of a ship of less than 1 500 kW propulsion power operating within in a port operations area.";

(f) by the substitution for subregulation *(5)* of the following subregulation:

"(5) Subject to subregulation (7), the certificates of qualification, with their relative levels of responsibility (if any), applicable to ratings are—

(a) ordinary seaman *(support level);*

(b) able seaman *(support level);*

(c) wiper *(support level);*

(d) oiler *(support level);*

(e) ordinary seaman (port operations);

(f) able seaman (port operations);

(g) wiper (port operations);

(h) oiler (port operations);

(i) efficient general purpose rating (port operations); and

(j) efficient cook."; and

(g) by the substitution for subregulation (9) of the following subregulation:

"(9) The certificates mentioned in subregulations (3) to (6) shall be issued and endorsed in accordance with the STCW Convention, except—

(a) the certificates of competency (special grade);

(b) the port operations certification;

(c) the certificate of qualification as efficient cook; and

(d) the certificate of qualification as proficient in liferafts.".

5 Amendment of regulation 3 of Regulations

Regulation 3 of the Regulations is amended—

(a) by the substitution for subregulations (1) and (2) of the following subregulations:

"(1) A certificate of competency issued in terms of these regulations, and any equivalent certification, is not valid for sea service or port operations service unless revalidated at intervals not exceeding five years to establish continued professional competence in accordance with subregulation (2).

(2) Continued professional competence is established—

(a) by—

(i) Completing, during the preceding five years, at least 12 months sea service or port operations service, as appropriate to the certification held; or

(ii) performing functions considered by the Authority to be equivalent to the service mentioned in subparagraph (i); or

(iii) completing—

(aa) in a supernumerary capacity, at least three months sea service or port operations service, as appropriate to the certification held; and

(bb) assessment at level 3 to meet the standard of competence specified in the Code; and

(b) by completing applicable approved (refresher) training and meeting the standard of competence specified in the Code.";

(b) by the deletion of subregulation (3);

(c) by the substitution for subregulation (4) of the following subregulation:

"(4) Application for revalidation shall be made in the form and manner, include the information and be accompanied by the documents specified by the Authority."; and

(d) by the deletion of subregulation (6).

6 Substitution of regulation 4 of Regulations

The following regulation is substituted for regulation 4 of the Regulations:

"4 Equivalent certification

(1) *Equivalent certification* is valid certification that—

(a) was issued—

(i) before the commencement of these regulations; or

(ii) thereafter in terms of regulation 72; and

(b) is taken, in terms of regulation 23 of the *Merchant Shipping (Safe Manning) Regulations, 1999,* to be equivalent to the specified certification in terms of these regulations.

(2) Equivalent certification shall be exchanged for the corresponding certification in terms of these regulations in the manner and within the time specified by the Authority.".

7 Substitution of regulation 6 of Regulations

The following regulation is substituted for regulation 6 of the Regulations:

"6 Senior examiners

(1) For these regulations, the Authority shall designate in writing, from among the examiners, a senior examiner (deck) and a senior examiner (engine).

(2) In addition to the functions specified in these regulations, a senior examiner has the other functions specified in his or her instrument of designation.".

8 Substitution of regulation 8 of Regulations

The following regulation is substituted for regulation **8** of the Regulations:

"8 Syllabus committee

(1) The Authority may establish a committee (the ***syllabus committee)*** to advise it about the implementation and operation of these regulations and the related provisions of the Code.

(2) The syllabus committee shall consist of—

(a) the chair, who shall be a senior examiner designated in writing for the purpose by the Authority; and

(b) the other senior examiner; and

(c) the Registrar; and

(d) not more than nine other members, appointed in writing by the Authority, who shall be persons with appropriate knowledge and experience in matters relating to the education and training of seafarers.

(3) The Authority may give the syllabus committee Written directions about—

(a) the way in which the committee is to carry out its work; and

(b) procedures to be followed in relation to its meetings.

(4) The syllabus committee shall take account of the directions given to it by the Authority.

(5) The Authority may reconstitute or disband the syllabus committee at any time, as it thinks fit.".

9 Insertion of regulations 8A and 8B in Regulations

The following regulations are inserted in Part 1 of the Regulations after regulation 8:

"8A Mislaid, lost or destroyed certification

If certification issued in terms of these regulations is at any time mislaid, lost or destroyed, the Registrar may issue replacement certification on application made by the holder in the form and manner and including the information and accompanied by the documents specified by the Authority.

8B Accreditations and approvals

Every accreditation or approval in terms of these regulations —

(a) shall be given in writing; and

(b) shall state the date on which it takes effect and expires and the conditions (if any) on which it is given; and

(c) may, after reasonable notice, be altered or cancelled.".

10 Repeal of regulation 9 of Regulations

Regulation 9 of the Regulations is repealed.

11 Substitution of regulations 10 and 11 of Regulations

The following regulations are substituted for regulations 10 and 11 of the Regulations:

"10 Dates and places for level 3 assessments

(1) The Authority shall publish at least annually in a marine notice the times and places for level 3 assessments.

(2) However, published times and places may be varied by agreement between examiner and candidate.

11 How to apply

(1) Unless subregulation (2) applies, application for certification in terms of these regulations shall be made in the form and manner specified by the Authority and be accompanied by the appropriate documents specified in the Annex.

(2) Application for certification in terms of Division 4 of Part 3 shall be made in the form and manner, include the

information and be accompanied by the documents specified by the Authority.

(3) If the certification requires assessment at level 3, the application shall be made at least 14 days before the intended date of assessment.".

12 Amendment of regulation 12 of Regulations

Regulation 12 of the Regulations is amended by the substitution for subregulation (1) of the following subregulation:

"(1) In the case of doubt about the appropriateness or sufficiency of a candidate's qualifying service, the candidate may submit his or her case, accompanied by the relevant certificates, discharges, testimonials, training records, watchkeeping certificates and such other documents as may be required, for determination by the relevant senior examiner.".

13 Repeal of regulation 13 of Regulations

Regulation 13 of the Regulations is repealed.

14 Substitution of regulations 14 and 15 of Regulations

The following regulations are substituted for regulations 14 and 15 of the Regulations:

"14 Bribery

A candidate who has been convicted of bribery as described in section 314 of the Act or upon whom a penalty for such bribery has been imposed under section 324 of the Act shall be disqualified from obtaining any certification in terms of these regulations for a period expiring 12 months after the date of the conviction or imposition of the penalty, as the case may be.

15 Unsatisfactory conduct

(1) If the Authority finds that a candidate's conduct during qualifying service is unsatisfactory, the Authority —

(a) shall refuse the application for certification; and

(b) may require that the candidate perform a further period of qualifying service, not exceeding 24 months, before reapplying for the certification concerned.

(2) Unsatisfactory conduct is conduct of the following kind

(a) signing a crew agreement, as mentioned in section 102 of the Act, and failing, without reasonable excuse, to join the ship concerned;

(b) absence without leave, or desertion, from a ship;

(c) misconduct.".

15 Repeal of regulations 16 and 17 of Regulations

Regulations 16 and 17 of the Regulations are repealed.

16 Substitution of regulation 18 of Regulations

The following regulation is substituted for regulation 18 of the Regulations:

"18 Assessing competence

(1) Candidates required to meet an applicable standard of competence specified in the Code shall be assessed to meet that standard at one or more of the following levels (listed from lowest to highest), as the case requires:

(a) Level 1 candidates required to complete onboard training shall be assessed at this level in an approved training record book;

(b) Level 2 candidates required to complete approved training shall be assessed at this level at the accredited maritime training provider providing the training;

(c) Level 3 candidates for a certificate of competency, any endorsement to a certificate of competency (except in terms of Division 4 of Part 3), or the removal of any limitation to a certificate of competency shall be assessed at this level by way of oral examination in terms of regulation 18B.

(2) A candidate required to be assessed at more than one level shall not be assessed at the higher level before he or she has been found competent at the lower level.".

17 Insertion of regulations 18A and 18B in Regulations

The following regulations are inserted in the Regulations after regulation 18:

"18A Level 2 assessment

(1) This regulation applies to written examinations that form part of assessment at level 2 for the certificates of competency, and related endorsements, covered by these regulations.

(2) The Authority shall designate, in Writing, one or more examiners to do any one or more of the following:

(a) moderate examination question papers, memoranda and scripts;

(b) re-mark examination scripts, if requested by the maritime training provider concerned,

(c) consult with instructors, supervisors and assessors, about defects or other problems detected in examination memoranda or scripts.

(3) For a course covering the syllabus in the Code for chartwork, navigation, naval architecture or emergency procedures, the minimum aggregate mark for a candidate for a deck officer certificate shall be 60 per cent. For other candidates, and courses covering other syllabuses, the minimum aggregate mark shall be 50 per cent.

(4) In the case of doubt about a candidate's aggregate mark for a course covering the syllabus in the Code for chartwork, navigation, naval architecture, emergency procedures or engineering knowledge, the decision of the relevant senior examiner shall be final.

18B Level 3 assessment

(1) The main purpose of the level 3 assessment is to assess a candidate's competence in the practical aspects of a seafarer's duties and responsibilities.

(2) The assessment shall be conducted by an examiner in the presence of another approved person.

(3) (a) If a candidate is assessed as competent and complies in all other respects with the requirements for the issue of the certification concerned, the examiner shall issue the candidate with an interim certificate in the approved form.

(b) The interim certificate

(i) shall be valid for six months from its date of issue; and

(ii) during that period, serves as interim certification (pending the issue of the appropriate full-term certification by the Registrar); and

(iii) shall be surrendered to the Authority when the holder is issued with the full-term certification.

(4) If a candidate is assessed as not yet competent, the examiner shall issue the candidate with a written notice, signed by the examiner, stating—

(a) the details of the assessment; and

(b) the conditions (if any) imposed by the examiner; and

(c) the requirement to produce the notice when next applying for assessment at level 3.

(5) If a candidate is assessed as not yet competent because of a significant deficiency in the candidate's practical knowledge, the examiner may require that the candidate complete a further period of appropriate qualifying service, not exceeding six months, before reapplying for the certification concerned.

(6) If a Candidate, without reasonable excuse, fails to appear for the assessment at the appointed time and place, the examiner shall assess the candidate as not yet competent by default.".

18 Repeal of regulations 19 and 20 of Regulations

Regulations 19 and 20 of the Regulations are repealed.

19 Substitution of regulation 21 of Regulations

The following regulation is substituted for regulation 21 of the Regulations:

"21 Proficiency in English

(1) For certification as master or ship's officer, a candidate shall have a command of English that is appropriate to the efficient discharge of routine and emergency duties and responsibilities associated with the certificate concerned.

(2) An examiner may require that a candidate demonstrate proficiency consistent with subregulation (1).

(3) A requirement under subregulation (2) shall take account of—

(a) the obligations of the Republic under the STCW Convention; and

(b) any related resolutions adopted by the International Maritime Organisation.".

20 Repeal of regulation 22 of Regulations

Regulation **22** of the Regulations is repealed.

21 Substitution of Divisions 1, 2 and 3 of Part 3 of Regulations

The following Divisions are substituted for Divisions 1, 2 and 3 of **Part** 3 of the Regulations:

"Division I Deck officer certificates

23 Skipper (port operations)

(1) For the certificate of competency as skipper (port Operations), a candidate shall—

(a) be at least **18** years of age; and

(b) have at least **12** months sea service or port operations service in the deck department on any of the following **kinds** of ships of **25** GT or more:

(i) trading ships;

(ii) fishing vessels;

(iii) ships of class V, VI or XII (within the meaning of the Construction Regulations, ***1968);***

(iv) port operations vessels;

(v) naval ships; and

(c) have performed, during the required service, bridge watchkeeping duties under the supervision of a certificated deck officer for at least six months; **and**

(d) have completed approved training and meet the standard of competence specified in the Code.

(2) If the port operations service contemplated in subregulation (1)(b) has been performed on ships restricted to operating within the confines of the

breakwaters of a port, the certificate shall be limited accordingly.

24 Skipper (coastal)

For the certificate of competency as skipper (coastal), a candidate shall —

ALTERNATIVE **A**

(a) be at least I8 years of age; and

(b) have at least 12 months sea service in the deck department on any of the following **kinds** of ships of **25** GT or more:

(i) trading ships;

(ii) fishing vessels;

(iii) ships of class V or XII (within the meaning of the *Construction Regulations, 1968);*

(iv) naval ships; and

(c) have performed, during the required sea service, bridge watchkeeping duties under the supervision of a certificated deck officer for at least ***six*** months; and

(d) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE B

*(if the candidate holds **the** certificate of competency as skipper (port operations))*

(a) have completed, while holding as a minimum the certificate of competency as skipper (port operations), at least six months sea service in the deck department on any of the following kinds of ships of **25** GT or more:

(i) trading ships;

(ii) fishing vessels;

(iii) ships of class V or XII (within the meaning of the *Construction Regulations, 1968);*

(iv) naval ships; and

(b) have performed, during the required sea service, bridge watchkeeping duties under the supervision

of a certificated deck officer for at least three months; and

(c) have completed approved training and meet the standard of competence specified in the Code.

24A Skipper (unlimited)

For the certificate of competence as skipper (unlimited), a candidate shall —

ALTERNATIVE A

(a) be at least 18 years of age; and

(b) have at least 12 months sea service in the deck department on any of the following kinds of ships of 25 GT or more on unlimited voyages:

(i) trading ships;

(ii) fishing vessels;

(iii) ships of class V or XII (within the meaning of the *Construction Regulations, 1968*);

(iv) naval ships; and

(c) have performed, during the required sea service, bridge watchkeeping duties under the supervision of a certificated deck officer for at least six months; and

(d) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE B

(if the candidate holds the certificate of competency as skipper (port operations))

(a) have completed, while holding as a minimum the certificate of competency as skipper (port operations), at least six months sea service in the deck department on any of the following kinds of ships of 25 GT or more on unlimited voyages:

(i) trading ships;

(ii) fishing vessels;

(iii) ships of class V or XII (within the meaning of the *Construction Regulations, 1968);*

(iv) naval ships; and

(b) have performed, during the required sea service, bridge watchkeeping duties under the supervision of a certificated deck officer for at least three months; and

(c) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE C

(if the candidate holds the certificate of competency as skipper (coastal))

(a) have completed, while holding as a minimum the certificate of competency as skipper (coastal), at least six months sea service in the deck department on any of the following kinds of ships of 25 GT or more on unlimited voyages:

(i) trading ships;

(ii) fishing vessels;

(iii) ships of class V or XII (within the meaning of the ***Construction Regulations, 1968);***

(iv) naval ships; and

(b) have completed approved training and meet the standard of competence specified in the Code.

25 Mate (coastal)

For the certificate of competency as mate (coastal), a candidate shall —

ALTERNATIVE A

(a) be at least 18 years of age; and

(b) have at least 12 months sea service in the deck department on trading ships of 100 GT or more on unlimited or near-coastal voyages; and

(c) have completed, during the required sea service, onboard training that is documented in an approved training record book; and

(d) have performed, during the required sea service, bridge watchkeeping duties under the supervision of a certificated deck officer for at least six months; and

(e) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE B

(if the candidate holds the certificate of competency as skipper (unlimited) or skipper (coastal))

(a) have completed, while holding as a minimum the certificate of competency as skipper (unlimited) or skipper (coastal), at least six months sea service in the deck department on trading ships of 100 GT or more on unlimited or near-coastal voyages; and

(b) have completed, during the required sea service, onboard training that is documented in an approved training record book; and

(c) have performed, during the required sea service, bridge watchkeeping duties under the supervision of a certificated deck officer for at least three months; and

(d) have completed approved training and meet the standard of competence specified in the Code.

26 Master (port operations)

(1) For the certificate of competency as master (port operations), a candidate shall—

ALTERNATIVE A

(a) be at least 20 years of age; and

(b) have completed, while holding as a minimum the certificate of competency as skipper (port operations), at least 12 months port operations service as officer in charge of a navigational watch on port operations vessels of 100 GT or more; and

(c) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE B

(if the candidate holds the certificate of competency as mate (coastal))

(a) be at least 20 years of age; and

(b) have completed, while holding as a minimum the certificate of Competency as mate (coastal), at least 12 months sea service as officer in charge of a navigational watch on trading ships of 100 GT or more on unlimited or near-coastal voyages; and

(c) have completed approved training and meet the standard of competence specified in the Code.

(2) **If** the port operations service contemplated in paragraph (a) of **ALTERNATIVE A** in subregulation (1) has been performed on ships restricted to operating within the confines of the breakwaters of a port, the certificate shall be limited accordingly.

27 Master (coastal)

(1) For the certificate of competency as master (coastal), a candidate shall —

(a) be at least 20 years of age; and

(b) have completed, while holding as a minimum the certificate of competency as mate (coastal), at least 12 months sea service as officer in charge of a navigational watch on trading ships of 100 GT or more on unlimited or near-coastal voyages; and

(c) have Completed approved training and meet the standard of competence specified in the Code.

28 Deck officer

For the certificate of competency as deck officer, a candidate shall —

ALTERNATIVE A

(a) be at least 18 years of age; and

(b) have at least 36 months sea service in the deck department on trading ships of 500 GT or more on unlimited voyages; and

(c) have completed, during the required sea service, onboard training that is documented in an approved training record book; and

(d) have performed, during the required sea service, bridge watchkeeping duties under the supervision of a certificated deck officer for at least six months; and

(e) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE B

(accelerated training, if the candidate has a grade 12 or equivalent pass with mathematics and physics as subjects)

(a) be at least 18 years of age; and

(b) have at least 12 months sea service in the deck department on trading ships of 500 GT or more on unlimited voyages as part of an approved accelerated training programme that includes onboard training documented in an approved training record book; and

(c) have performed, during the required sea service, bridge watchkeeping duties under the supervision of a certificated deck officer for at least six months; and

(d) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE C

(if the candidate holds the certificate of competency as master (coastal) or mate (coastal))

(a) have at least six months sea service in the deck department on trading ships of 500 GT or more on unlimited voyages; and

(b) have performed, during the required sea service, bridge watchkeeping duties under the supervision of a certificated deck officer for at least three months; and

(c) have completed approved training and meet the standard of competence specified in the Code.

29 Endorsement as chief mate of a ship of less than 3 000 GT on unlimited voyages

For the endorsement as chief mate of a ship of less than 3 000 GT on unlimited voyages, a candidate shall —

(a) have completed, while holding as a minimum the certificate of competency as deck officer, at least 12 months sea service as officer in charge of a navigational watch on trading ships of 500 GT or more on unlimited voyages; and

(b) have completed approved training and meet the standard of competence specified in the Code.

30 **Endorsement as master of a ship of less than 500 GT on unlimited voyages**

For the endorsement as master of a ship of less than 500 GT on unlimited voyages, a candidate shall —

(a) have completed, while holding as a minimum the certificate of competency as deck officer, at least 12 months sea service as officer in charge of a navigational watch on trading ships of 100 GT or more on unlimited voyages; and

(b) have completed approved training and meet the standard of competence specified in the Code.

30A Endorsement as master of a ship of less than 3 000 GT on unlimited voyages

For the endorsement as master of a ship of less than 3 000 GT on unlimited voyages, a candidate shall —

ALTERNATIVE A

(if the candidate holds the certificate of competency as deck officer)

(a) have completed, while holding as a minimum the certificate of competency as deck officer, at least 36 months sea service as officer in charge of a navigational watch on trading ships of 500 GT or more on unlimited voyages; and

(b) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE B

(if the candidate holds the certificate of competency as chief mate)

(a) have completed, while holding as a minimum the certificate of competency as chief mate or the endorsement as chief mate of a ship of less than 3 000 GT on unlimited voyages, at least 12 months sea service as chief mate of a trading ship of 500 GT or more on unlimited voyages; and

(b) have completed approved training and meet the standard of competence specified in the Code.

31 Chief mate

For the certificate of competency as chief mate, a candidate shall—

(a) have completed, while holding as a minimum the certificate of competency as deck officer, at least 12 months sea service as officer in charge of a navigational watch on trading ships of 3 000 GT or more on unlimited voyages; and

(b) have completed approved training and meet the standard of competence specified in the Code.

32 Master

For the certificate of competency as master, a candidate shall—

ALTERNATIVE A

(if the candidate holds the certificate of competency as deck officer)

(a) have completed, while holding as a minimum the certificate of competency as deck officer, at least 36 months sea service as officer in charge of a navigational watch on trading ships of 3 000 GT or more on unlimited voyages; and

(b) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE B

(if the candidate holds the certificate of competency as chief mate)

(a) have completed, while holding as a minimum the certificate of competency as chief mate, at least 12 months sea service as chief mate of a trading ship of 3 000 GT or more on unlimited voyages; and

(b) have completed approved training and meet the standard of competence specified in the Code.

33 Mining operations limitation

(1) If more than half a candidate's qualifying service for certification referred to in regulation 25, 27, 28, 29, 30, 30A, 31 or 32 is made up of sea service performed on ships employed in mining operations contemplated in

regulation 61(2)(b)(ii), the certification concerned shall be limited to mining operations.

(2) For this regulation, references in regulations 25, 27, 28, 29, 30, 30A, 31 and 32 to sea service shall be taken to include sea service performed on ships employed in mining operations.

34 Master (special grade)

For the certificate of competency as master (special grade), a candidate shall —

(a) hold the certificate of competency as master; and

(b) while holding that certificate, have completed approved training and meet the standard of competence specified in the Code.".

Division 2 Engineer officer certificates

35 Second engineer officer (port operations)

For the certificate of competency as second engineer officer (port operations), which includes the endorsement mentioned in regulation 2(4)(f)(ii), a candidate shall —

(a) be at least 18 years of age; and

(b) have completed at least six months sea service, or port operations service, as assistant engineer officer on ships of 750 kW propulsion power or more under the supervision of a certificated engineer officer; and

(c) have completed an approved accelerated training programme of at least 30 months that includes onboard training documented in an approved training record book and meet the standard of competence specified in the Code.

36 Chief engineer officer (port operations)

For the certificate of competency as chief engineer officer (port Operations), a candidate shall —

(a) have completed, while holding as a minimum the certificate of competency as second engineer officer (port operations), at least 12 months port operations service as officer in charge of an engineering watch on ships of 750 kW propulsion

power or more of which at least three months shall have been on ships **of** 1 500 kW propulsion power or more; and

(b) have completed approved training and meet the standard of competence specified in the Code.

37 Engineer officer

For the certificate of competency as engineer officer, **a** candidate shall —

ALTERNATIVE A

(a) be at least 18 years of age; and

(b) have at least 18 months sea service in the engine department on trading ships of 750 kW propulsion power or more of which at least **six** months shall have been served as assistant engineer **officer** under the supervision of a certificated engineer officer; and

(c) have completed, during the required sea service, onboard training that is documented **in** an approved training record **book;** and

(d) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE B

*(accelerated **training)***

(a) be at least 18 years of age; and

(b) have completed at least six months sea service as assistant engineer officer on **trading** ships **of** 750 kW propulsion power **or** more **under** the supervision **of** a certificated engineer officer; and

(c) have completed an approved accelerated **training** programme of at least **30** months that includes onboard training documented in an approved training record book and meet the standard **of** competence specified in the Code,

or

ALTERNATIVE C

(if the candidate holds the certificate of competency as marine motorman higher grade)

(a) have completed, while holding as a minimum the certificate of competency as marine motorman higher grade, at least three months sea service as assistant engineer officer on trading ships of 750 kW propulsion power or more under the supervision of a certificated engineer officer; and

(b) have completed approved training and meet the standard of competence specified in the Code.

38 Second engineer officer (< 3 000 kW)

For the certificate of competency as second engineer officer of a ship of less than 3 000 kW propulsion power, a candidate shall —

(a) have completed, while holding as a minimum the certificate of competency as engineer officer, at least 12 months sea service as officer in charge of an engineering watch on trading ships of 750 kW propulsion power or more; and

(b) have completed approved training and meet the standard of competence specified in the Code.

38A Second engineer officer (≥ 3 000 kW)

For the certificate of competency as second engineer officer of a ship of 3 000 kW propulsion power or more, a candidate shall —

(a) have completed, while holding as a minimum the certificate of competency as engineer officer, at least 12 months sea service as officer in charge of an engineering watch on trading ships of 3 000 kW propulsion power or more; and

(b) have completed approved training and meet the standard of competence specified in the Code.

39 Chief engineer officer (< 3 000 kW)

For the certificate of competency as chief engineer officer of a ship of less than 3 000 kW propulsion power, a candidate shall —

(a) have at least 36 months sea service as assistant engineer officer, or engineer officer, on trading

ships of 750 kW propulsion power or more of which at least 12 months shall have been served as officer in charge of an engineering watch while holding as a minimum the certificate of competency as second engineer officer of a ship of less than 3 000 kW propulsion power; and

(b) have completed approved training and meet the standard of competence specified in the Code.

39A Chief engineer officer (≥ 3 000 kW)

For the certificate of competency as chief engineer officer of a ship of 3 000 kW propulsion power or more, a candidate shall—

(a) have at least 36 months sea service as assistant engineer officer, or engineer officer, on trading ships of 3 000 kW propulsion power or more of which at least 12 months shall have been served as officer in charge of an engineering watch while holding as a minimum the certificate of competency as second engineer officer of a ship of 3 000 kW propulsion power or more; and

(b) have completed approved training and meet the standard of competence specified in the Code.

40 Endorsement as chief engineer officer of a ship of any kilowatt propulsion power operating within a port operations area

For the endorsement as chief engineer officer of a ship of any kilowatt propulsion power operating within a port operations area, a candidate shall—

ALTERNATIVE A

(a) have completed, while holding as a minimum the certificate of competency as engineer officer, at least 12 months sea service as officer in charge of an engineering watch on trading ships of 750 kW propulsion power or more; and

(b) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE B

(a) have completed, while holding as a minimum the certificate of competency as engineer officer, at

least 12 months port operations service on ships of 750 kW propulsion power or more of which at least three months shall have been on ships of 1 500 kW propulsion power or more; and

(b) have completed approved training and meet the standard of competence specified in the Code.

40A Endorsement as chief engineer officer *of* a ship of less than 750 kW propulsion power

For the endorsement as chief engineer officer of a ship of less than 750 kW propulsion power, a candidate shall —

(a) have completed, while holding as a minimum the certificate of competency as second engineer officer of a ship of less than 3 000 kW propulsion power, at least six months sea service as officer in charge of an engineering watch on trading ships of 750 kW propulsion power or more; and

(b) have completed approved training and meet the standard of competence specified in the Code.

40B Endorsement as chief engineer officer *of* a ship of less than 3 000 kW propulsion power

For the endorsement as chief engineer officer of a ship of less than 3 000 kW propulsion power, a candidate shall —

(a) have completed, while holding as a minimum the certificate of competency as second engineer officer of a ship of 3 000 kW propulsion power or more, at least 12 months sea service as officer in charge of an engineering watch on trading ships *of* 750 kW propulsion power or more; and

(b) have completed approved training and meet the standard of competence specified in the Code.

41 Chief engineer officer (special grade)

For the certificate of competency as chief engineer officer (special grade), a candidate shall —

(a) hold the certificate of competency as chief engineer officer of a ship of 3 000 kW propulsion power or more; and

(b) while holding that certificate, have completed approved training and meet the standard of competence specified in the Code.".

Division 3 Rating certificates

42 Ordinary seaman (port operations)

(1) For the certificate of qualification as ordinary seaman (port operations), a candidate shall—

ALTERNATIVE A

(a) be at least 16 years of age; and

(b) have at least six months port operations service on ships of 100 GT or more; and

(c) have completed, during the required port operations service, onboard training that is documented in an approved training record book and meet the standard of competence specified in the Code; and

(d) hold the provisional certificate of qualification as ordinary seaman (port operations) issued by the master of the ship on which the onboard training was completed,

or

ALTERNATIVE B

(accelerated training)

(a) be at least 16 years of age; and

(b) have completed at least two months port operations service on ships of 100 GT or more as part of an approved accelerated training programme that includes onboard training documented in an approved training record book and meet the standard of competence specified in the Code; and

(c) hold the provisional certificate of qualification as ordinary seaman (port operations) issued by the master of the ship on which the onboard training was completed.

(2) The provisional certificate mentioned in subregulation (1) shall be valid for port operations service for six months from its date of issue and may be exchanged for the certificate of qualification as ordinary seaman (port operations) on application in terms of regulation 11.

42A Ordinary seaman

(1) For the certificate of qualification as ordinary seaman, a candidate shall—

ALTERNATIVE A

(a) be at least 16 years of age; and

(b) have at least six months sea service in the deck department on trading ships of 100 GT or more on unlimited or near-coastal voyages; and

(c) have completed, during the required sea service, onboard training that is documented in an approved training record book and meet the standard of competence specified in the Code; and

(d) hold the provisional certificate of qualification as ordinary seaman issued by the master of the ship on which the onboard training was completed,

or

ALTERNATIVE B

(accelerated training)

(a) be at least 16 years of age; and

(b) have completed at least two months sea service in the deck department on trading ships of 100 GT or more on unlimited or near-coastal voyages as part of an approved accelerated training programme that includes onboard training documented in an approved training record book and meet the standard of competence specified in the Code; and

(c) hold the provisional certificate of qualification as ordinary seaman issued by the master of the ship on which the onboard training was completed,

or

ALTERNATIVE C

(if the candidate holds the certificate of qualification as ordinary seaman (port operations))

(a) have at least three months sea service in the deck department on trading ships of 100 GT or more on unlimited or near-coastal voyages; and

(b) have completed, during the required sea service, onboard training that is documented in an approved training record book and meet the standard of competence specified in the Code; and

(c) hold the provisional certificate of qualification as ordinary seaman issued by the master of the ship on which the onboard training was completed,

(2) The provisional certificate mentioned in subregulation (1) shall be valid for sea service for six months from its date of issue and may be exchanged for the certificate of qualification as ordinary seaman on application in terms of regulation 11.

43 Able seaman (port operations)

For the certificate of qualification as able seaman (port operations), a candidate shall—

ALTERNATIVE A

(a) be at least 18 years of age; and

(b) have completed, while holding as a minimum the certificate, or provisional certificate, of qualification as ordinary seaman (port operations) or ordinary seaman, at least 12 months port operations service on ships of 100 GT or more; and

(c) have completed, during the required port operations service, onboard training that is documented in an approved training record book; and

(d) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE B

(accelerated training)

(a) be at least 18 years of age; and

(b) have completed, while holding as a minimum the certificate, or provisional certificate, of qualification as ordinary seaman (port operations) or ordinary seaman, at least six months port operations service on ships of 100 GT or more as part of an approved accelerated training programme that includes onboard training documented in an approved training record book; and

(c) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE C

(if the candidate does not hold the certificate, or provisional certificate, of qualification as ordinary seaman (port operations))

(a) be at least 18 years of age; and

(b) have at least 18 months port operations service on ships of 100 GT or more; and

(c) have completed, during the required port operations service, onboard training that is documented in an approved training record book; and

(d) have completed approved training and meet the standard of competence specified in the Code.

43A Able seaman

For the certificate of qualification as able seaman, a candidate shall —

ALTERNATIVE A

(a) be at least 18 years of age; and

(b) have completed, while holding as a minimum the certificate, or provisional certificate, of qualification as ordinary seaman, at least 12 months sea service in the deck department on trading ships of 100 *GT* or more on unlimited or near-coastal voyages; and

(c) have completed, during the required sea service, onboard training that is documented in an approved training record book; and

(d) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE B

(accelerated training)

(a) be at least 18 years of age; and

(b) have completed, while holding as a minimum the certificate, or provisional certificate, of qualification as ordinary seaman, at least six months sea service in the deck department on trading ships of 100 GT or more on unlimited or near coastal voyages as part of an approved accelerated training programme that includes

onboard training documented in an approved training record book; and

(c) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE C

(if the candidate does not hold the certificate, or provisional certificate, of qualification as ordinary seaman)

(a) be at least 18 years of age; and

(b) have at least 18 months sea service in the deck department on trading ships of 100 GT or more on unlimited or near coastal voyages; and

(c) have completed, during the required sea service, onboard training that is documented in an approved training record book; and

(d) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE D

(if the candidate holds the certificate of qualification as able seaman (port operations))

(a) have completed, while holding as a minimum the certificate of qualification as able seaman (port operations), at least six months sea service in the deck department on trading ships of 100 GT or more on unlimited or near-coastal voyages; and

(b) have completed, during the required sea service, onboard training that is documented in an approved training record book; and

(c) have completed approved training and meet the standard of competence specified in the Code.

44 Wiper (port operations)

(1) For the certificate of qualification as wiper (port operations), a candidate shall —

ALTERNATIVE A

(a) be at least 16 years of age; and

(b) have at least six months port operations service on ships of 100 GT or more; and

(c) have completed, during the required port operations service, onboard training that is documented in an approved training record book and meet the standard of competence specified in the Code; and

(d) hold the provisional certificate of qualification as wiper (port operations) issued by the chief engineer officer of the ship on which the onboard training was completed,

or

ALTERNATIVE B

(acceleratedtraining)

(a) be at least **16** years of age; and

(b) have completed at least two months port operations service on ships of 100 **GT** or more as part of *an* approved accelerated training programme that includes onboard training documented in an approved training record book and meet the standard of competence specified in the Code; and

(c) hold the provisional certificate of qualification as wiper (port operations) issued by the chief engineer officer of the ship on which the onboard training was completed.

(2) The provisional certificate mentioned in subregulation (1) shall be valid for port operations service for six months from its date of issue and may be exchanged for the certificate of qualification as wiper (port operations) on application in terms of regulation 11.

44A Wiper

(1) For the certificate of qualification as wiper, a candidate shall—

ALTERNATIVE *A*

(a) be at least 16 years of age; and

(b) have at least six months sea service in the engine department on trading ships of 100 **GT** or more on unlimited or near-coastal voyages; and

(c) have completed, during the required sea service, onboard training that is documented in an approved training record book and meet the standard of competence specified in the Code; and

(d) hold the provisional certificate of qualification as wiper issued by the chief engineer officer of the ship on which the onboard training was completed,

or

ALTERNATIVE B

(accelerated training)

(a) be at least 16 years of age; and

(b) have completed at least two months sea service in the engine department on trading ships of 100 GT or more on unlimited or near-coastal voyages as part of an approved accelerated training programme that includes onboard training documented in an approved training record book and meet the standard of competence specified in the Code; and

(c) hold the provisional certificate of qualification as wiper issued by the chief engineer officer of the ship on which the onboard training was completed,

or

ALTERNATIVE C

(if the candidate holds the certificate of qualification as wiper (port operations))

(a) have at least three months sea service in the engine department on trading ships of 100 GT or more on unlimited or near-coastal voyages; and

(b) have completed, during the required sea service, onboard training that is documented in an approved training record book and meet the standard of competence specified in the Code; and

(c) hold the provisional certificate of qualification as wiper issued by the chief engineer officer of the ship on which the onboard training was completed.

(2) The provisional certificate mentioned in subregulation (1) shall be valid for sea service for six months from its date of issue and may be exchanged for the certificate of qualification as wiper on application in terms of regulation 11.

45 Oiler (port operations)

For the certificate of qualification as oiler (port operations), a candidate shall —

ALTERNATIVE A

(a) be at least 18 years of age; and

(b) have completed, while holding as a minimum the certificate, or provisional certificate, of qualification as wiper (port operations) or wiper, at least 12 months port operations service on ships of 100 GT or more; and

(c) have completed, during the required port operations service, onboard training that is documented in an approved training record book; and

(d) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE B

(acceleratedtraining)

(a) be at least 18 years of age; and

(b) have completed, while holding as a minimum the certificate, or provisional certificate, of qualification as wiper (port operations) or wiper, at least six months port operations service on ships of 100 GT or more as part of an approved accelerated training programme that includes onboard training documented in an approved training record book; and

(c) have completed approved training and meet the standard of competence specified in the Code.

45A Oiler

(1) For the certificate of qualification as oiler, a candidate shall—

ALTERNATIVE A

(a) be at least 18 years of age; and

(b) have completed, while holding as a minimum the certificate, or provisional certificate, of qualification as wiper, at least 12 months sea service in the engine department on trading ships of 100 GT or more on unlimited or near-coastal voyages; and

(c) have completed, during the required sea service, onboard training that is documented in an approved training record book; and

(d) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE B

(accelerated training)

(a) be at least 18 years of age; and

(b) have completed, while holding as a minimum the certificate, or provisional certificate, of qualification as wiper at least six months sea service in the engine department on trading ships of 100 GT or more on unlimited or near coastal voyages as part of an approved accelerated training programme that includes onboard training documented in an approved training record book; and

(c) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE C

(if the candidate does not hold the certificate, or provisional certificate, of qualifeation as wiper)

(a) be at least 18 years of age; and

(b) have completed at least 18 months sea service in the engine department on trading ships of 100 GT or more on unlimited or near coastal voyages; and

(c) have completed, during the required sea service, onboard training that is documented in an approved training record book; and

(d) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE D

(if the candidate holds the certificate of qualification as oiler (port Operations))

(a) have completed, while holding as a minimum the certificate of qualification as oiler (port operations) or efficient general purpose rating (port operations), at least six months sea service in the engine department on trading ships of 100 GT or more on unlimited or near-coastal voyages; and

(b) have completed, during the required sea service, onboard training that is documented in an approved training record book; and

(c) have completed approved training and meet the standard of competence specified in the Code.

46 Efficient general purpose rating (port operations)

For the certificate of qualification as efficient general purpose rating (port operations), a candidate shall —

(a) be at least 18 years of age; and

(b) have at least 18 months sea service or port operations service on ships of 100 GT or more made up of —

(i) at least *six* months in the deck department; and

(ii) at least *six* months in the engine department; and

(iii) the remainder in either; and

(c) have completed, during the required sea service or port operation service, onboard training that is documented in an approved training record book; and

(d) have completed approved training and meet the standard of competence specified in the Code; and

(e) hold the certificates, or provisional certificates, of qualification as ordinary seaman or ordinary seaman (port operations) and as wiper or wiper (port operations).

47 Proficiency in liferafts

For the certificate of qualification as proficient in liferafts, a candidate shall —

(a) be at least 16 years of age; and

(b) have at least three months sea service or port operations service; and

(c) have completed approved training and meet the standard of competence specified in the Code.

48 Proficiency in survival craft

For the certificate of qualification as proficient in survival craft, a candidate shall —

(a) be at least 18 years of age; and

(b) have at least six months sea service on trading ships of 100 GT or more on unlimited or near-coastal voyages; and

(c) have completed approved training and meet the standard of competence specified in the Code.

49 Proficiency in fast rescue boats

For the certificate of qualification as proficient in fast rescue boats, a candidate shall—

(a) hold the certificate of qualification as proficient in survival craft; and

(b) while holding that certificate, have completed approved training and meet the standard of competence specified in the Code.

50 Efficient cook

For the certificate of qualification as efficient cook, candidate shall—

(a) be at least 18 years of age; and

(b) hold a qualification as cook or chef; and

(c) have at least three months sea service in the catering department on any of the following kinds of ships:

(i) trading ships of 100 GT or more on unlimited or near-coastal voyages;

(ii) fishing vessels of 24 metres or more in length.".

22 Amendment of regulation 51 of Regulations

Regulation 51 of the Regulations is amended—

(a) by the substitution for subregulation (1) of the following subregulation:

"(1) In addition to the other training required by these regulations, officers and ratings assigned specific duties and responsibilities related to cargo or cargo equipment on tankers shall—

ALTERNATIVE A

(a) have at least three months sea service on tankers; and

(b) have completed approved training covering tanker fire-fighting and meet the standard of competence specified in the Code;

or

ALTERNATIVE B

have completed approved training covering tanker familiarisation and tanker fire-fighting and meet the standard of competence specified in the Code.";

(b) by the substitution for paragraphs (a) and (b) of subregulation (2) of the following paragraphs:

"(a) In addition to meeting the requirements of subregulation (1), masters, chief engineer officers, chief mates, second engineer officers and any person with immediate responsibility for loading, discharging and care in transit or handling of cargo on tankers shall—

(i) have at least three months sea service in a watchkeeping capacity on tankers of the type for which endorsement is desired; and

(ii) have completed approved specialised training for that type of tanker and meet the standard of competence specified in the Code; however, the Authority may dispense with this requirement if it is shown, to the satisfaction of the Authority, that the person has served in a senior capacity on the type of tanker concerned for at least one year in the preceding five years.

(b) Masters, officers and other persons referred to in paragraph (a) who have served the three months sea service mentioned in that paragraph on oil/chemical tankers (ship-type 2 or 3) engaged in carrying products listed in chapter 17 of the IBC Code shall, in addition to meeting the requirements of paragraph (a), have completed approved training covering the loading, discharging, care in transit and handling of cargoes on chemical tankers and meet the standard of competence specified in the Code.";

(c) by the deletion of paragraphs (c) and (d) of subregulation (2); and

(d) by the substitution for subregulation **(4)** of the following subregulation:

"**(4)** Masters, officers and ratings who are qualified in accordance with this regulation shall be required, at intervals not exceeding five years, to show continued professional competence on tankers, in accordance with regulation 3(2).".

23 Amendment of regulation 52 of Regulations

Regulation 52 of the Regulations is amended by the substitution for subregulations **(3)** to (8) of the following subregulations:

"(3) Seafarers who are required to be trained in accordance with subregulations (4), (7) and (8) shall, at intervals not exceeding five years, complete approved (refresher) training and meet the standard of competence specified in the Code.

(4) Masters, officers and other personnel designated on muster lists to assist passengers in emergency situations on ro-ro passenger ships shall have completed approved training in crowd management and meet the standard of competence specified in the Code.

(5) Masters, officers and other personnel assigned specific duties and responsibilities on ro-ro passenger ships shall have completed approved familiarisation **training and** meet the standard of competence specified in the Code.

(6) Personnel providing direct service to passengers in passenger spaces shall have completed approved training in ro-ro passenger ship safety and meet the standard of competence specified in the Code.

(7) Masters, chief mates, chief engineer officers, second engineer officers and every person assigned immediate responsibility for embarking and disembarking passengers, loading, discharging or securing ***cargo,*** or closing hull openings on ro-ro passenger ships shall have completed approved training in passenger safety, cargo safety and hull integrity and meet the standard of competence specified in the Code.

(8) Masters, chief mates, chief engineer officers, second engineer officers and any other person having responsibility for the safety of passengers in emergency situations on ro-ro passenger ships shall have completed

approved training in crisis management and human behaviour and meet the standard of competence specified in the Code.".

24 Amendment of regulation 52A of Regulations

Regulation 52A of the Regulations is amended by the substitution for subregulations (3) to (8) of the following subregulations:

"(3) Seafarers who are required to be trained in accordance with subregulations (4), (7) and (8) shall, at intervals not exceeding five years, complete approved (refresher) training and meet the standard of competence specified in the Code.

(4) Masters, officers and other personnel designated on muster lists to assist passengers in emergency situations on passenger ships shall have completed approved training in crowd management and meet the standard of competence specified in the Code.

(5) Masters, officers and other personnel assigned specific duties and responsibilities on passenger ships shall have completed approved familiarisation training and meet the standard of competence specified in the Code.

(6) Personnel providing direct service to passengers in passenger spaces shall have completed approved training in passenger ship safety and meet the standard of competence specified in the Code.

(7) Masters, chief mates, and every person assigned immediate responsibility for the embarking and disembarking passengers shall have completed approved training in passenger safety and meet the standard of competence specified in the Code.

(8) Masters, chief mates, chief engineer officers, second engineer officers and any other person having responsibility for the safety of passengers in emergency situations on passenger ships shall have completed approved training in crisis management and human behaviour and meet the standard of competence specified in the Code,".

25 Insertion of regulation 52B in Regulations

The following regulation is inserted in Division 5 of Part 3 of the Regulations before regulation 53:

"52B Proof of qualifying service

(1) A candidate must produce proof of qualifying service to the examiner's satisfaction.

(2) The examiner may require that the candidate explain to the examiner's satisfaction any period of discontinuity in qualifying service.".

26 Substitution of regulations 53, 54 and 55 of Regulations

The following regulations are substituted for regulations 53, 54 and 55 of the Regulations:

"53 Misrepresenting qualifying service

(1) A candidate who wilfully misrepresents his or her qualifying service shall be disqualified from certification in terms of these regulations until he or she has made up any deficiency in qualifying service plus an additional 12 months of the appropriate service.

(2) Additional service performed because of subregulation (1) shall not count towards the qualifying service for any other certification (whether in terms of these regulations or otherwise under the Act).

54 Qualifying service as rating

Sea service or port operations service performed as a rating shall count in full towards the qualifying service for a first certificate of competency, if appropriate to the certificate.

55 Validity of qualifying service

Qualifying service shall have been performed not earlier than 10 years before the date of application for the certification concerned.".

27 Amendment of regulation 56 of Regulations

Regulation 56 of the Regulations is amended—

(a) by the deletion of subregulation (1); and

(b) by the substitution for subregulations (2), (2A) and (3) of the following subregulations:

"(2) Sea service performed on deck on naval or other ships that regularly proceed to sea shall count in full towards

the qualifying service for the certificate of competency as deck officer, but a candidate shall also have at least 12 months sea service on trading ships of 500 GT or more on unlimited voyages that is documented in an approved training record book, unless the candidate can show, to the satisfaction of the examiner, that the duties and responsibilities of the candidate on any such ship were the same as those covered by the onboard training contemplated in ALTERNATIVE A in regulation 28.

(2A) Sea service performed in the engine department on naval or other ships that regularly proceed to sea shall count in full towards the qualifying service for the certificate of competency as engineer officer, but a candidate shall also have at least six months sea service on trading ships of 750 kW propulsion power or more that is documented in an approved training record book, unless the candidate can show, to the satisfaction of the examiner, that the duties and responsibilities of the candidate on any such ship were the same as those covered by the onboard training contemplated in ALTERNATIVE A in regulation 37.

(3) Subject to this regulation and to any applicable tonnage, voyage or propulsion power requirement, sea service performed in cable ships, fishery protection vessels, scientific research vessels, coastal patrol vessels, salvage vessels or other non-trading ships that regularly proceed to sea shall, for these regulations, count in full towards the qualifying service for a certificate.".

28 Substitution of regulations 58, 59 and 60 of Regulations

The following regulations are substituted for regulations *58, 59* and 60 of the Regulations:

"58 Recognition of naval bridge watchkeeping certificate

(1) This regulation applies if a candidate —

(a) is at least 18 years of age; and

(b) holds a valid South African Navy bridge watchkeeping certificate; and

(c) has at least 12 months sea service, performed not earlier than 10 years before the date of the

application for certification, as officer in charge of a navigational watch on naval vessels of 30 metres or more in overall length.

(2) For the certificate of competency as deck officer, the candidate shall —

(a) have at least six months sea service in the deck department on trading ships of 500 GT or more on unlimited voyages; and

(b) have performed, during the required sea service, bridge watchkeeping duties under the supervision of a certificated deck officer for at least two month; and

(c) have completed onboard training that —

(i) covers cargo handling and stowage, pollution prevention, monitoring compliance with statutory requirements, and operating life-saving appliances; and

(ii) is documented in an approved training record book; and

(d) have completed approved training covering the relevant parts of the following syllabuses in the Code: naval architecture, cargo handling and stowage, business law and personnel management, and electronic navigation systems (ARPA section); and

(e) meet the standard of competence specified in the Code.

(3) If a candidate produces documentary evidence of having successfully completed naval training that has been certified by the relevant senior examiner to be equivalent to training covered by a documentary requirement specified in the Annex, the Registrar shall accept the evidence in the place of the specified documentary requirement.

59 Recognition of radio officer certification

(1) This regulation applies if a candidate —

(a) is at least 18 years of age; and

(b) holds certification as a radio operator (class 1 or 2) issued or recognised by the Independent Communications Authority of South Africa; and

(c) has at least three years sea service, performed not earlier than 10 years before the date of the application for certification, as radio officer on trading ships of 500 GT or more on unlimited voyages.

(2) For the certificate of competency as deck officer, the candidate shall —

(a) have at least six months sea service in the deck department on trading ships of 500 GT or more on unlimited voyages; and

(b) have performed, during the required sea service, bridge watchkeeping duties under the supervision of a certificated deck officer for at least four months; and

(c) have completed onboard training that —

(i) covers cargo handling and stowage, pollution prevention, monitoring compliance with statutory requirements, and operating life-saving appliances; and

(ii) is documented in an approved training record book; and

(d) have completed approved training covering the relevant parts of the syllabuses in the Code applicable to the certificate of competency as deck officer; and

(e) meet the standard of competence specified in the Code.

60 Fishing certification endorsements

(1)

Item	Column I	Column 2
	Certificate of competency	*Endorsement In terms of these regulations*
1	High Seas Command Endorsement	Master of a ship of less than 200 GT on unlimited voyages
2	Fisherman Grade 2	Master of a ship of less than 500 GT on near-coastal voyages

Item	Column 1	Column 2
	Certificate of competency	*Endorsement in terms of these regulations*
3	Fisherman Grade 3	Chief mate/officer in charge of a navigational watch on ships of less than 500 GT on near-coastai voyages
4	Fisherman Grade 4 (Skipper)	Master of a ship of less than 200 GT on near-coastal voyages
		Master of a ship of less than 200 GT operating within a port operations area

(2) A candidate for certification shall —

(a) have completed approved training, appropriate to the endorsement desired, covering the following syllabuses in the Code: naval architecture; business law and personnel management; and, for the endorsement mentioned in item 1 of the table in subregulation (1), ships' power plants and electronic navigation systems; and

(b) meet the standard of competence specified in the Code.

(3) The certification shall have effect only in relation to the following kinds of ships:

(a) diamond mining vessels;

(b) fishery research or patrol vessels;

(c) pollution patrol or combating vessels;

(d) tugs, dredgers, hoppers and self-propelled floating cranes;

(e) seismic or oceanographic survey vessels.".

29 *Amendment of regulation* 61 *of* Regulations

Regulation 61 of the Regulations is amended by the substitution for paragraph (a) of subregulation (1) of the following paragraph:

"(a) Service performed on ships not regularly proceeding to sea shall count in full towards qualifying service for a deck officer certificate if the time actually spent at sea equals or exceeds two-thirds of the total period of the candidate's

service on the ship. If the time actually spent at sea is less, then one and a half times the time actually spent at sea shall count towards qualifying service.".

30 Substitution of regulation 63 of Regulations

The following regulation is substituted for regulation **63** of the Regulations:

"63 Novel craft

Service on dynamically supported or other novel craft shall count towards qualifying service to the extent determined by the relevant senior examiner.".

31 Repeal of regulations 64 and 65 of Regulations

Regulations **64** and ***65*** **of** the Regulations are repealed.

32 Substitution of regulations 66 and 66A of Regulations

The following regulations are substituted for regulations ***66*** and **66A** of the Regulations:

"66 Removal of mining operations limitation

The holder of certification who desires the removal of a mining operations limitation shall —

(a) have completed at least half the qualifying service for the desired unlimited certificate; and

(b) meet the standard of competence specified in the Code.

66A Removal of tonnage limitation

The holder of certification **who** desires the removal ***of*** a tonnage limitation shall —

(a) have completed the qualifying service for the desired certificate; and

(b) if additional approved training must be completed for the desired certificate, have completed that training; and

(c) meet the standard of competence specified in the Code.".

33 Substitution of Part 4 of Regulations

The following Part is substituted for Part 4 of the Regulations:

"Part 4 Training

67 Maritime training providers

(1) To be accredited as a maritime training provider authorised to conduct approved training in terms of these regulations, a training provider shall—

(a) have appointed instructors who—

(i) have an appreciation of the training programme and an understanding of the specific training objectives for the particular type of training to be conducted; and

(ii) are qualified in the task for which the training is to be conducted; and

(iii) if training is to be conducted using a simulator—

(aa) have received appropriate guidance in instructional techniques involving the use of simulators; and

(bb) have gained practical operational experience on the particular type of simulator to be used; and

(b) have appointed training supervisors, appropriate to the approved training programmes and courses to be conducted by the provider, who have a thorough understanding of each approved training programme and course they are to supervise including its specific objectives; and

(c) have appointed assessors who—

(i) have an appropriate level of knowledge and understanding of the competence to be assessed; and

(ii) are qualified in the task for which the assessment is to be made; and

(iii) have received appropriate guidance in assessment methods and practice; and

(iv) have gained practical assessment experience; and

(v) if they are to conduct assessment involving the use of simulators, have gained practical assessment experience on the particular type of simulator to be used under the supervision and to the satisfaction of an experienced assessor; and

(d) maintain records of all certificates issued to students who complete their training at the provider, incorporating details of the training received and the relevant dates, together with their full names and dates and places of birth; and

(e) make available information about the status of such certificates and about approved training programmes and courses as appropriate; and

(f) continuously monitor its training and assessment activities through a quality-standards system to ensure achievement of its defined objectives including those concerning the qualifications and experience of its instructors and assessors; and

(g) undergo evaluation at intervals not exceeding three years, by suitably qualified persons who are not themselves involved in the training or assessment activities concerned, so as to verify that the administrative and operational procedures at all levels within the provider are managed, organised, undertaken, supervised and monitored internally in order to ensure their fitness for purpose and achievement of stated objectives.

(2) Application for accreditation shall be made in the form and manner, include the information and be accompanied by the documents specified by the Authority.

(3) For accreditation, a maritime training provider shall allow the Authority —

(a) to inspect the provider's facilities, and training and assessment arrangements, methods and materials; and

(b) to interview the provider's students, administrative personnel, and training instructors, supervisors and assessors.

(4) *An* accredited maritime training provider shall —

(a) make available to the Authority any information it may require about approved training offered by the provider; and

(b) inform the Authority, without delay, of any change in the personnel delivering the training or the methods or material for delivering it.

(5) Every accredited training provider authorised to conduct level 2 assessments shall —

(a) make available, for moderation by an examiner, any examination question papers, memoranda or scripts that the Authority may require; and

(b) make available to an examiner any examination scripts, assessment results, course assignments, progress reports or other training-related reports that the Authority may require; and

(c) for audit purposes, keep for at least five years the information referred to in paragraphs (a) and (b).

(6) An examiner may visit an accredited maritime training provider at any time to inspect and audit the conduct of any activity covered by the provider's accreditation.

68 Training programmes and courses

(1) To be approved in terms of these regulations, a training programme or course shall —

(a) be structured in accordance with written programmes that —

(i) are based on the relevant syllabuses in the Code; and

(ii) include such methods and media of delivery, procedures, and course materia1 as are necessary to achieve the standard of competence specified in the Code; and

(b) be conducted, supervised and evaluated by persons qualified in accordance with regulation 67(1)(a), (b) and (c), respectively.

(2) Application for approval shall be made in the form and manner, include the information and be accompanied by the documents specified by the Authority.

69 Accelerated training programmes

(1) To be approved in terms of these regulations, an accelerated training programme ***(accelerated training)*** shall —

(a) be set out in a training plan that states, for each stage of the programme—

(i) the objectives; and

(ii) the outcomes, taking in account the relevant competencies specified in the Code; and

(iii) how the outcomes will be achieved; and

(b) provide intensive and systematic practical training and experience in the duties and responsibilities associated with the kind of certification concerned; and

(c) be conducted, supervised and evaluated by persons qualified in accordance with subregulations (2), (3) and (4), respectively; and

(d) provide appropriate periods, within the normal operational requirements of the ship, for the completion of onboard training; and

(e) provide for the keeping of comprehensive records in relation to training conducted under the programme.

(2) Anyone conducting accelerated training shall —

(a) have an appreciation of the training programme and an understanding of the specific training objectives for the particular type of training being conducted; and

(b) be qualified in the task for which the training is being conducted; and

(c) if conducting training using a simulator—

(i) have received appropriate guidance in instructional techniques involving the use of simulators; and

(ii) have gained practical operational experience on the particular type of simulator being used.

(3) Anyone responsible for supervising accelerated training shall have a thorough understanding of the training programme and of the specific objectives for each type of training being conducted.

(4) Anyone assessing the competence of a candidate undergoing accelerated training shall—

(a) have an appropriate level of knowledge and understanding **of** the competence to be assessed; and

(b) be qualified in the task for which the assessment is being made; and

(c) have received appropriate guidance in assessment methods and practice; and

(d) have gained practical assessment experience; and

(e) if conducting assessment involving the use of simulators, have gained practical assessment experience on the particular type of simulator under the supervision and to the satisfaction of an experienced assessor.

(5) Application for approval shall be made in the form and manner, include the information and be accompanied by the documents specified by the Authority.

70 Training record book

(1) To be approved in terms of these regulations, a training record book **shall** meet the form and content requirements specified by the Authority taking into account—

(a) the principles and standards set out in the **STCW** Convention; and

(b) any related guidance published by the International Maritime Organisation.

(2) Application for approval shall be made in the form and manner, include the information and be accompanied by the documents specified by the Authority.

(3) If the Authority finds that the holder of an approved training record book has deliberately misrepresented information in the book, the holder shall, apart from any other penalty that may be imposed, be required to complete an additional 12 months appropriate qualifying service.".

34 Amendment of regulation 71 of Regulations

Regulation 71 of the Regulations is amended by the deletion of subregulation **(3).**

35 Substitution *of* Annex to Regulations

The following Annex is substituted for the Annex to the Regulations:

"Annex Documents to accompany application for certification

(Regulation 11(1))

X indicates a requirement to produce the specified document(s). Certificates required to be produced shall be valid.

Documents	DECK OFFICERS										
	Certification										
	Endorsements			Master	Chief mate	Deck Officer	Master (coastal)	Master (port operations)	Mate (coastal)	Skipper (unlimited or coastal)	Skipper (port operations)
	Master < 3 000 GT	Master < 500 GT	Chief mate < 3 000 GT								
Proof of identity	X	X	X	X	X	X	X	X	X	X	X
3 x Black & white photographs (passport size)	X	X	X	X	X	X	X	X	X	X	X
Testimonials	—	—	—	—	—	X	—	X	X	X	X
Previous certificate of competency (if applicable)	X	X	X	X	X	X	X	X	X	X	—
Trainee bridge watchkeeping certificate	—	—	—	—	—	X	—	—	X	X	X

DECK OFFICERS											
Documents	Certification										
	Endorsements			Master	Chief mate	Deck Officer	Master (coastal)	Master (port operations)	Mate (coastal)	Skipper (unlimited or coastal)	Skipper (port operations)
	Master < 3 000 GT	Master < 500 GT	Chief mate < 3 000 GT								
Bridge watchkeeping certificate	X	X	X	X	X	—	X	X	—	—	—
Eyesight certificate	X	X	X	X	X	X	X	X	X	X	X
Medical certificate	X	X	X	X	X	X	X	X	X	X	X
First aid at sea certificate	—	—	—	—	—	X	—	X	X	X	X
Ship captain's medical training certificate	X	X	X	X	X	—	X	—	—	—	—
Fire-fighting course (small vessels) certificate	—	—	—	—	—	—	—	—	—	X	X
Fire-fighting course certificate	—	—	—	—	—	X	—	—	X	—	—
Advanced fire-fighting course certificate	X	X	X	X	X	X	X	X	X	—	—

DECK OFFICERS

Documents	Certification										
	Endorsements			Master	Chief mate	Deck Officer	Master (coastal)	Master (port operations)	Mate (coastal)	Skipper (unlimited or coastal)	Skipper (port operations)
	Master < 3 000 GT	Master < 500 GT	Chief mate < 3 000 GT								
Certificate of qualification as able seaman	—	—	—	—	—	X	—	—	X	—	—
Certificate of qualification as proficient in survival craft	—	—	—	—	—	X	X	—	X	—	—
Certificate of qualification as proficient in liferafts	—	—	—	—	—	—	—	X	—	X	X
Pre-sea training course certificate	—	—	—	—	—	X	—	—	X	X	X
Restricted radiotelephone operator (marine) certificate	—	—	—	—	—	—	—	X	—	X	X
GMDSS general operator certificate	X	X	X	X	X	X	X	—	X	—	—

DECK OFFICERS											
Documents	Certification										
	Endorsements			Master	Chief mate	Deck Officer	Master (coastal)	Master (port operations)	Mate (coastal)	Skipper (unlimited or coastal)	Skipper (port operations)
	Master < 3 000 GT	Master < 500 GT	Chief mate < 3 000 GT								
Certificate of results	X	X	X	X	X	X	X	X	X	X	X
Approved training record book	—	—	—	—	—	X	—	—	X	—	—
Proof of qualifying service	X	X	X	X	X	X	X	X	X	X	X
Receipt for certification fee	X	X	X	X	X	X	X	X	X	X	X

Documents	ENGINEER OFFICERS							
	Endorsements			Certification				
	Chief engineer officer < 3 000 kW	Chief Engineer officer < 750 kW	Chief engineer officer (port operations)	Chief engineer officer (< 3 000 kW and ≥ 3 000 kW)	Second engineer officer (< 3 000 kW and ≥ 3 000 kW)	Engineer officer	Chief engineer officer (port operations)	Second engineer officer (port operations)
Proof of identity	X	X	X	X	X	X	X	X
3 x Black & white photographs (passport size)	X	X	X	X	X	X	X	X
Previous certificate of competency (if applicable)	X	X	X	X	X	X	X	X
Medical certificate	X	X	X	X	X	X	X	—
First aid at sea certificate	X	X	X	X	X	X	X	X
Fire-fighting course certificate	X	X	X	X	X	X	X	X
Advanced fire-fighting course certificate	X	X	X	X	X	X	X	X

ENGINEER OFFICERS								
Documents	Certification							
	Endorsements			Chief engineer officer (< 3 000 kW and ≥ 3 000 kW)	Second engineer officer (< 3 000 kW and ≥ 3 000 kW)	Engineer officer	Chief engineer officer (port operations)	Second engineer officer (port operations)
	Chief engineer officer < 3 000 kW	Chief Engineer officer < 750 kW	Chief engineer officer (port operations)					
Certificate of qualification as proficient in survival craft	X	X	—	X	X	X	—	—
Certificate of qualification as proficient in liferafts	—	—	X	—	—	—	X	X
Pre-sea training course certificate	—	—	—	—	—	X	—	X
Certificate of results	X	X	X	X	X	X	X	X
Approved training record book	—	—	—	—	—	X	—	X
Proof of qualifying service	X	X	X	X	X	X	X	X
Receipt for certification fee	X	X	X	X	X	X	X	X

Documents	RATINGS								
	Certification								
	Wiper/Wiper (port operations)	Ordinary seaman/Ordinary seaman (port operations)	Oiler/Oiler (port operations)	Able seaman/Able seaman (port operations)	Efficient general purpose rating (port operations)	Proficiency in survival craft	Proficiency in liferafts	Proficiency in fast rescue boats	Efficient cook
Proof of identity	X	X	X	X	X	X	X	X	X
3 x Black & white photographs (passport size)	X	X	X	X	X	X	X	X	X
Eyesight certificate	—	X	—	X	X	—	—	—	—
Medical certificate	X	X	X	X	X	X	X	X	X
Fire-fighting course certificate	—	—	X	X	X	—	—	—	—
First aid at sea certificate	—	—	X	X	X	—	—	—	—
Certificate of qualification as proficient in survival craft	—	—	X*	X*	—	—	—	X	—
Certificate of qualification as proficient in liferafts	—	—	X†	X†	X	—	—	—	—

* Not port operations certification.
† Only port operations certifi...

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RATINGS									
Documents	Certification								
	Wiper/Wiper (port operations)	Ordinary seaman/Ordinary seaman (port operations)	Oiler/Oiler (port operations)	Able seaman/Able seaman (port operations)	Efficient general purpose rating (port operations)	Proficiency in survival craft	Proficiency in liferafts	Proficiency in fast rescue boats	Efficient cook
Pre-sea training course certificate	X	X	X	X	X	X	X	X	X
Provisional certificate of qualification as ordinary seaman/ordinary seaman (port operations) (if applicable)	—	X	—	X	X	—	—	—	—
Certificate of qualification as ordinary seaman/ ordinary seaman (port operations) (if applicable)	—	—	—	X	X	—	—	—	—
Provisional certificate of qualification as wiper/wiper (port operations) (if applicable)	X	—	X	—	X	—	—	—	—
Certificate of qualification as wiper/wiper port operations (if applicable)	—	—	X	—	X	—	—	—	—
Certificate of results	—	—	X	X	X	X	X	X	X

Documents	RATINGS								
	Certification								
	Wiper/Wiper (port operations)	Ordinary seaman/Ordinary seaman (port operations)	Oiler/Oiler (port operations)	Able seaman/Able seaman (port operations)	Efficient general purpose rating (port operations)	Proficiency in survival craft	Proficiency in liferafts	Proficiency in fast rescue boats	Efficient cook
Approved training record book	X	X	X	X	X	—	—	—	—
Proof of qualifying service	X	X	X	X	X	X	X	—	X
Receipt for certification fee	X	X	X	X	X	X	X	X	X

Notes to tables:

1 A South African identity document or an official passport shall be sufficient proof of identity. A true copy of the original, or relevant part of the original, shall be acceptable.

2 A testimonial. is a document, signed by the master or employer, testifying to the candidate's character (including sobriety), experience, ability, and general shipboard conduct.

3 A trainee bridge watchkeeping certificate is a certificate, signed by the master, stating—

(a) the period the candidate performed supervised bridge watchkeeping duties; and

(b) that those duties were performed for not less than eight hours in every 24 hours during that period; and

(c) that the candidate has not been used as a helmsman or lookout during that period.

4 A bridge watchkeeping certificate is a certificate, signed by the master, stating—

(a) the period the candidate performed duties as officer in charge of a navigational watch; and

(b) that those duties were performed for not less than eight hours in every 24 hours during that period,

and containing a statement about the candidate's sobriety, conduct and ability.

5 An eyesight certificate is the eyesight certificate mentioned in regulation 3 of the ***Merchant Shipping (Eyesight and Medical Examination) Regulations, 2004.***

6 A medical certificate is the medical certificate mentioned in regulation 3 of the ***Merchant Shipping (Eyesight and Medical Examination) Regulations, 2004.***

7 A First Aid at Sea Certificate is the certificate mentioned in regulation 2(b) of the ***Merchant Shipping (Medical Training) Regulations, 1992.***

8 A Ship Captain's Medical Training Certificate is the certificate mentioned in regulation 2(c) of the ***Merchant Shipping (Medical Training) Regulations, 1992.***

9 A fire-fighting course certificate (including the certificate for small vessels) is a certificate attesting successful completion of approved training in fire-fighting. The certificate is valid for five years fiom the date of completing the course.

10 An advanced fire-fighting course certificate is a certificate attesting successful completion of approved training in advanced fire-fighting. The certificate is valid for five years fiom the date of completing the course.

11 A pre-sea training course certificate is a certificate attesting successful completion of the safety induction training mentioned in regulation 4(1)(g) of the ***Merchant Shipping (Safe Manning) Regulations, 1999.***

12 A restricted radiotelephone (marine) operator certificate and a GMDSS general operator certificate are certificates of proficiency issued by the Independent Communications Authority of South Africa.

13 A certificate of results is a document issued by an accredited maritime training provider attesting successful completion of stated approved training. This training shall have been completed not earlier than the date specified by the Authority.

14 Proof of qualifying service shall be to the examiner's satisfaction and may be required in the form of a Seaman's Record Book and/or a declaration by an employer stating the seagoing service performed during the period of employment. In addition, for engineer officer certification, proof of qualifying service shall be given in the form of one or more testimonials, signed by the chief engineer officer or master of the ship on which the service was performed, stating —

(a) the candidate's actual rank on watch; and

(b) the number of engineer officers simultaneously on watch; and

(c) the type of propulsion machinery and the propulsion power (in kilowatts) of the ship; and

(d) the nature of duties performed; and

(e) for any period of duty as officer in charge of an engineering watch, that the duties were performed —

(i) in the case of a continuously manned engine room, for at least eight hours in every 24 hours service claimed; and

(ii) in the case of a periodically unmanned engine room, for at least 24 hours in every 72 hours service claimed.

Explanatory note

(This note is not part of the regulations)

1 These regulations amend the ***Merchant Shipping (Training and Certification) Regulations, 1999,*** made under section ***356*** of the ***Merchant Shipping Act, 1951.***

2 These are the main objects of the amendments:

- To extend the ***5*** yearly revalidation requirement to port operations certification; this is part of the planned extension of the principal of revalidation to all officer certification; similar changes for fishing certification will be covered in planned new training and certification measures for seagoing fishing vessel personnel.
- To reduce the period of sea service required for the certificate of competency as skipper (unlimited or coastal) fiom 24 to 12 months and to raise the command tonnage limit from < 100 to < 200 GT. This aligns the certification with the skipper (port operations) certificate and brings about consistency across the Certification range.
- To introduce a new career path, with a reduced 12 month sea service requirement, from skipper (port operations) to skipper (unlimited or coastal), This recognises the prior learning and experience gained by holders of the skipper (port operations) certificate.
- To rationalise requirements for a first certificate as mate (coastal) by abolishing the accelerated training option and reducing the minimum period of sea service fiom 36 to 12 months.
- To rationalise the sea service requirement for the certificate of competency as chief engineer officer (port operations). This change omits a redundancy that is covered by existing provision for the endorsement of the certificate of competency as engineer officer.
- To introduce an alternative path for the certificate of competency as engineer officer. This is an alternative to the existing cadetship option.
- To introduce alternative paths for the certificates of qualification as able seaman and oiler. These alternatives accommodate candidates who have not completed the lower qualification as ordinary seaman or wiper.
- To reduce the sea service requirement for the certificate of qualification as proficient in liferafts fiom six to three months.
- To rationalise requirements for the certificate of qualification as proficient in survival craft.

- To make consequential changes.
- To make certain technical and editorial corrections and improvements.
- To make other changes that are necessary or desirable in preparation for the introduction of revised training and certification requirements for seagoing fishing vessel personnel. These changes will ensure consistency across the certification system.

Part 1B Draft Ship's Officers' Medical Training Amendment Regulations, 2006

1 Title and commencement

(1) These regulations are called the ***Ship's Officers' Medical Training Amendment Regulations, 2006.***

(2) These regulations commence on the day they are published in the Gazette.

2 Definitions

In these regulations **"the Regulations"** means the ***Ship's Officers' Medical Training Regulations, 1992,*** published by Government Notice No. R. 2666 of 25 September 1992, as amended by Government Notice No. R. 533 of 25 March 1994.

3 Amendment of Regulation 1 of Regulations

Regulation 1 of the Regulations is amended—

(a) by the substitution for the definition of "approved" of the following definition:

"'**approved**' means approved by the Authority;";

(b) by the deletion of the definition of "department"; and

(c) by the addition of the following definition:

"'**training and certification regulations**' means the regulations under the Act relating to the training and certification of masters and seamen.".

4 Substitution of regulations 2 and 3 of Regulations

The following regulations are substituted for regulations 2 and 3 of the Regulations:

"2 Application

These regulations apply to every person who, in terms of the training and certification regulations, is required to hold one or more of the following certificates:

(a) Elementary First Aid Certificate;

(b) First Aid at Sea Certificate;

(c) Ship Captain's Medical Training Certificate.

3 General

(1) The medical training of masters and seamen shall be based upon approved training programmes.

(2) These regulations cover the following training courses:

(a) Elementary First Aid Certificate course;

(b) First Aid at Sea Certificate course;

(c) Ship Captain's Medical Training Certificate course.".

5 Amendment of regulation 4 of Regulations

Regulation **4** of the Regulations is amended by the substitution in subregulation (1) for the expressions "Department" **and** "Director-General" of the expression "Authority".

***6* Substitution of regulations 6 and 7 of the Regulations**

The following regulations are substituted for regulations **6** and **7** of the Regulations:

"6 Period of validity

The certificates referred to **in** regulation **2** shall be valid for five years from the date of passing the terminal examination.

7 Where to apply

Candidates wishing to apply for admission to the certificate courses referred to in regulation **3(2)** must apply at the approved institutions notified from time to time by marine notice.".

7 Substitution of regulations 9 and 10 of Regulations

The following regulations are substituted for regulations ***9*** and 10 of the Regulations:

"9 Syllabuses for courses

The syllabuses for the certificate courses referred to in regulation **3(2)** are set **out** in the ***Code for South African Maritime Qualifications,*** published by the Authority.

10 Title

These regulations are called the *Merchant Shipping (Medical Training) Regulations, 1992,".*

8 Deletion of Annexures 1, 2, 3 and 4 to Regulations

The Regulations are amended by the deletion of Annexures 1, 2, 3 and 4.

Explanatory note

(This note is not part of the regulations)

1 These regulations amend the ***Ship's Officers' Medical Training Regulations, 1992,*** made under section *356* of the ***Merchant Shipping Act, 1951***.

2 These are the main objects of the amendments:

- To bring the principal regulations into line with existing seafarer training and certification principles and arrangements (for example by transferring the course syllabuses to the ***Code for South African Maritime Qualifications***).
- To change the title of the regulations to conform to current citation practice and to reflect the actual coverage of the regulations which extend, in respect of elementary training, to both officers and ratings.
- To make certain editorial corrections and improvements.

Part 1C Draft Merchant Shipping (Safe Manning) Amendment Regulations, 2006 (No. 1)

1 Title and commencement

(1) These regulations are called the ***Merchant Shipping (Safe Manning) Amendment Regulations, 2006 (No. 1)***.

(2) These regulations commence on the day they are published in the Gazette.

2 Definitions

In these regulations "**the Regulations**" means the ***Merchant Shipping (Safe Manning) Regulations, 1999,*** published by Government Notice No. 1548 of 30 December 1999, as amended by Government Notices Nos. R. 501 of 26 April 2002 (as corrected by Government Notice No. R. 893 of 28 June 2002) and R. 545 of 30 April 2004.

3 Amendment of regulation 1 of Regulations

Regulation 1 of the Regulations is amended—

(a) by the insertion in subregulation (1) after the definition of "certificated" of the following definition:

> "'**chief engineer**' means the senior engineer officer responsible for the mechanical propubion and the operation and maintenance of the mechanical and electrical installations of a ship;";

(b) by the insertion in subregulation (1) after the definition of "length" of the following definition:

> "'**mate**' means the deck officer next in rank to the master and upon whom the command of the ship will fall in the event of the incapacity of the master;";

(c) by the insertion in subregulation (1) after the definition of "seagoing ship" of the following definition:

> "'**second engineer**' means the engineer officer next in rank to the chief engineer and upon whom responsibility for the mechanical propulsion and the operation and maintenance of the mechanical and electrical installations of the ship will fall in the event of the incapacity of the chief engineer;";

(d) by the substitution in subregulation (1) for the definition of "the Training and Certification Regulations" of the following definition:

"'**the Training and Certification Regulations**' means the regulations under the Act relating to the training and certification of masters and seamen;"; and

(e) by the insertion in subregulation (1) after the definition of "unlimited voyage" of the following definitions:

"'**watchkeeping officer**' means a ship's officer whose duties include—

(a) if serving in the deck department, taking charge of a navigational watch on the ship; and

(b) if serving in the engine department, taking charge of an engineering watch on the ship;

'**watchkeeping personnel**' means everyone forming part of a navigational or engineering watch on a ship;".

4 Substitution of regulation 6 of Regulations

The following regulation is substituted for regulation 6 of the Regulations:

"6 Watchkeeping

(1) Owners, masters, chief engineer officers and watchkeeping personnel shall observe the requirements and principles set out in Annexes 1 and 1A, as applicable, to ensure that a safe continuous watch, appropriate to the prevailing circumstances and conditions, is maintained in all ships at all times.

(2) Without limiting subregulation (1), the master of every ship shall ensure, in particular, that watchkeeping arrangements are adequate for maintaining a safe watch, taking into account the prevailing circumstances and conditions, and that, under the master's general direction—

(a) officers in charge of the navigational watch are responsible for navigating the ship safely during their periods of duty, when they shall be physically present on the navigating bridge or in a directly associated location such as the chartroom or bridge control room at all times; and

(b) radio operators are responsible for maintaining a continuous radio watch on appropriate frequencies during their periods of duty; and

(c) officers in charge of the engineering watch, under the direction of the chief engineer officer, are immediately available and on call to attend the machinery spaces and, when required, are physically present in the machinery space during periods of duty; and

(d) an appropriate and effective watch is maintained for the purpose of safety at all times, while the ship is at anchor or moored and, if the ship is carrying hazardous cargo, the organisation of the watch takes full account of the nature, quantity, packing and stowage of the hazardous cargo and of any special conditions prevailing on board, afloat or ashore.".

5 Amendment of regulation 19 of Regulations

Regulation 19 of the Regulations is amended—

(a) by the substitution for subparagraph (i) of subregulation (2)(a) of the following subparagraph:

"(i) a valid Ship Captain's Medical Training Certificate issued under the *Merchant Shipping (Medical Training)Regulations, 1992;* or"; and

(b) by the substitution for subparagraph (i) of subregulation (2)(b) of the following subparagraph:

"(i) a valid First Aid at Sea Certificate issued under the *Merchant Shipping (Medical Training) Regulations, 1992;* or".

6 Amendment of regulation 248 of Regulations

Regulation 24B of the Regulations is amended—

(a) by the substitution for subregulation (1) of the following subregulation:

"(1) Every owner commits an offence who Contravenes regulation 4(1) or (4), 6(1), 6A(1), 6B, 24(1) or 24A."; and

(b) by the substitution for subregulation (4) of the following subregulation:

"(4) Every seaman commits an offence who contravenes regulation 6 or 6A(3).".

7 Substitution of Annex 1 to Regulations

Annex 1 to these regulations is substituted for Annex 1 to the Regulations.

8 **Addition of Annex to Regulations**

Annex 1A to these regulations is added to the Regulations.

Annex 1 Watchkeeping principles and arrangements for ships other than fishing vessels

(Regulation 6)

Part 1 Voyage planning

1 General

1.1 The intended voyage shall be planned in advance, taking into account all pertinent information, and any course laid down shall be checked before the voyage begins.

1.2 The chief engineer officer shall, in consultation with the master, determine in advance the needs of the intended voyage, taking into account the requirements for fuel, water, lubricants, chemicals, expendable and other spare parts, tools, supplies and any other requirements.

2 Planning prior to each voyage

Before each voyage, the master of every ship shall ensure that the intended route from the port of departure to the first port of call is planned using adequate and appropriate charts and other nautical publications necessary for the intended voyage, containing accurate, complete and up-to-date information regarding those navigational limitations and hazards that are of a permanent or predictable nature and that are relevant to the safe navigation of the ship.

3 Verification and display of planned route

When the route planning is verified taking into account all pertinent information, the planned route shall be clearly displayed on appropriate charts and shall be continuously available to the officer in charge of the watch, who shall verify each course to be followed before using it during the voyage.

4 Deviation from planned route

If a decision is made, during a voyage, to change the next port of call of the planned route, or if it is necessary for the ship to deviate substantially from the planned route for other reasons, then an

amended route shall be planned before deviating substantially from the route originally planned.

Part 2 Watchkeeping at sea

Division 1 Principles applying to watchkeeping generally

5 General

5.1 Owners, masters, chief engineer officers and watchkeeping personnel shall observe the following principles to ensure that safe watches are maintained at all times.

5.2 The master of every ship shall ensure that watchkeeping arrangements are adequate for maintaining a safe navigational watch. Under the master's general direction, the officers of the navigational watch are responsible for navigating the ship safely during their periods of duty, when they will he particularly concerned with avoiding collision and stranding.

5.3 The chief engineer officer of every ship shall, in consultation with the master, ensure that watchkeeping arrangements are adequate to maintain a safe engineering watch.

6 Protection of marine environment

The master, officers and ratings shall be aware of the serious effects of operational and accidental pollution of the marine environment and shall take all possible precautions to prevent such pollution, particularly within the framework of relevant international and national regulations.

Division 2 Principles to be observed in keeping a navigational watch

7 General

The officer in charge of the navigational watch is the master's representative and is primarily responsible at all times for the safe navigation of the ship and for complying with the collision regulations.

8 Look-out

8.1 A proper look-out shall be maintained at all times in compliance with rule 5 of the annex to the collision regulations, and shall serve the purpose of—

.1 maintaining a continuous state of vigilance by sight and hearing as well as by all other available means, with regard to any significant change in the operating environment;

.2 fully appraising the situation and the risk of collision, stranding and other dangers to navigation; and

.3 detecting ships or aircraft in distress, shipwrecked persons, wrecks, debris and other hazards to safe navigation.

8.2 The look-out must be able to give full attention to the keeping of a proper look-out and no other duties shall be undertaken or assigned that could interfere with that task.

8.3 The duties of the look-out and helmsperson are separate and the helmsperson shall not be considered to be the look-out while steering, except in small ships where an unobstructed all-round view is provided at the steering position and there is no impairment of night vision or other impediment to the keeping of a proper look-out. The officer in charge of the navigational watch may be the sole look-out in daylight provided that on each such occasion—

.1 the situation has been carefully assessed and it has been established without doubt that it is safe to do so;

.2 full account has been taken of all relevant factors, including, but not limited to—

- state of weather;
- visibility;
- traffic density;
- proximity of dangers to navigation; and
- the attention necessary when navigating in or near traffic separation schemes; and

.3 assistance is immediately available to be summoned to the bridge when any change in the situation so requires.

8.4 In determining that the composition of the navigational watch is adequate to ensure that a proper look-out can continuously be maintained, the master shall take into account all relevant factors, including those described in this annex, as well as the following factors:

.1 visibility, and state of weather and sea;

.2 traffic density, and other activities occurring in the area in which the ship is navigating;

.3 the attention necessary when navigating in or near traffic separation schemes or other routeing measures;

.4 the additional workload caused by the nature of the ship's functions, immediate operating requirements and anticipated manoeuvres;

.5 the fitness for duty of any crew members on call who are assigned as members of the watch;

.6 knowledge of and confidence in the professional competence of the ship's officers and crew;

.7 the experience of each officer of the navigational watch, and the familiarity of that officer with the ship's equipment, procedures, and manoeuvring capability;

.8 activities taking place on board the ship at any particular time, including radiocommunication activities, and the availability of assistance to be summoned immediately to the bridge when necessary;

.9 the operational status of bridge instrumentation and controls, including alarm systems;

.10 rudder and propeller control and ship manoeuvring characteristics;

.11 the size of the ship and the field of vision available from the conning position;

.12 the configuration of the bridge, to the extent that the configuration might inhibit a member of the watch from detecting by sight or hearing any external development;

.13 any other relevant standard, procedure or guidance relating to watchkeeping arrangements and fitness for duty that has been specified in a marine notice.

9 Watch arrangements

When deciding the composition of the watch on the bridge, which may include appropriately qualified ratings, the following factors, ***inter alia,*** shall be taken into account:

.1 at no time shall the bridge be left unattended;

.2 weather conditions, visibility and whether there is daylight or darkness;

.3 proximity of navigational hazards that may make it necessary for the officer in charge of the watch to carry out additional navigational duties;

.4 use and operational condition of navigational aids such as radar or electronic position-indicating devices and any other equipment affecting the safe navigation of the ship;

.5 whether the ship is fitted with automatic steering;

.6 whether there are radio duties to be performed;

.7 unmanned machinery space (UMS) controls, alarms and indicators provided on the bridge, procedures for their use and limitations;

.8 any unusual demands on the navigational watch that may arise as a result of special operational circumstances.

10 Taking over the watch

10.1 The officer in charge of the navigational watch shall not hand over the watch to the relieving officer if there is reason to believe that the latter is not capable of carrying out the watchkeeping duties effectively, in which case the master shall be notified.

10.2 The relieving officer shall ensure that the members of the relieving watch are fully capable of performing their duties, particularly as regards their adjustment to night vision. Relieving officers shall not take over the watch until their vision is filly adjusted to the light conditions.

10.3 Before taking over the watch, relieving officers shall satisfy themselves as to the ship's estimated or true position and confirm its intended track, course and speed, and UMS controls as appropriate and shall note any dangers to navigation expected to be encountered during their watch.

10.4 Relieving officers shall personally satisfy themselves regarding —

.1 the standing orders and other special instructions of the master relating to navigation of the ship;

.2 the position, course, speed and draught of the ship;

.3 prevailing and predicted tides, currents, weather, visibility and the effect of these factors upon course and speed;

.4 procedures for the use of main engines to manoeuvre when the main engines are on bridge control; and

.5 the navigational situation, including but not limited to—

.5.1 the operational condition of all navigational and safety equipment being used or likely to be used during the watch;

.5.2 the errors of *gyro-* and magnetic compasses;

.5.3 presence and movement of ships in sight or known to be in the vicinity;

.5.4 the conditions and hazards likely to be encountered during the watch; and

.5.5 the possible effects of heel, trim, water density and squat on under-keel clearance.

10.5 If at any time the officer in charge of the navigational watch is to be relieved when a manoeuvre or other action to avoid any hazard is

taking place, the relief of that officer shall be deferred until such action has been completed.

11 Performing the navigational watch

11.1 The officer in charge of the navigational watch shall—

.1 keep the watch on the bridge;

.2 in no circumstances leave the bridge until properly relieved;

.3 continue to be responsible for the safe navigation of the ship, despite the presence of the master on the bridge, until informed specifically that the master has assumed that responsibility and this is mutually understood; and

.4 notify the master when in any doubt about what action to take in the interest of safety.

11.2 During the watch, the course steered, position and speed shall be checked at sufficiently frequent intervals, using any available navigational aids necessary, to ensure that the ship follows the planned course.

11.3 The officer in charge of the navigational watch shall have full knowledge of the location and operation of all safety and navigational equipment on board the ship and shall be aware and take account of the operating limitations of the equipment.

11.4 The officer in charge of the navigational watch shall not be assigned or undertake any duties that would interfere with the safe navigation of the ship.

11.5 Officers of the navigational watch shall make the most effective use of all navigational equipment at their disposal.

11.6 When using radar, the officer in charge of the navigational watch shall bear in mind the necessity to comply at all times with the provisions on the use of radar contained in the collision regulations.

11.7 In cases of need, the officer in charge of the navigational watch shall not hesitate to use the helm, engines and sound signalling apparatus. However, timely notice of intended variations of engine speed shall be given where possible or effective use made of UMS engine controls provided on the bridge in accordance with the applicable procedures.

11.8 Officers of the navigational watch shall know the handling characteristics of their ship, including its stopping distances, and should appreciate that other ships may have different handling characteristics.

11.9 A proper record shall be kept during the watch of the movements and activities relating to the navigation of the ship.

11.10 It is of special importance that at all times the officer in charge of the navigational watch ensures that a proper look-out is maintained. In a ship with a separate chartroom, the officer in charge of the navigational watch may visit the chartroom, when essential, for a short period for the necessary performance of navigational duties, but shall first ensure that it is safe to do so and that proper look-out is maintained.

11.11 Operational tests of shipboard navigational equipment shall be carried out at sea as frequently as practicable and as circumstances permit, in particular before hazardous conditions affecting navigation are expected. Whenever appropriate, these tests shall be recorded. Tests shall also be carried out before port arrival and departure.

11.12 The officer in charge of the navigational watch shall make regular checks to ensure that—

.1 the person steering the ship, or the automatic pilot, is steering the correct course;

.2 the standard compass error is determined at least once a watch and, when possible, after any major alteration of course; the standard and gyro-compasses are frequently compared and repeaters are synchronized with their master compass;

.3 the automatic pilot is tested manually at least once a watch;

.4 the navigation and signal lights and other navigational equipment are functioning properly;

.5 the radio equipment available in the bridge is functioning properly in accordance with item 19 of this annex; and

.6 the UMS controls, alarms and indicators are functioning properly.

11.13 The officer in charge of the navigational watch shall bear in mind the necessity to comply at all times with the requirements in force of the Safety Convention. The officer shall take into account—

.1 the need to station a person to steer the ship and to put the steering into manual control in good time to allow any potentially hazardous situation to be dealt with in a safe manner; and

.2 that with a ship under automatic steering it is highly dangerous to allow a situation to develop to the point where the officer in charge of the navigational watch is without assistance and has to break the continuity of the look-out in order to take emergency action.

11.14 Officers of the navigational watch shall be thoroughly familiar with the use of all electronic navigational aids carried, including their capabilities and limitations, and shall use each of these aids when appropriate and shall bear in mind that the echo sounder is a valuable navigational aid.

11.15 The officer in charge of the navigational watch shall use the radar whenever restricted visibility is encountered or expected, and at all times in congested waters, having due regard to its limitations.

11.16 The officer in charge of the navigational watch shall ensure that range scales employed are changed at sufficiently frequent intervals so that echoes are detected as early as possible. It shall be borne in mind that small or poor echoes may escape detection.

11.17 Whenever radar is in use, the officer in charge of the navigational watch shall select an appropriate range scale and observe the display carefully, and shall ensure that plotting or systematic analysis begins in ample time.

11.18 The officer in charge of the navigational watch shall notify the master immediately—

.1 if restricted visibility is encountered or expected;

.2 if the traffic conditions or the movements of other ships are causing concern;

.3 if difficulty is experienced in maintaining course;

.4 on failure to sight land, a navigation mark or to obtain soundings by the expected time;

.5 if, unexpectedly, a land or a navigation mark is sighted or a change in soundings occurs;

.6 on breakdown of the engines, propulsion machinery remote control, steering gear or any essential navigational equipment, alarm or indicator;

.7 if the radio equipment malfunctions;

.8 in heavy weather, if in any doubt about the possibility of weather damage;

.9 if the ship meets any hazard to navigation, such as ice or a derelict; and

.10 in any other emergency or if in any doubt.

11.19 Despite the requirement to notify the master immediately in the foregoing circumstances, the officer in charge of the navigational watch shall in addition not hesitate to take immediate action for the safety of the ship, where circumstances so require.

11.20 The officer in charge of the navigational watch shall give watchkeeping personnel all appropriate instructions and information that will ensure the keeping of a safe watch, including a proper look-out.

12 Watchkeeping under different conditions and in different areas

12.1 *Clear weather*

12.1.1 The officer in charge of the navigational watch shall take fiequent and accurate compass bearings of approaching ships as a means of early detection of risk of collision and bear in mind that such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large ship or a tow or when approaching a ship at close range. The officer shall also take early and positive action in compliance with the applicable collision regulations, and subsequently check that the action is having the desired effect.

12.1.2 In clear weather, whenever possible, the officer in charge of the navigational watch shall carry out radar practice.

12.2 *Restricted visibility*

12.2.1 When restricted visibility is encountered or expected, the first responsibility of the officer in charge of the navigational watch is to comply with the relevant rules in the collision regulations, with particular regard to the sounding of fog signals, proceeding at a safe speed and having the engines ready for immediate manoeuvre. In addition, the officer shall —

.1 inform the master;

.2 post a proper look-out;

.3 exhibit navigation lights; and

.4 operate and use the radar.

12.3 *In hours of darkness*

The master and the officer in charge of the navigational watch, when arranging look-out duty, shall have due regard to the bridge equipment and navigational aids available for use, their limitations, and procedures and safeguards implemented.

12.4 *Coastal and congested waters*

12.4.1 The largest scale chart on board, suitable for the area and corrected with the latest available information, shall be used. Fixes shall be taken at fiequent intervals, and shall be carried out by more than one method whenever circumstances allow.

12.4.2 The officer in charge of the navigational watch shall positively identify all relevant navigational marks.

12.5 *Navigation with pilot on board*

12.5.1 Despite the duties and obligations of pilots, their presence on board does not relieve the master or officer in charge of the navigational watch fiom their duties and obligations for the safety of the ship. The master and the pilot shall exchange information regarding navigation procedures, local conditions and the ship's characteristics. The master andor the officer in charge of the navigational watch shall

co-operate closely with the pilot and maintain an accurate check on the ship's position and movement.

12.5.2 If in any doubt about the pilot's actions or intentions, the officer in charge of the navigational watch shall seek clarification from the pilot and, if doubt still exists, shall notify the master immediately and take whatever action is necessary before the master arrives.

12.6 ***Ship at anchor***

If the master considers it necessary, a continuous navigational watch shall be maintained at anchor. While at anchor, the officer in charge of the navigational watch shall—

.1 determine and plot the ship's position on the appropriate chart as soon as practicable;

.2 when circumstances permit, check at sufficiently frequent intervals whether the ship is remaining securely at anchor by taking bearings of fixed navigation marks or readily identifiable shore objects;

.3 ensure that proper look-out is maintained;

.4 ensure that inspection rounds of the ship are made periodically;

.5 observe meteorological and tidal conditions and the state of the sea;

.6 notify the master and undertake all necessary measures if the ship drags anchor;

.7 ensure that the state of readiness of the main engines and other machinery is in accordance with the master's instructions;

.8 if visibility deteriorates, notify the master;

.9 . ensure that the ship exhibits the appropriate lights and shapes and that appropriate sound signals are made in accordance with all applicable regulations;

.10 take measures to protect the environment from pollution by the ship and comply with applicable pollution regulations; and

.11 maintain a listening watch on VHF channel 16 and/or the port operations working channel.

Division 3 Principles to be observed in keeping an engineering watch

13 General

13.1 The term ***engineering watch*** as used in this annex means either a person or a group of personnel comprising the watch or a period of responsibility for an officer during which the physical presence in machinery spaces of that officer may or may not be required.

13.2 The officer in charge of the engineering watch is the chief engineer officer's representative and is primarily responsible at all times for the safe and efficient operation and upkeep of machinery affecting the safety of the ship and is responsible for the inspection, operation and testing, as required, of all machinery and equipment under the responsibility of the engineering watch.

14 Watch arrangements

14.1 The composition of the engineering watch shall at all times be adequate to ensure the safe operation of all machinery affecting the operation of the ship, in either automated or manual mode, and be appropriate to the prevailing circumstances and conditions.

14.2 When deciding the composition of the engineering watch, which may include appropriately qualified ratings, the following criteria, ***inter alia,*** shall be taken into account:

.1 the type of ship and the type and condition of the machinery;

.2 the adequate supervision, at all times, of machinery affecting the safe operation of the ship;

.3 any special modes of operation dictated by conditions such as weather, ice, contaminated water, shallow water, emergency conditions, damage containment or pollution abatement;

.4 the qualifications and experience of the engineering watch;

.5 the safety of life, ship, cargo and port, and protection of the environment;

.6 the observance of international and national regulations;

.7 maintaining the normal operations of the ship.

15 Taking over the watch

15.1 The officer in charge of the engineering watch shall not hand over the watch to the relieving officer if there is reason to believe that the latter is obviously not capable of carrying out the watchkeeping duties effectively, in which case the chief engineer officer shall be notified.

15.2 The relieving officer of the engineering watch shall ensure that the members of the relieving engineering watch are apparently fully capable of performing their duties effectively.

15.3 Before taking over the engineering watch, relieving officers shall satisfy themselves about at least the following:

.1 the standing orders and special instructions of the chief engineer officer relating to the operation of the ship's systems and machinery;

.2 the nature of all work being performed on machinery and systems, the personnel involved and potential hazards;

.3 the level and, where applicable, the condition of water or residues in bilges, ballast tanks, slop tanks, reserve tanks, fresh water tanks, sewage tanks and any special requirements for use or disposal of tank contents;

.4 the condition and level of fuel in the reserve tanks, settling tank, day tank and other fuel storage facilities;

.5 any special requirements relating to sanitary system disposals;

.6 the condition and mode of operation of the various main and auxiliary systems, including the electrical power distribution system;

.7 where applicable, the condition of monitoring and control console equipment, and which equipment is being operated manually;

.8 where applicable, the condition and mode of operation of automatic boiler controls such as flame safeguard control systems, limit control systems, combustion control systems, fuel-supply control systems and other equipment related to the operation of steam boilers;

.9 any potentially adverse conditions resulting fiom bad weather, ice, or contaminated or shallow water;

.10 any special modes of operation dictated by equipment failure or adverse ship conditions;

.11 the reports of engine-room ratings relating to their assigned duties;

.12 the availability of fire-fighting appliances;

.13 the state of completion of the engine-room log.

16 Performing the engineering watch

16. The officer in charge of the engineering watch shall ensure that the established watchkeeping arrangements are maintained and that, under direction, engine-room ratings, if forming part of the engineering watch, assist in the safe and efficient operation of the propulsion machinery and auxiliary equipment.

16.2 The officer in charge of the engineering watch shall continue to be responsible for machinery-space operations, despite the presence of the chief engineer officer in the machinery spaces, until specifically informed that the chief engineer officer has assumed that responsibility and this is mutually understood.

16.3 All members of the engineering watch shall be familiar with their assigned watchkeeping duties. In addition, every member shall, with respect to the ship in which they are serving, have knowledge of—

.1 the use of appropriate internal communication systems;

.2 the escape routes from machinery spaces;

.3 the engine-room alarm systems and be able to distinguish between the various alarms, with special reference to the fire-extinguishing media alarm; and

.4 the number, location and types of fire-fighting equipment and damage-control gear in the machinery spaces, and their use and the various safety precautions to be observed.

16.4 Any machinery not functioning properly, expected to malfunction or requiring special service shall be noted along with any action already taken. Plans shall be made for any further action if required.

16.5 When the machinery spaces are in the manned condition, the officer in charge of the engineering watch shall at all times be readily capable of operating the propulsion equipment in response to needs for changes in direction or speed.

16.6 When the machinery spaces are in the periodically unmanned condition, the designated duty officer in charge of the engineering watch shall be immediately available and on call to attend the machinery spaces.

16.7 All bridge orders shall be promptly executed. Except in ships of less than 500 GT, changes in direction or speed of the main propulsion units shall be recorded. The officer in charge of the engineering watch shall ensure that the main propulsion unit controls, when in the manual mode of operation, are continuously attended under stand-by or manoeuvring conditions.

16.8 Due attention shall be paid to the ongoing maintenance and support of all machinery, including mechanical, electrical, electronic, hydraulic and pneumatic systems, their control apparatus and associated safety equipment, all accommodation service systems equipment and the recording of stores and spare gear usage.

16.9 The chief engineer officer shall ensure that the officer in charge of the engineering watch is informed of all preventive maintenance, damage control, or repair operations to be performed during the engineering watch. The officer in charge of the engineering watch shall be responsible for the isolation, bypassing and adjustment of all machinery under the responsibility of the engineering watch that is to be worked on, and shall record all work carried out.

16.10 When the engine-room is put in a stand-by condition, the officer in charge of the engineering watch shall ensure that all machinery and equipment that may be used during manoeuvring is in a state of immediate readiness and that an adequate reserve of power is available for steering gear and other requirements.

16.11 Officers in charge of an engineering watch shall not be assigned or undertake any duties that would interfere with their supervisory duties in respect of the main propulsion system and ancillary equipment. They shall keep the main propulsion plant and auxiliary systems under constant supervision until properly relieved, and shall periodically inspect the machinery in their charge. They **shall** also ensure that adequate rounds of the machinery and steering-gear spaces are made for the purpose **of** observing and reporting equipment malfunction or breakdown, performing or directing routine adjustments, required upkeep and **any** other necessary **tasks.**

16.12 Officers in charge of **an** engineering watch shall direct **any** other member of the engineering watch to inform them of potentially hazardous conditions that may adversely affect the machinery or jeopardize the safety of life or of the ship.

16.13 The officer in charge of the engineering watch shall ensure that the machinery space watch is supervised, and shall arrange for substitute personnel in the event of the incapacity of any engineering watch personnel. The engineering watch shall not leave the machinery spaces unsupervised in a manner that would prevent the manual operation of the engine-room plant or throttles.

16.14 The officer in charge of the engineering watch shall 'take the action necessary to contain the effects of damage resulting fiom equipment breakdown, fire, flooding, rupture, collision, stranding, or other cause.

16.15 Before going off duty, the officer in charge of the engineering watch shall ensure that all events related to the main and auxiliary machinery that have occurred during the engineering watch **are** suitably recorded.

16.16 The officer in charge of the engineering watch shall co-operate with **any** engineer in charge of maintenance work during all preventive maintenance, damage control or repairs. This shall include but not necessarily **be** limited to—

.1 isolating and bypassing machinery to be worked on;

.2 adjusting the remaining plant to function adequately and safely during the maintenance **period;**

.3 recording, in **the** engine-room log or other suitable document, the equipment worked on and the personnel involved, and which safety steps have been taken and by whom, for the benefit of relieving officers and for record purposes; **and**

.4 testing **and** putting into service, when necessary, the repaired machinery or equipment.

16.17 The officer in charge of the engineering watch shall ensure that **any** engine-room ratings that perform maintenance duties are available to

assist in the manual operation of machinery in the event of automatic equipment failure.

16.18 The officer in charge of the engineering watch shall bear in mind that changes in speed, resulting from machinery malfunction, or any loss of steering, may imperil the safety of the ship and life at sea. The bridge shall be notified immediately in the event of fire and of any impending action in machinery spaces that may cause reduction in the ship's speed, imminent steering failure, stoppage of the ship's propulsion system or any alteration in the generation of electric power or similar threat to safety. This notification, where possible, shall be given before changes are made to allow the bridge the maximum available time to take whatever action is possible to avoid a potential marine casualty.

16.19 The officer in charge of the engineering watch shdl notify the chief engineer officer without delay—

.1 when engine damage or a malfunction occurs that may be such as to endanger the safe operation of the ship;

.2 when any malfunction occurs that, it is believed, may cause damage or breakdown of propulsion machinery, auxiliary machinery or monitoring and governing systems; and

.3 in any emergency or if in any doubt about what decision or measures to take.

16.20 Despite the requirement to notify the chief engineer officer in the foregoing circumstances, the officer in charge of the engineering watch shall in addition not hesitate to take immediate action for the safety of the ship, its machinery and crew, where circumstances so require.

16.21 The officer in charge of the engineering watch shall give the watchkeeping personnel all appropriate instructions and information that will ensure the keeping of a safe engineering watch. Routine machinery upkeep, performed as incidental tasks as a part of keeping a safe watch, shall be set up as an integral part of the watch routine. Detailed repair maintenance involving repairs to electrical, mechanical, hydraulic, pneumatic or applicable electronic equipment throughout the ship shall be performed with the cognizance of the officer in charge of the engineering watch and chief engineer officer. These repairs shall be recorded.

17 Engineering watchkeeping under different conditions and in different areas

17.1 ***Restricted visibility***

The officer in charge of the engineering watch shall ensure that permanent air or steam pressure is available for sound signals and that at all times bridge orders relating; to changes in speed or

direction of operation are immediately implemented and, in addition, that auxiliary machinery used for manoeuvring is readily available.

17.2 ***Coastal and congested waters***

The officer in charge of the engineering watch shall ensure that all machinery involved with the manoeuvring of the ship can immediately be placed in the manual mode of operation when notified that the ship is in congested waters. The officer shall also ensure that an adequate reserve of power is available for steering and other manoeuvring requirements. Emergency steering and other auxiliary equipment shall be ready for immediate operation.

17.3 ***Ship at anchor***

17.3.1 At an unsheltered anchorage the chief engineer officer shall consult with the master whether or not to maintain the same engineering watch as when under way.

17.3.2 When a ship is at anchor in an open roadstead or any ***other*** virtually "at-sea" condition, the officer in charge of the engineering watch shall ensure that—

.1 an efficient engineering watch is kept;

.2 periodic inspection is made of all operating and stand-by machinery;

.3 main and auxiliary machinery is maintained in a state of readiness in accordance with orders from the bridge;

.4 measures are taken to protect the environment fiom pollution by the ship, and that applicable pollution-prevention regulations are complied with; and

.5 all damage-control and fire-fighting systems are in readiness.

Division 4 Principles to be observed in keeping a radio watch

18 Watch arrangements

In deciding the arrangements for the radio watch, the master of every ship shall—

.1 ensure that the radio watch is maintained in accordance with the relevant provisions of the radio regulations.

.2 ensure that the primary duties for radio watchkeeping are not adversely affected by attending to radio traffic not relevant to the safe movement of the ship and safety of navigation; and

.3 take into account the radio equipment fitted on board and its operational status.

19 Performing the radio watch

19.1 The radio operator performing radio watchkeeping duties shall —

.1 ensure that watch is maintained on the frequencies specified in the radio regulations; and

.2 while on duty, regularly check the operation of the radio equipment and its sources of energy and report to the master any observed failure of this equipment.

19.2 The requirements of the radio regulations relating to the keeping of a radiotelegraph or radio log, as appropriate, shall be complied with.

19.3 The maintenance of radio records, in compliance with the requirements of the radio regulations, is the responsibility of the radio operator designated as having primary responsibility for radiocommunications during distress incidents. The following shall be recorded, together with the times at which they occur:

.1 a summary of distress, urgency and safety radiocommunications;

.2 important incidents relating to the radio service;

.3 where appropriate, the position of the ship at least once per day;

.4 a *summary* of the condition of the radio equipment, including its sources of energy.

19.4 The radio records shall be kept at the distress communications operating position, and shall be made available for inspection by the master, a surveyor, or any duly authorised officer carrying out port State control.

Part 3 Watchkeeping in port

Division 1 Principles applying to all watchkeeping

20 General

On any ship safely moored or safely at anchor under normal circumstances in port, the master shall arrange for an appropriate and effective watch to be maintained for the purpose of safety. Special requirements may be necessary for special types of ships' propulsion systems or ancillary equipment and for ships carrying hazardous, dangerous, toxic or highly flammable materials or other special types of cargo.

21 Watch arrangements

21.1 Arrangements for keeping a deck watch when the ship is in port shall at all times be adequate to—

.1 ensure the safety of life, of the ship, the port and the environment, and the safe operation of all machinery related to cargo operations;

.2 observe international and national regulations; and

.3 maintain order and the normal routine of the ship.

21.2 The master shall decide the composition and duration of the deck watch depending on the conditions of mooring, type of ship and character of duties.

21.3 If the master considers it necessary, a qualified officer shall be in charge of the deck watch.

21.4 The necessary equipment shall be so arranged as to provide for efficient watchkeeping.

21.5 The chief engineer officer, in consultation with the master, shall ensure that engineering watchkeeping arrangements are adequate to maintain a safe engineering watch while in port, When deciding the composition of the engineering watch, which may include appropriate engine-room ratings, the following points are among those to be taken into account

.1 on all ships of 3 000 kW propulsion power or more there shall always be an officer in charge of the engineering watch;

.2 on ships of less than 3 000 kW propulsion power there may be, at the master's discretion and in consultation with the chief engineer officer, no officer in charge of the engineering watch; and

.3 officers, while in charge of an engineering watch, shall not be assigned or undertake any task or duty that would interfere with their supervisory duty in respect of the ship's machinery system.

22 Taking over the watch

22.1 Officers in charge of the deck or engineering watch shall not hand over the watch to their relieving officer if they have any reason to believe that the latter is obviously not capable of carrying out watchkeeping duties effectively, in which case the master or chief engineer shall be notified accordingly. Relieving officers of the deck or engineering watch shall ensure that all members of their watch are apparently fully capable of performing their duties effectively.

22.2 If, at the moment of handing over the deck or engineering watch, an important operation is being performed it shall be concluded by the

officer being relieved, except when ordered otherwise by the master or chief engineer officer.

Division 2 Taking over the deck watch

23 Before taking over the deck watch, the relieving officer shall be informed about the following by the officer in charge of the deck watch:

.1 the depth of the water at the berth; the ship's draught; the level and time of high and low waters; the securing of the moorings, the arrangement of anchors and the scope of the anchor chain, and other mooring features important to the safety of the ship; the state of main engines and their availability for emergency use;

.2 all work to be performed on board the ship; the nature, amount and disposition of cargo loaded or remaining, and any residue on board after unloading the ship;

.3 the level of water in bilges and ballast tanks;

.4 the signals or lights being sounded or exhibited;

.5 the number of crew members required to be on board and the presence of any other persons on board;

.6 the state of fire-fighting appliances;

.7 any special port regulations;

.8 the master's standing and special orders;

.9 the lines of communication available between the ship and shore personnel, including port authorities, in the event of an emergency arising or assistance being required;

.10 any other circumstances of importance to the safety of the ship, its crew, cargo or protection of the environment fiom pollution;

.11 the procedures for notifying the appropriate authority of any environmental pollution resulting fiom ship activities.

24 Relieving officers, before assuming charge of the deck watch, shall ensure that—

.1 the securing of moorings and anchor chain is adequate;

.2 the appropriate signals or lights are properly exhibited or sounded;

.3 safety measures and fire protection regulations are being maintained;

.4 they are aware of the nature of any hazardous or dangerous cargo being loaded or discharged and the appropriate action to be taken in the event of any spillage or fire;

.5 no external conditions or circumstances imperil the ship and that it does not imperil others; and

.6 they are aware of any ballasting or de-ballasting operations in progress and, where applicable, the current status of anti-heeling pumps and systems.

Division 3 Taking over the engineering watch

25 Before taking over the engineering watch, the relieving officer shall be informed about the following by the officer in charge of the engineering watch:

.1 the standing orders of the day, any special orders relating to the ship operations, maintenance functions, repairs to the ship's machinery or control equipment;

.2 the nature of all work being performed on machinery and systems on board ship, personnel involved and potential hazards;

.3 the level and condition, where applicable, of water or residue in bilges, ballast tanks, slop tanks, sewage tanks, reserve tanks and special requirements for the use or disposal of tank contents;

.4 any special requirements relating to sanitary system disposals;

.5 the condition and state of readiness of portable fire-extinguishing equipment and fixed fire-extinguishing installations and fire-detection systems;

.6 authorised repair personnel on board engaged in engineering activities, their work locations and repair functions and other authorised persons on board and the required crew;

.7 any port regulations pertaining to ship effluents, fire-fighting requirements and ship readiness, particularly during potential bad weather conditions;

.8 the lines of communication available between the ship and shore personnel, including port authorities, in the event of an emergency arising or assistance being required;

.9 any other circumstances of importance to the safety of the ship, its crew, cargo or the protection of the environment from pollution;

.10 the procedures for notifying the appropriate authority of any environmental pollution resulting from engineering activities.

26 Relieving officers, before assuming charge of the engineering watch, shall satisfy themselves that they are fully informed by the officer being relieved, as outlined above, and—

.1 be familiar with existing and potential sources of power, heat and lighting and their distribution;

.2 know the availability and condition of ship's fuel, lubricants and all water supplies; and

.3 be ready to prepare the ship and its machinery, as far as is possible, for stand-by or emergency conditions as required.

Division 4 Performing the deck watch

27 The officer in charge of the deck watch shall—

.1 make rounds to inspect the ship at appropriate intervals;

.2 pay particular attention to—

.2.1 the condition and securing of the gangway, anchor chain and moorings, especially at the turn of the tide and in berths with a large rise and fall, if necessary, taking measures to ensure that they are in normal working condition;

.2.2 the draught, under-keel clearance and the general state of the ship, to avoid dangerous listing or trim during cargo handling or ballasting;

.2.3 the weather and sea state;

.2.4 the observance of all regulations concerning safety and fire protection;

.2.5 the water level in bilges and tanks;

.2.6 all persons on board and their location, especially those in remote or enclosed spaces; and

.2.7 the exhibition and sounding, where appropriate, of lights and signals;

.3 in bad weather, or on receiving a storm warning, take the necessary measures to protect the ship, persons on board and cargo;

.4 take every precaution to prevent pollution of the environment by the ship;

.5 in an emergency threatening the safety of the ship, raise the alarm, inform the master, take all possible measures to prevent any damage to the ship, its cargo and persons on board, and, if necessary, request assistance from the shore authorities or neighbouring ships;

.6 be aware of the ship's stability condition so that, in the event of fire, the shore fire-fighting authority may be advised of the approximate quantity of water that can be pumped on board without endangering the ship;

.7 offer assistance to ships or persons in distress;

.8 take necessary precautions to prevent accidents or damage when propellers are to be turned; and

.9 enter in the appropriate log-book all important events affecting the ship.

Division 5 Performing the engineering watch

28 Officers in charge of the engineering watch shall pay particular attention to—

.1 the observance of all orders, special procedures and regulations concerning hazardous conditions and their prevention in all areas in their charge;

.2 the instrumentation and control systems, monitoring of all power supplies, components and systems in operation;

.3 the techniques, methods and procedures necessary to prevent violation of the pollution regulations of the local authorities; and

.4 the state of the bilges.

29 Officers in charge of the engineering watch shall—

.1 in emergencies, raise the alarm when in their opinion the situation so demands, and take all possible measures to prevent damage to the ship, persons on board and cargo;

.2 be aware of the deck officer's needs relating to the equipment required in the loading or unloading of the cargo and the additional requirements of the ballast and other ship stability control systems;

.3 make fiequent rounds of inspection to determine possible equipment malfunction or failure, and take immediate remedial action to ensure the safety of the ship, of cargo operations, of the port and the environment;

.4 ensure that the necessary precautions are taken, within their area of responsibility, to prevent accidents or damage to the various electrical, electronic, hydraulic, pneumatic and mechanical systems of the ship; and

.5 ensure that all important events affecting the operation, adjustment or repair of the ship's machinery are satisfactorily recorded.

Division 6 Watch in port on ships carrying hazardous cargo

30 General

30.1 The master of every ship carrying cargo that is hazardous, whether explosive, flammable, toxic, health-threatening or environment-polluting, shall ensure that safe watchkeeping arrangements are

maintained. *On* ships carrying hazardous cargo in bulk, this will be achieved by the ready availability on board of a duly qualified officer or officers, and ratings where appropriate, even when the ship is safely moored or safely at anchor in port.

30.2 *On* ships carrying hazardous cargo other than in bulk, the master shall take full account of the nature, quantity, packing and stowage of the hazardous cargo and of any special conditions on board, afloat and ashore.

Annex 1A Watchkeeping principles and arrangements for fishing vessels

(Regulation 6)

Part 1 Voyage planning

1 General

1.1 The intended voyage shall, as far as possible, be planned in advance taking into account all pertinent information, and any course laid down shall be checked before the voyage begins.

1.2 The chief engineer officer shall, in consultation with the master, determine in advance the needs of the intended voyage, taking into account the requirements for fuel, water, lubricants, chemicals, expendable and other spare parts, tools, supplies and any other requirements.

Part 2 Watchkeeping at sea

Division 1 Principles applying to watchkeeping generally

2 General

2.1 The following principles shall be observed to ensure that safe watches are maintained at all times.

2.2 The master of every fishing vessel shall ensure that watchkeeping arrangements are adequate for maintaining a safe navigational watch. Under the master's general direction, the officers of the watch are responsible for navigating the vessel safely during their periods of duty, when they will be particularly concerned with avoiding collision and stranding.

2.3 The chief engineer officer of every fishing vessel shall, in consultation with the master, ensure that watchkeeping arrangements are adequate to maintain a safe engineering watch.

2.4 The watch system shall be such that the efficiency of watchkeeping personnel is not impaired by fatigue. Duties shall be so organised that the first watch at the commencement of a voyage and the

subsequent relieving watches are sufficiently rested and otherwise fit for duty.

3 Protection of marine environment

The master, officers and ratings shall be aware of the serious effects of operational and accidental pollution of the marine environment and shall take all possible precautions to prevent such pollution, particularly within the framework of relevant international and national regulations.

Division 2 Principles *to* be observed in keeping a navigational watch

4 General

The officer in charge of the navigational watch is the master's representative and is primarily responsible at all times for the safe navigation of the vessel and for complying with the collision regulations.

5 *En* route to or from fishing grounds

5.1 *Watch arrangements*

5.1.1 The composition of the navigational watch shall at all times be adequate and appropriate to the prevailing circumstances and conditions, and shall take into account the need for maintaining a proper look-out.

5.1.2 When deciding the composition of the navigational watch, the following factors, ***inter alia,*** shall be taken into account:

.1 at no time is the wheelhouse to be left unattended;

.2 weather conditions, visibility and whether there is daylight or darkness;

.3 proximity of navigational hazards that may make it necessary for the officer in charge of the watch to carry out additional navigational duties;

.4 use and operational condition of navigational aids such as radar or electronic position-indicating devices and of any other equipment affecting the safe navigation of the vessel;

.5 whether the vessel is fitted with automatic steering;

.6 any unusual demands on the navigational watch that may arise as a result of special operational circumstances.

5.2 ***Navigation***

5.2.1 During the watch, course steered, position and speed shall be checked at sufficiently frequent intervals, using any available navigational aids necessary to ensure that the vessel follows the planned course.

5.2.2 The officer in charge of the navigational watch shall have full knowledge of the location and operation of all safety and navigational equipment on board the vessel, and shall be aware and take account of the operating limitations of such equipment.

5.2.3 The officer in charge of a navigational watch shall not be assigned or undertake any duties that would interfere with the safe navigation of the vessel.

5.3 ***Navigational equipment***

5.3.1 The officer in charge of the navigational watch shall make the most effective use of all navigational equipment at the officer's disposal.

5.3.2 When using radar, the officer in charge of the navigational watch shall bear in mind the necessity to comply at all times with the provisions on the use of radar contained in the collision regulations.

5.3.3 In cases of need, the officer of the navigational watch shall not hesitate to use the helm, engines, and sound and light signalling apparatus.

5.4 ***Navigational duties and responsibilities***

5.4.1 The officer in charge of the navigational watch shall —

.1 keep watch in the wheel house;

.2 in no circumstances leave the wheelhouse until properly relieved;

.3 continue to be responsible for the safe navigation of the vessel despite the presence of the master in the wheelhouse, until informed specifically that the master has assumed that responsibility and this is mutually understood;

.4 notify the master when in any doubt as to what action to take in the interest of safety; and

.5 not hand over the watch to a relieving officer if there is reason to believe that the latter is not capable of carrying out the watchkeeping duties effectively, in which case the master shall be notified.

5.4.2 On taking over the navigational watch, the relieving officer shall confirm and be satisfied about the vessel's estimated or true position and confirm its intended track, course and speed, and shall note any dangers to navigation expected to be encountered during the watch and any traffic in the immediate vicinity.

5.4.3 Whenever practicable, a proper record shall be kept of the movements and activities during the navigational watch relating to the navigation of the vessel.

5.5 *Look-out*

5.5.1 **A** proper look-out shall be maintained in compliance with rule ***5*** **of** annex to the collision regulations. It shall serve the purpose of—

.1 maintaining a continuous state of vigilance by sight and hearing as well as by all other available means, with regard to any significant changes in the operating environment;

.2 fully appraising the situation and the risk of collision, stranding and other dangers to navigation; and

.3 detecting ships or aircraft in distress, shipwrecked persons, wrecks **and** debris.

5.5.2 In determining that the composition of the navigational watch is adequate to ensure that a proper look-out can continuously be maintained, the master shall take into account all relevant factors, including those described under item 5.1 of this annex, **as** well **as** the following factors:

.1 visibility, and state of weather and sea;

.2 traffic density, and other activities occurring in the area in which the vessel is navigating;

.3 the attention necessary when navigating in or near traffic separation schemes and other routeing measures;

.4 the additional workload caused by the nature of the vessel's functions, immediate operating requirements and anticipated manoeuvres;

.5 rudder and propeller control and vessel manoeuvring characteristics;

.6 ***the*** fitness for duty of ***any*** crew members on call who may be assigned as members of the watch;

.7 knowledge of and confidence in the professional competence of the vessel's officers and crew;

.8 the experience of the officer of the navigational watch and the familiarity of that officer with the vessel's equipment, procedures, and manoeuvring capability;

.9 activities taking place on board the vessel at any particular time, and the availability of assistance to be summoned immediately to the wheelhouse when necessary;

.10 the operational status of instrumentation in the wheelhouse and controls, including alarm ***systems;***

.11 the size of the vessel and the field of vision available from the conning position;

.12 the configuration of the wheelhouse, to the extent the configuration might inhibit a member of the watch from detecting by sight or hearing any external developments;

.13 any relevant standards, procedures and guidelines relating to watchkeeping arrangements and fitness for duty that have been specified in a marine notice.

5.6 Weather conditions

The officer in charge of the navigational watch shall take relevant measures and notify the master when adverse changes in weather could affect the safety of the vessel, including conditions leading to ice accretion.

6 Navigation with pilot on board

The presence of a pilot on board does not relieve the master or officer in charge of the navigational watch fiom their duties and obligations for the safety of the vessel. The master and the pilot shall exchange information regarding navigation procedures, local conditions and the vessel's characteristics. The master and the officer in charge of the navigational watch shall co-operate closely with the pilot and maintain an accurate check of the vessel's position and movement.

7 Vessels engaged in fishing or searching for fish

7.1 In addition to the principles in item 5 of this annex, the following factors shall be taken into account and properly acted upon by the officer in charge of the navigational watch:

.1 other vessels engaged in fishing and their gear, own vessel's manoeuvring characteristics, particularly its stopping distance and the diameter of turning circle at sailing speed and With the fishing gear overboard;

.2 safety of the crew on deck;

.3 adverse effects on the safety of the vessel and its crew through reduction of stability and freeboard caused by exceptional forces resulting from fishing operations, catch handling and stowage, and unusual sea and weather conditions;

.4 the proximity of offshore structures, with special regard to any safety zones;

.5 wrecks and other underwater obstacles that could be hazardous for fishing gear.

7.2 When stowing the catch, attention shall be given to the essential requirements for adequate freeboard, adequate stability and watertight integrity at all times during the voyage to the landing port, taking into account consumption of fuel and stores, risk of adverse

weather conditions and, especially in winter, risk of ice accretion on or above exposed decks in areas where ice accretion is likely to occur.

8 Vessel at anchor

The master shall ensure, with a view to the safety of the vessel and the crew, that a proper watch is maintained at all times fiom the wheelhouse or deck on fishing vessels at anchor.

Division 3 Principfes to be observed in keeping an engineering watch

9 General

9.1 The term ***engineering*** watch as used in this annex means either a person or a group of personnel comprising the watch or a period of responsibility for an officer during which the physical presence in machinery spaces of that officer may or may not be required.

9.2 The officer in charge of the engineering watch is the chief engineer officer's representative and is primarily responsible at all times for the safe and efficient operation and upkeep of machinery affecting the safety of the vessel and is responsible for the inspection, operation and testing, as required, of all machinery and equipment under the responsibility of the engineering watch.

10 Watch arrangements

10.1 The composition of the engineering watch shall at all times be adequate and appropriate to the prevailing circumstances and conditions and shall take into account the need to ensure the safe operation of all machinery affecting the operation of the vessel.

10.2 When deciding the composition of the engineering watch, the following criteria, inter ***alia,*** shall be taken into account:

.1 the type of vessel and the type and condition of the machinery;

.2 the adequate supervision, at all times, of machinery affecting the safe operation of the vessel;

.3 any special modes ***of*** operation dictated by conditions such as weather, ice, contaminated water, shallow water, emergency conditions, damage containment or pollution abatement;

.4 the qualifications and experience of the engineering watch;

.5 the safety of life, ship, cargo and port and protection of the environment;

.6 the observance of relevant international and national regulations;

.7 maintaining the normal operations of the vessel.

11 Taking over the watch

11.1 The officer in charge of the engineering watch shall not hand over the watch to the relieving officer if there is reason to believe that the latter is obviously not capable of carrying out the watchkeeping duties effectively, in which case, the chief engineer officer shall be notified.

11.2 The relieving officer of the engineering watch shall ensure that the members of the relieving engineering watch are apparently fully capable of performing their duties effectively.

11.3 Before taking over the engineering watch, relieving officers shall satisfy themselves about at least the following:

.1 the standing orders and special instructions of the chief engineer officer relating to the operation of the vessel's systems and machinery;

.2 the nature of all work being performed on machinery and systems, the personnel involved and potential hazards;

.3 the level and, where applicable, the condition of water or residues in bilges, ballast tanks, slop tanks, reserve tanks, fresh water tanks, sewage tanks and any special requirements for use or disposal of tank contents;

.4 the condition and level of fuel in reserve tanks, settling tank, day tank and other fuel storage facilities;

.5 any special requirements relating to sanitary system disposals;

.6 the condition and mode of operation of the various main and auxiliary systems, including the electrical power distribution system;

.7 where applicable, the condition of monitoring and control console equipment, and which equipment is being operated manually;

.8 where applicable, the condition and mode of operation of automatic boiler controls such as flame safeguard control systems, limit control systems, combustion control systems, fuel-supply control systems and other equipment related to the operation of steam boilers;

.9 any potentially adverse conditions resulting fiom bad weather, ice, or contaminated or shallow water;

.10 any special modes of operation dictated by equipment failure or adverse vessel conditions;

.11 the availability of fire-fighting appliances;

.12 the state of completion of the engine-room log.

12 Performing the engineering watch

12.1 The officer in charge of the engineering watch shall ensure that the established watchkeeping arrangements are maintained and that, under direction, other personnel, if forming part of the engineering watch, assist in the safe and efficient operation of the vessel's propulsion machinery and auxiliary equipment.

12.2 The officer in charge of the engineering watch shall continue to be responsible for machinery-space operations despite the presence of the chief engineer officer in the machinery spaces, until specifically informed that the chief engineer officer has assumed that responsibility and this is mutually understood.

12.3 All members of the engineering watch shall be familiar with their assigned watchkeeping duties. In addition, every member shall, with respect to the vessel in which they are serving, have knowledge of—

.1 the use of appropriate internal communication systems;

.2 the escape routes fiom machinery spaces;

.3 the engine-room alarm systems and be able to distinguish between the various alarms, with special reference to the fire-extinguishing media alarm; and

.4 the number, location and types of fire-fighting equipment and damage-control gear in the machinery spaces, and their use and the various safe precautions to be observed.

12.4 Any machinery not functioning properly, expected to malfunction or requiring special service shall be noted along with any action already taken. Plans shall be made for any further action if required.

12.5 When machinery spaces are in the manned condition, the officer in charge of the engineering watch shall at all times be readily capable of operating the propulsion equipment in response to needs for changes in direction or speed.

12.6 When machinery spaces are in the periodically unmanned condition, the designated duty officer in charge of the engineering watch shall be immediately available and on call to attend the machinery spaces.

12.7 The officer in charge of the engineering watch shall ensure that the main propulsion unit controls, when in the manual mode of operation, are continuously attended under stand-by or manoeuvring conditions,

12.8 When the engine-room is put in a stand-by condition, the officer in charge of the engineering watch shall ensure that all machinery and equipment that may be used during manoeuvring is in a state of immediate readiness and that an adequate reserve of power is available for steering gear and other requirements.

12.9 Officers in charge of an engineering watch shall direct any other member of the engineering watch to inform them of potentially hazardous conditions that may adversely affect the machinery or jeopardise the safety of life or of the vessel.

12.10 Before going off duty, the officer in charge of the engineering watch shall ensure that all events related to the main and auxiliary machinery that have occurred during the engineering watch are suitably recorded.

12.11 The officer in charge of the engineering watch shall bear in mind that changes in speed, resulting from machinery malfunction, or any loss of steering, may imperil the safety of the ship and life at sea. The bridge shall be notified immediately in the event of fire and of any impending action in machinery spaces that may cause reduction in the vessel's speed, imminent steering failure, stoppage of the vessel's propulsion system or any alteration in the generation of electric power or similar threat to safety. This notification, where possible, shall be given before changes are made to allow the bridge the maximum available time to take whatever action is possible to avoid a potential marine casualty.

12.12 The officer in charge of the engineering watch shall notify the chief engineer officer without delay—

.1 when engine damage or a malfunction occurs that may be such as to endanger the safe operation of the vessel;

.2 when any malfunction occurs that, it is believed, may cause damage or breakdown of propulsion machinery, auxiliary machinery or monitoring and governing systems; and

.3 in any emergency or if in any doubt about what decision or measures to take.

12.13 Despite the requirement to notify the chief engineer officer in the foregoing circumstances, the officer in charge of the engineering watch shall not hesitate to *take* immediate action for the safety of the vessel, its machinery and crew where circumstances require.

13 Restricted visibility

The officer in charge of the engineering watch shall ensure that permanent air or steam pressure is available for sound signals and that at all times bridge orders relating to changes in speed or direction of operation are immediately implemented and, in addition, that auxiliary machinery used for manoeuvring is readily available.

14 Vessel at anchor

14.1 At an unsheltered anchorage the chief engineer officer shall consult with the master whether or not to maintain the same engineering watch as when under way.

14.2 When a vessel is at anchor in an open roadstead or any other virtually "at-sea" condition, the officer in charge of the engineering watch shall ensure that—

.1 an efficient engineering watch is kept;

.2 periodic inspection is made of all operating and stand-by machinery;

.3 main and auxiliary machinery is maintained in a state of readiness in accordance with orders from the bridge;

.4 measures are taken to protect the environment from pollution by the vessel, and that applicable pollution-prevention regulations are complied with; and

.5 all damage-control and fire-fighting systems are in readiness.

Division 4 Principles to be observed in keeping a radio watch

15 General

The master shall ensure that an adequate radio watch is maintained while the vessel is at sea, on appropriate frequencies, taking into account the requirements of the radio regulations.

Explanatory note

(This note is not part of the regulations)

1 These regulations amend the ***Merchant*** Shipping ***(Safe Manning) Regulations, 1999,*** made under section ***356*** of the ***Merchant Shipping*** Act, ***1951.***

2 These are the main objects of the amendments:

- To update watchkeeping principles and arrangements for non-fishing vessel personnel, taking into account South Africa's obligations under the STCW Convention.
- To introduce separate watchkeeping principles and arrangements for fishing vessel personnel, taking into account the provisions of the STCW-F Convention.
- To make consequential changes.

Part 2A Draft Merchant Shipping (Training and Certification) (Fishing and Marine Motorman Qualifications) Regulations, 2006

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Part 1 Preliminary

1 Title and commencement

(1) These regulations are called the ***Merchant Shipping (Training and Certification) (Fishing and Marine Motorman Qualifications) Regulations, 2006.***

(2) These regulations commence on **1 January 2007.**

2 Definitions

(1) In these regulations, unless the context indicates otherwise, an expression given a meaning by the Act has the given meaning, and—

"accredited" means accredited by the Authority;

"approved" means approved by the Authority;

"approved training", for certification of a particular kind, means training programmes and/or courses approved for certification of that kind;

"approved training record book", for certification of a particular kind, means a training record book approved for certification of that kind;

"candidate" means a person desiring certification in terms of these regulations;

"certificate" and **"certification"** means a certificate of competency or qualification and includes an endorsement;

"certificated", in relation to—

(a) a deck officer on a vessel of a particular kind, means holding valid appropriate certification that entitles the holder to serve as an officer in charge of a navigational watch on a vessel of that kind; and

(b) an engineer officer on a vessel of a particular kind, means holding valid appropriate certification that entitles the holder to serve as an officer in charge of an engineering watch on a vessel of that kind;

"chief engineer officer" means the senior engineer officer responsible for the mechanical propulsion and the operation and maintenance of the mechanical and electrical installation of a vessel;

"deck officer" means a ship's officer serving in the deck department on a vessel;

"endorsement" means a document that is appended to a certificate of competency and that modifies the terms of the certificate;

"engineer officer" means a ship's officer serving in the engine department on a vessel;

"equivalent certification" has the meaning given by regulation 4(1);

"examiner" means a person appointed as an examiner under section 77(4) of the Act;

"fishing vessel" means a vessel that is used wholly or principally for the taking, catching or capturing of fish or other living resources of the sea or seabed for financial gain or reward;

"GT", for a vessel, means its gross tonnage calculated in accordance with the ***Tonnage Regulations, 1986***;

"holder", of a certificate or other document, means the person identified as holder by the certificate or document;

"length" has the meaning it has in regulation 2 of the ***Tonnage Regulations, 1986;***

"limited waters" means—

(a) the internal and territorial waters of the Republic;

(b) the exclusive economic zone of the Republic; and

(c) if the Republic has entered into an agreement with another State for the purposes of this paragraph, the waters under the jurisdiction of that other State that are covered by the agreement;

"near-coastal voyage" has the meaning it has in regulation 1(1) of the ***Merchant Shipping (Training and Certification) Regulations, 1999;***

"onboard training" is training that—

(a) is conducted principally on board a vessel during seagoing service; and

(b) is set out, and assessed, in an approved training record book;

"pleasure vessel" means a vessel that is used solely for sport or recreation;

"port operations area" has the meaning it has in regulation 1(1) of the ***Merchant Shipping (Training and Certification) Regulations, 1999***;

"propulsion power", for a vessel, means the total maximum continuous rated output power in kilowatts of all the vessel's main inboard propulsion machinery that appears on the vessel's registration certificate or other official document;

"qualifying service" is the seagoing service that is claimed by a candidate for the purpose of qualifying for certification in terms of these regulations;

"rating" means a seaman other than a ship's officer;

"Registrar" means the Registrar of Seafarers designated in terms of regulation 5(1) of the ***Merchant Shipping (Training and Certification) Regulations, 1999***;

"seagoing service" is service on vessels operating in limited or unlimited waters;

"second engineer officer" means the engineer officer next in rank to the chief engineer officer and upon whom responsibility for the mechanical propulsion and the operation and maintenance of the mechanical and electrical installation of the vessel will fall in the event of the incapacity of the chief engineer officer;

"specified by the Authority" means specified by the Authority in a marine notice;

"STCW-F Convention" means the International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel, 1995, and includes any subsequent amendment to the Convention that is specified by the Authority;

"the Act" means the ***Merchant Shipping Act, 1951*** (Act No. 57 of 1951);

"the Code" means the ***Code for South African Maritime Qualifications,*** published by the Authority;

"unlimited voyage" has the meaning it has in regulation 1f1) of the ***Merchant Shipping (Training and Certification) Regulations, 1999***;

"unlimited waters" means the waters beyond limited waters;

'Valid", in relation to a certificate or other document, means a certificate or document that is current and that has not been suspended or cancelled.

(2) Any reference in these regulations to assessment at a particular level is to read as a reference to assessment at that level in accordance with regulation 16(1).

3 Introduction to certification

(1) These regulations prescribe the conditions to be met and the standards of competence required for the issue of the certification specified in column 2 of the following table:

Part 2A: Draft Merchant Shipping (Training and Certification) (Fishing and Marine Motorman Qualifications) Regulations, 2006

Item	Column 1 *Capacity*	Column 2 *Appropriate certification in terms of these regulations*
1	Officer in charge of a navigational watch on fishing vessels of less than 24 metres in length operating in limited or unlimited waters	Certificate of Competency as Deck Officer (Fishing < 24 metres)
2	Master of a fishing vessel of less than 24 metres in length operating in limited waters	Certificate of Competency as Skipper (Fishing < 24 metres)
3	Master of a fishing vessel of less than 24 metres in length operating in unlimited waters	Certificate of Competency as Skipper (Fishing < 24 metres) together with the Unlimited Waters Command Endorsement
4	Officer in charge of a navigational watch on fishing vessels of 24 metres or more in length operating in limited or unlimited waters	Certificate of Competency as Deck Officer (Fishing ≥ 24 metres)
5	Master of a fishing vessel of 24 metres or more in length operating in limited waters	Certificate of competency as Skipper (Fishing ≥ 24 metres)
6	Master of a fishing vessel of 24 metres or more in length operating in unlimited waters	Certificate of Competency as Skipper (Fishing ≥ 24 metres) together with the Unlimited Waters Command Endorsement
Engineer Officers		
7	Chief engineer officer of a fishing vessel of less than 350 kW propulsion power	Certificate of Competency as Marine Motorman Grade 2
8	Second engineer officer of a fishing vessel of less than 750 kW propulsion power	
9	Officer in charge of an engineering watch on fishing vessels of less than 2 000 kW propulsion power	

Part 24: Draft Merchant Shipping (Training and Certification) (Fishing and Marine Motorman Qualifications) Regulations, 2006

Item	Column 1	Column 2
	Capacity	*Appropriate certification in term: of these regulations*
10	Chief engineer officer of a fishing vessel of less than 750 kW propulsion power	Certificate of Competency as Marine Motorman Grade 1
11	Second engineer officer of a fishing vessel of less than 2 000 kW propulsion power	
12	Officer in charge of an engineering watch on fishing vessels of any kilowatt propulsion power	
13	Chief engineer officer of a vessel of less than 350 kW propulsion power operating in a port operations area	
14	Second engineer officer of a vessel of 1 500 kW propulsion power or more operating in a port operations area	
15	Chief engineer officer of a vessel of less than 350 kW propulsion power on near-coastal voyages	
16	Second engineer officer of a vessel of less than 750 kW propulsion power on near-coastal voyages	
17	Officer in charge of an engineering watch on vessels of less than 750 kW propulsion power on unlimited voyages	

Item	Column 1 *Capacity*	Column 2 *Appropriate certification in terms of these regulations*
18	Chief engineer officer of a fishing vessel of less than 2 000 kW propulsion power	Certificate of Competency as Marine Motorman Higher Grade
19	Second engineer officer of a fishing vessel of any kilowatt propulsion power	
20	Chief engineer officer of a vessel of less than 750 kW propulsion power on near-coastal voyages or operating in a port operations area	
21	Officer in charge of an engineering watch on vessels of less than 750 kW propulsion power on unlimited voyages	
22	Chief engineer officer of a fishing vessel of any kilowatt propulsion power	Certificate of Competency as Chief Engineer Officer (Fishing)
23	Able seaman on a fishing vessel of 24 metres or more in length operating in limited or unlimited waters	Certificate of Qualification as Able Seaman (Fishing)
24	Person whose responsibilities include taking charge of a survival craft on fishing vessels operating in limited or unlimited waters or on vessels operating in a port operations area	Certificate of Qualification as Proficient in Survival Craft (Local)

(2) A person is qualified for the purposes of the Act to serve in the capacity specified in an item in column 1 of the table in subregulation (1), if—

(a) in the case of a master or ship's officer, the person—

(i) holds a valid certificate of competency specified in column 2 of the item; or

(ii) holds equivalent certification; or

(iii) has been authorised under section 83(2) of the Act to serve in the specified capacity; and

(b) in the case of a rating, the person holds—

(i) a valid certificate of qualification specified in column 2 of the item; or

(ii) equivalent certification; or

(iii) valid certification issued under the authority of the government of another country that the Authority is satisfied qualifies the person to serve in the specified capacity.

(3) To avoid doubt—

(a) the ranking of the waters limitation entitles the holder of certification for unlimited waters to serve in the certificated capacity also on vessels operating in limited waters; and

(b) the ranking of the vessel length limitation entitles the holder of certification for a specified vessel length to serve in the certificated capacity also on vessels of lesser length; and

(c) the ranking of the voyage limitation entitles—

(i) the holder of certification for unlimited voyages to serve in the certificated capacity also on vessels engaged on near-coastal voyages or in port operations; and

(ii) the holder of certification for near-coastal voyages to serve in the certificated capacity also on vessels engaged in port operations; and

(d) the holder of a certificate of competency as Skipper (Fishing < 24 metres) or Skipper (Fishing ≥ 24 metres) (whether or not the Unlimited Waters Command Endorsement is also held) is entitled to serve in any deck officer capacity on fishing vessels of any length operating in limited or unlimited waters.

4 Equivalent certification

(1) ***Equivalent certification*** is valid certification that—

(a) was issued—

(i) before the commencement of these regulations; or

(ii) thereafter in terms of regulation 44; and

(b) is taken, in terms of regulation *23* of the ***Merchant Shipping (Safe Manning) Regulations, 1999,*** to be equivalent to the specified certification in terms of these regulations.

(2) Equivalent certification must be exchanged for the corresponding certification in terms of these regulations in the manner and within the time specified by the Authority.

Part 2 Administration

5 Registrar of seafarers

For these regulations, the Registrar has the following functions:

(a) to issue certification in terms of these regulations;

(b) to keep record of the certification and of all related matters;

(c) to respond to requests to verify the authenticity or validity of the certification;

(d) to perform functions incidental to any of the previously described functions.

6 Senior examiners

(1) For these regulations, the Authority must designate in writing, from among the examiners, a senior examiner (deck) and a senior examiner (engine).

(2) In addition to the functions specified in these regulations, a senior examiner has the other functions specified in his or her instrument of designation.

7 Quality assurance

For these regulations, the Authority must implement a quality assurance system that covers at least the functions of the Registrar and the examiners.

8 Syllabus committee

(1) The Authority may establish a committee (the ***syllabus committee)*** to advise it about the implementation and operation of these regulations and the related provisions of the Code.

(2) The syllabus committee is to consist of—

(a) the chair, who must be a senior examiner designated in writing for the purpose by the Authority; and

(b) the other senior examiner; and

(c) the Registrar; and

(d) not more than nine other members, appointed in writing by the Authority, who must be persons with appropriate knowledge and experience in matters relating to the education and training of seafarers.

(3) The Authority may give the syllabus committee written directions about—

(a) the way in which the committee is to carry out its work; and

(b) procedures to be followed in relation to its meetings.

(4) The syllabus committee must take account of the directions given to it by the Authority.

(5) The Authority may reconstitute or disband the syllabus committee at any time, as it thinks fit.

9 Accreditations and approvals

Every accreditation or approval in terms of these regulations —

(a) must be given in writing; and

(b) must state the date on which it takes effect and expires and the conditions (if any) on which it is given; and

(c) may, after reasonable notice, be altered or cancelled.

Part 3 Certification

Division 1 General

10 Dates and places for level 3 assessments

(1) The Authority must publish at least annually in a marine notice the times and places for level 3 assessments.

(2) However, published times and places may be varied by agreement between examiner and candidate.

11 How to apply

(1) Application for certification in terms of these regulations must be made in the form and manner specified by the Authority and be accompanied by the appropriate documents specified in the Annex.

(2) If the certification requires assessment at level 3, the application must be made at least 14 days before the intended date of assessment.

12 Examiner may verify eligibility

(1) Before applying for certification, a candidate may request an examiner to verify his or her eligibility for certification in terms of these regulations.

(2) If an examiner doubts the appropriateness or sufficiency of a candidate's qualifying service, the examiner must refer the case to the relevant senior examiner for determination.

13 Proficiency in English

(1) For certification as master or ship's officer, a candidate must have a command of English that is appropriate to the efficient discharge of routine and emergency duties and responsibilities associated with the certification concerned.

(2) An examiner may require that a candidate demonstrate proficiency consistent with subregulation (1).

(3) A requirement under subregulation **(2)** must take account of—

(a) the obligations of the Republic under the STCW-F convention; and

(b) any related resolutions adopted by the International Maritime Organisation.

14 Unsatisfactory conduct

(1) If the Authority finds that a candidate's conduct during qualifying service is unsatisfactory, the Authority—

(a) must refuse the application for certification; and

(b) may require that the candidate perform a further period of appropriate seagoing service, not exceeding **24** months, before reapplying for the certification concerned.

(2) Unsatisfactory conduct is conduct of the following kind:

(a) signing a crew agreement, as mentioned in section 102 of the Act, and failing, without reasonable excuse, to join the vessel concerned;

(b) absence without leave, or desertion, from a vessel;

(c) misconduct.

15 Bribery

A candidate who has been convicted of bribery as described in section **3**14 of the Act or upon whom a penalty for such bribery has been imposed under section **324** of the Act is disqualified from obtaining any Certification in terms of these regulations for a period expiring **12** months after the date of the conviction or imposition of the penalty, as the case may be.

16 Assessing competence

(1) Candidates required to meet an applicable standard of competence specified in the Code are to be assessed to meet that standard at one or more of the following levels (listed from lowest to highest), as the case requires:

(a) Level 1 candidates required to complete onboard training are to be assessed at this level in an approved training record book;

(b) Level 2 candidates required to complete approved training are to be assessed at this level at the accredited maritime training provider providing the training;

(c) Level 3 candidates for a certificate of competency or any related endorsement are to be assessed at this level by way of oral examination in terms of regulation 18.

(2) A candidate required to be assessed at more than one level may not be assessed at the higher level before he or she has been found competent at the lower level.

17 Level 2 assessment

(1) This regulation applies to written examinations that form part of assessment at level 2 for the certificates of competency, and related endorsements, covered by these regulations.

(2) The Authority must designate, in writing, one or more examiners to do one or more of the following:

(a) moderate examination question papers, memoranda and scripts;

(b) re-mark examination scripts, if requested by the maritime training provider concerned;

(c) consult with instructors, supervisors and assessors about defects or other problems detected in examination memoranda or scripts.

(3) For a course covering the syllabus in the Code for celestial navigation, chartwork, or naval architecture (master and deck officer certification only), the minimum aggregate mark is 60 per cent. For other candidates, and courses covering other syllabuses, the minimum aggregate mark is 50 per cent.

(4) In the case of doubt about a candidate's aggregate mark for a course covering the syllabus in the Code for celestial navigation, chartwork, naval architecture or engineering knowledge, the decision of the relevant senior examiner is final.

18 Level 3 assessment

(1) The main purpose of the level 3 assessment is to assess a candidate's competence in the practical aspects of a seafarer's duties and responsibilities.

(2) The assessment is to be conducted by an examiner in the presence of another approved person.

(3) (a) If a candidate is assessed as competent and complies in all other respects with the requirements for the issue of the certification concerned, the examiner must issue the candidate with an interim certificate in the approved form.

(b) The interim certificate —

(i) is valid for six months from its date of issue; and

(ii) during that period, serves as interim certification (pending the issue of the appropriate full-term certification by the Registrar); and

(iii) must be surrendered to the Authority when the holder is issued with the fill-term certification.

(4) If a candidate is assessed as not yet competent, the examiner must issue the candidate with a written notice, signed by the examiner, stating —

(a) the details of the assessment; and

(b) the conditions (if any) imposed by the examiner; and

(c) the requirement to produce the notice when next applying for assessment at level 3.

(5) If a candidate is assessed as not yet competent because of a significant deficiency in the candidate's practical knowledge, the examiner may require that the candidate complete a further period of appropriate seagoing service, not exceeding six months, before reapplying for the certification concerned.

(6) If a candidate, without reasonable excuse, fails to appear for the assessment at the appointed time and place, the examiner must assess the candidate as not yet competent by default.

19 Mislaid, lost or destroyed certification

If certification issued in terms of these regulations is at any time mislaid, lost or destroyed, the Registrar may issue replacement certification on application made by the holder in the form and manner and including the information and accompanied by the documents specified by the Authority.

Division 2 Certificates

Subdivision 1 Masters and deck officers

20 Deck Officer (Fishing < 24 metres)

For the Certificate of competency as Deck Officer (Fishing < 24 metres), a candidate must—

(a) be at least 18 years of age; and

(b) have at least 12 months seagoing service in the deck department on fishing vessels of 12 metres or more in length; and

(c) have performed, during the required seagoing service, bridge watchkeeping duties under the supervision of a certificated deck officer for at least six months; and

(d) have completed approved training and meet the standard of competence specified in the Code.

21 Skipper (Fishing < 24 metres)

(1) For the certificate of competency as Skipper (Fishing < 24 metres), a candidate must—

ALTERNATIVE A

(if the candidate holds the certificate of competency as Deck Officer Fishing < 24 metres))

(a) have completed, while holding as a minimum the certificate of competency as Deck Officer (Fishing < 24 metres), at least 12 months seagoing service as officer in charge of a navigational watch on fishing vessels of 12 metres or more in length; and

(b) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE B

(if the candidate holds the certificate of competence as Coastal Skipper (> 9 metres))

(a) have completed, while holding as a minimum the small vessel certificate of competence as Coastal Skipper (> 9 metres)*, at least 12 months seagoing service as officer in charge of a navigational watch on fishing vessels of 12 metres or more in length and

* This certification is issued under the *Merchant Shipping (Small Vessel Safety) Regulations*, 2002.

(b) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE C

(if the candidate holds the certificate of competency as Deck Officer (Fishing ≥ 24 metres))

(a) have completed, while holding as a minimum the certificate of competency as Deck Officer (Fishing ≥ 24 metres), at least 12 months seagoing service as officer in charge of a navigational watch on fishing vessels of 12 metres or more in length; and

(b) have completed approved training and meet the standard of competence specified in the Code.

(2) For paragraph (b) of **ALTERNATIVES A** and **B** in subregulation (1), the syllabus in the Code must cover at least the material set out in the appendix to Regulation II/2 of the STCW-F Convention.

22 Deck Officer (Fishing ≥ 24 metres)

(1) For the certificate of competency as Deck Officer (Fishing ≥ 24 metres), a candidate must—

(a) be at least 18 years of age; and

(b) have at least 12 months seagoing service in the deck department on fishing vessels of 12 metres or more in length; and

(c) have performed, during the required seagoing service, bridge watchkeeping duties under the supervision of a certificated deck officer for at least six months; and

(d) have completed approved training and meet the standard of competence specified in the Code.

(2) For subregulation (1)(d), the syllabus in the Code must cover at least the material set out in the appendix to Regulation II/2 of the **STCW-F** Convention.

23 Skipper (Fishing ≥ 24 metres)

(1) For the certificate of competency as Skipper (Fishing ≥ 24 metres), a candidate must—

(a) have completed, while holding as a minimum the certificate of competency as Deck Officer (Fishing ≥ 24 metres) or Skipper (Fishing < 24 metres), at least 12 months seagoing service as officer in charge of a navigational watch on fishing vessels of 24 metres or more in length; and

(b) have completed approved training and meet the standard of competence specified in the Code,

(2) For subregulation (1)(b), the syllabus in the Code must cover at least the material set out in the appendix to Regulation II/3 of the STCW-F Convention.

24 Unlimited Waters Command Endorsement

(1) For the Unlimited Waters Command Endorsement, a candidate must—

(a) hold the certificate of competency as Skipper (Fishing < 24 metres) or Skipper (Fishing ≥ 24 metres); and

(b) while holding that certificate, have completed approved training and meet the standard of competence specified in the Code.

(2) For subregulation (1)(b), the syllabus in the Code must cover at least the material set out in the appendix to Regulation II/1 of the STCW-F Convention.

Subdivision 2 Engineer officers

25 Marine Motorman Grade 2

(1) For the certificate of competency as Marine Motorman Grade 2, a candidate must—

(a) be at least 18 years of age; and

(b) have at least 12 months seagoing service in the engine department on vessels of 100 kW propulsion power or more, of which not less than three months must have been on vessels other than naval vessels; and

(c) have completed approved training and meet the standard of competence specified in the Code.

(2) However, for a candidate holding a qualification as artisan in an approved trade, the period of 12 months in subregulation (1)(b) is reduced to six months.

26 Marine Motorman Grade 1

(1) For the certificate of competency as Marine Motorman Grade 1, a candidate must—

ALTERNATIVE **A**

(a) have at least 24 months seagoing service in the engine department on vessels of **2** 000 kW propulsion power or more; and

(b) have completed approved training and meet the standard of competence specified in the Code,

or

ALTERNATIVE B

(if the candidate holds the certificate of competency as Marine Motorman Grade 2)

(a) have completed, while holding as a minimum the certificate of competency **as** Marine Motorman Grade **2,** at least **12** months seagoing service **as** an officer in charge of **an** engineering watch on vessels of **350** kW propulsion power or more; and

(b) have completed approved training and meet the standard of competence specified in the Code.

(2) However, for a candidate holding a qualification as artisan in an approved t r a d e

(a) **the** period of 24 months in paragraph (a) of ALTERNATIVE A in regulation (1) is reduced to 18 months; and

(b) the period of 12 months in paragraph (a) of ALTERNATIVE **B** in regulation (1) is reduced to six months.

(3) For paragraph (b) of ALTERNATIVES **A and** B in subregulation (1), the syllabus in the Code must cover at least the material set out in the appendix to Regulation II/5 of the STCW-F Convention appropriate to second engineer officers on fishing vessels of **750** kW propulsion power or more.

27 Marine Motorman Higher Grade

(1) For the certificate of competency as Marine Motorman Higher Grade, a candidate must—

(a) have completed, while holding as a minimum the certificate of competency as Marine Motorman Grade 1, at least 12 months seagoing service **as** officer in charge of an engineering watch on vessels of **750** kW propulsion power or more; and

(b) have completed approved training and meet the standard of competence specified in the Code.

(2) For subregulation (1)(b), the syllabus in the Code must cover at least the material set out in the appendix to Regulation II/5 of the

STCW-F Convention appropriate to chief engineer officers on fishing vessels of 750 kW propulsion power or more.

28 Chief Engineer Officer (Fishing)

(1) For the certificate of competency as Chief Engineer Officer (Fishing), a candidate must—

(a) have completed, while holding as a minimum the certificate of competency as Marine Motorman Higher Grade or Engineer Officer*, at least six months seagoing service as officer in charge of an engineering watch on fishing vessels of 2 000 kW propulsion power or more; and

(b) have completed approved training and meet the standard of competence specified in the Code,

(2) For subregulation (1)(b), the syllabus in the Code must cover at least the material set out in the appendix to Regulation II/5 of the STCW-F Convention appropriate to chief engineer officers on fishing vessels of 750 kW propulsion power or more.

Subdivision 3 Ratings

29 Able Seaman (Fishing)

For the certificate of qualification as Able Seaman (Fishing), a candidate must—

(a) be at least 18 years of age; and

(b) have at least eight months seagoing service in the deck department on fishing vessels of 12 metres or more in length; and

(c) have completed, during the required seagoing service, onboard training that is documented in an approved training record book; and

(d) have completed approved training and meet the standard of competence specified in the Code.

Subdivision 4 Miscellaneous

30 Proficiency in Survival Craft (Local)

For the certificate of qualification as Proficient in Survival Craft (Local), a candidate must—

* This certification is issued in terms of the *Merchant Shipping (Training and Certification) Regulations, 1999.*

(a) be at least 18 years of age; and

(b) have at least six months seagoing service on vessels of 12 metres or more in length; and

(c) have completed approved training and meet the standard of competence specified in the Code.

Division 3 Recognition of non-fishing certification

31 Recognition of naval bridge watchkeeping certificate

(1) This regulation applies if a candidate —

(a) is at least 18 years of age; and

(b) holds a valid South African Navy bridge watchkeeping certificate; and

(c) has at least 12 months seagoing service, performed not earlier than 10 years before the date of the application for certification, as officer in charge of a navigational watch on South African naval vessels of 12 metres or more in length.

(2) For the certificate of competency as Deck Officer (Fishing ≥ 24 metres), the candidate must —

(a) have at least six months seagoing service in the deck department on fishing vessels of 12 metres or more in length;

(b) have performed, during the required seagoing service, bridge watchkeeping duties under the supervision of a certificated deck officer for at least two months; and

(c) have completed approved training covering the relevant parts of the following syllabuses in the Code: naval architecture, personnel management and ship business, fishing safety, and ships' power plant; and

(d) meet the standard of competence specified in the Code.

32 Endorsements for non-fishing certification

(1) Subject to subregulation (2), the holder of certification specified in column 1 of an item in the table below may apply to the Authority for the certification specified in column 2 of the item:

Item	Column 1	Column 2
	Certificate of competency	Appropriate endorsement in terms of these regulations
1	Skipper (Coastal)	Master of a fishing vessel of less than 24 metres in length operating in limited waters
2	Mate (Coastal)	Officer in charge of a navigational watch on fishing vessels of 24 metres or more in length operating in limited waters
3	Master (Coastal)	Master of a fishing vessel of 24 metres or more in length operating in limited waters
4	Deck Officer	Officer in charge of a navigational watch on fishing vessels of 24 metres or more in length operating in unlimited waters
5	Chief Mate	Master of a fishing vessel of 24 metres or more in length operating in unlimited waters
6	Master	
7	Able Seaman	Able seaman on a fishing vessel of 24 metres or more in length operating in limited or unlimited waters

(2) A candidate for certification must—

(a) have at least six months seagoing service in the deck department on fishing vessels of 12 metres or more in length; and

(b) except for the certification specified in item 7 in the table in subregulation (1), have performed, during the required seagoing service, bridge watchkeeping duties under the supervision of a certificated deck officer for at least 12 months; and

(c) have completed approved training covering the fishing safety syllabus in the Code; and

(d) meet the standard of competence specified in the Code.

Division 4 Revalidation

33 Certificates of competency to be revalidated

(1) A certificate of competency issued in terms of these regulations, and any equivalent certification, is not valid for seagoing service unless revalidated at intervals not exceeding five years to establish continued professional competence in accordance with subregulation (2).

(2) Continued professional competence is established—

(a) by—

(i) completing, during the preceding five years, at least 12 months seagoing service appropriate to the certification held; or

(ii) performing functions considered by the Authority to be equivalent to the seagoing service mentioned in subparagraph(i); or

(iii) completing—

(aa) in a supernumerary capacity, at least three months seagoing service appropriate to the certification held; and

(bb) assessment at level 3 to meet the standard of competence specified in the Code; and

(b) by completing applicable approved (refresher) training and meeting the standard of competence specified in the Code.

(3) Application for revalidation must be made in the form and manner, include the information and be accompanied by the documents specified by the Authority.

(4) If the Authority grants the application, the Authority must issue the applicant with an appropriate revalidation endorsement.

Part 4 Qualifying service

34 Proof of qualifying service

(1) A candidate must produce proof of qualifying service to the examiner's satisfaction.

(2) The examiner may require that the candidate explain to the examiner's satisfaction any period of discontinuity in qualifying service.

35 Qualifying service on foreign vessels

Qualifying service performed on foreign vessels counts towards satisfying the seagoing service requirements for certification in terms of these regulations if the service can be verified to the examiner's satisfaction.

36 Misrepresenting qualifying service

(1) A candidate who wilfully misrepresents his or her qualifying service is disqualified from certification in terms of these regulations until he or she has made up any deficiency in qualifying service plus an additional 12 months of the appropriate seagoing service.

(2) Additional seagoing service performed because of subregulation (1) does not count towards satisfying the seagoing service requirements for any other certification (whether in terms of these regulations or otherwise under the Act).

37 Calculating qualifying service

Qualifying service is calculated from the day of engagement on a vessel to the day of discharge from the vessel and consists of the calendar days between the days of engagement and discharge, both days inclusive, reckoning 30 days to a month and 12 months to a year.

38 Non-fishing service

(1) Qualifying service performed exclusively in the deck department on vessels of 12 metres or more in length, other than fishing vessels, counts in full towards satisfying the seagoing service requirements for the certificates of competency as Deck Officer (Fishing < 24 metres) and Deck Officer (Fishing ≥ 24 metres).

(2) However, the service counts only if the candidate—

(a) has at least six months seagoing service in the deck department on fishing vessels of 12 metres or more in length; and

(b) has performed, for the period of required seagoing service, bridge watchkeeping duties under the supervision of a certificated deck officer.

39 Validity of qualifying service

Qualifying service must have been performed not earlier than 10 years before the date of application for the certification concerned.

Part 5 Training

40 Maritime training providers

(1) To be accredited as a maritime training provider authorised to conduct approved training in terms of these regulations, a training provider must—

(a) have appointed instructors who—

(i) have an appreciation of the training programme and an understanding of the specific training objectives for the particular type of training to be conducted; and

(ii) are qualified in the task for which the training is to be conducted; and

(iii) if training is to be conducted using a simulator—

(aa) have received appropriate guidance in instructional techniques involving the use of simulators; and

(bb) have gained practical operational experience on the particular type of simulator to be used; and

(b) have appointed training supervisors, appropriate to the approved training programmes and courses to be conducted by the provider, who have a thorough understanding of each approved training programme and course they are to supervise including its specific objectives; and

(c) have appointed assessors who—

(i) have an appropriate level of knowledge and understanding of the competence to be assessed; and

(ii) are qualified in the task for which the assessment is to be made; and

(iii) have received appropriate guidance in assessment methods and practice; and

(iv) have gained practical assessment experience; and

(v) if they are to conduct assessment involving the use of simulators, have gained practical assessment experience on the particular type of simulator to be used, under the supervision and to the satisfaction of an experienced assessor; and

(d) maintain records of all certificates issued to students who complete their training at the provider, incorporating details of the training received and the relevant dates, together with their full names and dates and places of birth;

(e) make available information about the status of such certificates and about approved training programmes and courses as appropriate;

(f) continuously monitor its training and assessment activities through a quality-standards system to ensure achievement of its defined objectives including those concerning the qualifications and experience of its instructors and assessors;

(g) undergo evaluation at intervals not exceeding three years, by suitably qualified persons who are not themselves involved in the training or assessment activities concerned, so as to verify that the administrative and operational procedures at all levels withii the provider are managed, organised, undertaken, supervised and monitored internally in order to ensure their fitness for purpose and achievement of stated objectives.

(2) Application for accreditation must be made in the form and manner, include the information and be accompanied by the documents specified by the Authority.

(3) For accreditation, a maritime training provider must allow the Authority —

(a) to inspect the provider's facilities, and training and assessment arrangements, methods and materials; and

(b) to interview the provider's students, administrative personnel, and training instructors, supervisors and assessors.

(4) *An* accredited maritime training provider must —

(a) make available to the Authority any information it may require about approved training offered by the provider; and

(b) inform the Authority, without delay, of any change in the personnel delivering the training or the methods or material for delivering it.

(5) Every accredited maritime training provider authorised to conduct level 2 assessments must —

(a) make available, for moderation by an examiner, any examination question papers, memoranda or scripts that the Authority may require; and

(b) make available to an examiner any examination scripts, assessment results, course assignments, progress reports or other training-related reports that the Authority may require; and

(c) for audit purposes, keep for at least five years the information referred to in paragraphs (a) and (b).

(6) An examiner may visit an accredited maritime training provider at any time to inspect and audit the conduct of any activity covered by the provider's accreditation.

41 Maritime training programmes and courses

(1) To be approved in terms of these regulations, a training programme or course must—

(a) be structured in accordance with written programmes that—

(i) are based on the relevant syllabuses in the Code; and

(ii) include such methods and media of delivery, procedures, and course material as are necessary to achieve the standard of competence specified in the Code; and

(b) be conducted, supervised and evaluated by persons qualified in accordance with regulation 40(1)(a), (b) and (c), respectively.

(2) Application for approval must be made in the form and manner, include the information and be accompanied by the documents specified by the Authority.

42 Training record book

(1) To be approved in terms of these regulations, a training record book must meet the form and content requirements specified by the Authority taking into account—

(a) the principles and standards set out in the STCW-F Convention; and

(b) any related guidance published by the International Maritime Organisation.

(2) Application for approval must be made in the form and manner, include the information and be accompanied by the documents specified by the Authority.

(3) If the Authority finds that the holder of an approved training record book has deliberately misrepresented information in the book, the holder must, apart from any other penalty that may be imposed, complete an additional 12 months appropriate seagoing service.

Part 6 Final

43 Transitional

Before 1 January 2010, the requirements for the issue of certification prescribed by the regulations repealed by regulation 45 continue to

have effect in relation to those persons who began approved training before the commencement of these regulations.

44 Repeals

These regulations are repealed, subject to regulation 44:

(a) the *Examination Regulations for Certificates of Competency for Fishermen, 1993,* published by Government Notice No. R 2317 of 1 December 1993, as amended by Government Notice No. R. 1468 of 29 September 1995;

(b) the *Examination Regulations for Certificates of Competency as Marine Motormen, 1993,* published by Government Notice No. R 2314 of 1 December 1993.

Annex Documents to accompany application for certification

(Regulation 11(1))

X indicates a requirement to produce the specified document(s). Certificates that are required to be produced must be valid.

Item	Documents	Certification										
		Masters and deck officers					Engineer officers				Ratings	Other
		Unlimited Waters Command Endorsement	Skipper (Fishing ≥ 24 metres)	Deck Officer (Fishing ≥ 24 metres)	Skipper (Fishing < 24 metres)	Deck Officer (Fishing < 24 metres)	Chief Engineer Officer (Fishing)	Marine Motorman Higher Grade	Marine Motorman Grade 1	Marine Motorman Grade 2	Able Seaman (Fishing)	Proficiency in survival craft (local)
1	Proof of identity	X	X	X	X	X	X	X	X	X	X	X
2	3 x Black & white photographs (passport size)	X	X	X	X	X	X	X	X	X	—	—
3	Testimonials	X	X	X	X	X	—	—	—	—	—	—
4	Previous certificate of competency	X	X	X	X	—	X	X	X	—	—	—
5	Trainee bridge watchkeeping certificate	—	—	X	—	X	—	—	—	—	—	—
6	Bridge watchkeeping certificate	—	X	—	X	—	—	—	—	—	—	—
7	Eyesight certificate	X	X	X	X	X	—	—	—	—	X	—
8	Medical certificate	X	X	X	X	X	X	X	X	X	X	X

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Item	Documents	Certification										
		Masters and deck officers					Engineer officers				Ratings	Other
		Unlimited Waters Command Endorsement	Skipper (Fishing ≥ 24 metres)	Deck Officer (Fishing ≥ 24 metres)	Skipper (Fishing < 24 metres)	Deck Officer (Fishing < 24 metres)	Chief Engineer Officer (Fishing)	Marine Motorman Higher Grade	Marine Motorman Grade 1	Marine Motorman Grade 2	Able Seaman (Fishing)	Proficiency in survival craft (local)
9	First aid at sea certificate	—	—	X	X	X	X	X	X	X	X	—
10	Ship captain's medical training certificate	X	X	—	—	—	—	—	—	—	—	—
11	Fire-fighting course certificate	X	X	X	X	X	X	X	X	X	X	—
12	Advanced fire-fighting course certificate	X	X	X	X	—	X	X	—	—	—	—
13	Certificate of qualification as proficient in survival craft (local)	X	X	X	—	—	X	X	—	—	X	—
14	Certificate of qualification as proficient in liferafts	—	—	—	X	X	—	—	X	X	—	—
15	Pre-sea training course certificate	—	—	X	—	X	—	—	X	X	X	X
16	Restricted marine radiotelephone operator certificate	—	X	X	X	X	—	—	—	—	—	—
17	GMDSS general operator certificate	X*	—	—	—	—	—	—	—	—	—	—

* For the endorsement to the certificate of competency as Skipper (Fishing ≥ 24 metre

Item	Documents	Certification										
		Masters and deck officers					Engineer officers				Ratings	Other
		Unlimited Waters Command Endorsement	Skipper (Fishing ≥ 24 metres)	Deck Officer (Fishing ≥ 24 metres)	Skipper (Fishing < 24 metres)	Deck Officer (Fishing < 24 metres)	Chief Engineer Officer (Fishing)	Marine Motorman Higher Grade	Marine Motorman Grade 1	Marine Motorman Grade 2	Able Seaman (Fishing)	Proficiency in survival craft (local)
18	Certificate of results	X	X	X	X	X	X	X	X	X	X	X
19	Approved training record book	—	—	—	—	—	—	—	—	—	X	—
20	Proof of qualifying service	X	X	X	X	X	X	X	X	X	X	X
21	Receipt for certification fee	X	X	X	X	X	X	X	X	X	X	X

Notes to table:

1 A South African identity document or an official passport is sufficient proof of identity. A true copy of the original, or relevant part of the original, is acceptable.

2 A testimonial is a document, signed by the master or employer, testifying to the candidate's character (including sobriety), experience, ability and general shipboard conduct.

3 A trainee bridge watchkeeping certificate is a certificate, signed by the master, stating —

(a) the period the candidate performed supervised bridge watchkeeping duties; and

(b) that those duties were performed for not less than eight hours in every 24 hours during that period; and

(c) that the candidate has not been used as a helmsman or lookout during that period.

4 A bridge watchkeeping certificate is a certificate, signed by the master, stating —

(a) the period the candidate performed duties as officer in charge of a navigational watch; and

(b) that those duties were performed for not less than eight hours in every 24 hours during that period,

and containing a statement about the candidate's sobriety, conduct and ability.

5 An eyesight certificate is the eyesight certificate mentioned in regulation 3 of the ***Merchant Shipping (Eyesight and Medical Examination) Regulations, 2004.***

6 A medical certificate is the medical certificate mentioned in regulation 3 of the ***Merchant Shipping (Eyesight and Medical Examination) Regulations, 2004.***

7 A First Aid at Sea Certificate is the certificate mentioned in regulation 2(b) of the ***Merchant Shipping (Medical Training) Regulations, 1992.***

8 A Ship Captain's Medical Training Certificate is the certificate mentioned in regulation 2(c) of the ***Merchant Shipping (Medical Training) Regulations, 1992.***

9 A fire-fighting course certificate is a certificate attesting successful completion of approved training in fire-fighting. The certificate is valid for five years from the date of completing the course.

10 An advanced fire-fighting course certificate is a certificate attesting successful completion of approved training in advanced fue-fighting. The certificate is valid for five years from the date of completing the course.

11 A certificate of proficiency in liferafts is the certificate of qualification mentioned in regulation 47 of the ***Merchant Shipping (Training and Certification) Regulations, 1999.***

12 A pre-sea training course certificate is a certificate attesting successful completion of the safety induction training mentioned in regulation 4(1)(g) of the ***Merchant Shipping (Safe Manning, Regulations, 1999.***

13 A restricted radiotelephone (marine) operator certificate and a GMDSS general operator certificate are certificates of proficiency issued by the Independent Communications Authority of South Africa.

14 A certificate of results is a document issued by an accredited maritime training provider attesting successful completion of stated approved training. This training must have been completed not earlier than the date specified by the Authority.

is Proof of qualifying service must be to the examiner's satisfaction and may be required in the form of a Seaman's Record Book and/or a declaration by an employer stating the seagoing service performed during the period of employment.

EXPLANATORY NOTE

(This note is not patt of the regulations)

1 Introduction

1.1 These regulations are enabled by section 356 of the ***Merchant Shipping Act, 1951*** (Act No. 57 of 1951). The regulations repeal and replace the ***Examination Regulations for Certificates of Competency for Fishermen, 1993,*** and the ***Examination Regulations for Certificates of Competency as Marine Motormen, 1993.***

1.2 These are the regulation's main objects:

.1 to overhaul existing training and certification arrangements for fishing vessel personnel and certain other engineer officer capacities, particularly with a view to improving the quality of training outcomes **and** the prospects for career progression;

.2 to introduce the training, certification and watchkeeping standards embodied in the International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel, 1995 (STCW-F).

2 STCW-F

2.1 STCW-F was adopted in July 1995 by a diplomatic conference convened under the auspices of the International Maritime Organization (IMO). The convention has not yet entered into force because the international community has been slow to accept it. However, this is changing as a result of IMO's ongoing efforts to promote acceptance of the convention amongst its member governments. As a member of the IMO Council, South Africa is expected to support this initiative.

2.2 **SAMSA** is convinced of the operational benefits of accepting STCW-F and **has** made appropriate proposals to Government in this regard. While matters continue to move slowly at the international level, SAMSA is proposing through the present regulations to introduce in domestic law the principles and standards embodied in the convention, thereby anticipating its effect and enabling South Africa to become a party to the convention at an appropriate future date.

3 The regulations

3.1 The introduction of STCW-F principles and standards will bring about a significant change in the way fishing vessel personnel are trained and certificated. In the past, extended periods of sea service were seen as the way to acquire experience and appropriate skills.

Unfortunately, experience has shown that the fishing industry is not an environment that is conducive to producing quality outcomes from a system of on-the-job training and learning. In contrast, the new system is built around a combination of reduced experiential training and upgraded and more structured education for enhancing knowledge. The system has been designed in a way that will make it possible for seafarers to progress over time from small vessels to large fishing vessels and, eventually, internationally trading vessels.

3.2 The regulations cover all fishing certification (deck and engine departments) and all marine motorman certification (fishing and non-fishing), but do not cover personnel on pleasure vessels of less than 100 gross tonnage or on commercially operated vessels of less than 25 gross tonnage; these people are covered by the *Merchant Shipping (Small Vessel Safety) Regulations, 2002*.

3.3 The regulations track STCW-F by using vessel length as a threshold rather than gross tonnage. This applies not only to the various certificated capacities in the deck department but also to all seagoing service requirements. For example, seagoing service is generally required to be gained on vessels of 12 metres or more in length (regardless of gross tonnage).

3.4 The regulations also track STCW-F standards for seagoing service. This results in a significant reduction in the total sea time required for certain certification. For example, the 36 months on vessels of 25 gross tonnage or more currently required for the first deck certificate of competency will be reduced, for the equivalent certificate, to 12 months on vessels of 12 metres or more in length.

3.5 In the deck department STCW-F establishes standards only for masters and deck officers on fishing vessels of 24 metres or more in length, leaving national law to determine the standards for fishing vessels of less than 24 metres in length. For fishing vessels of 24 metres or more in length, the regulations adopt the STCW-F standards for masters and deck officers. For fishing vessels of less than 24 metres in length, the existing standard for Fisherman Grade 4 certification has been expanded and upgraded: for example, under the new system the master of a fishing vessel of less than 24 metres [i.e. Skipper (Fishing < 24 metres)] is required to meet the same educational standard as the officer in charge of a navigational watch on a fishing vessel of 24 metres or more in length [i.e. Deck Officer (Fishing ≥ 24 metres)].

3.6 Similarly, in the engine department STCW-F establishes standards only for chief engineer officers and second engineer officers on fishing vessels of 750 kW propulsion power or more, and the regulations adopt these standards. For fishing vessels of less than 750 kW propulsion power, existing standards for Marine Motorman certification have been expanded and upgraded.

3.7 An important principle underlying the new system is the facilitation of career progression. This principle finds expression in the facility to gain experience on a range of vessel sizes, thus making it easier to upgrade certification during the course of a seagoing career.

4 The certificates

4.1 The following paragraphs describe the new kinds of certification. But first here are two definitions that help to explain limitations relating to this certification:

"limitedwaters" means—

(a) the internal and territorial waters of the Republic:

(b) the waters of the exclusive economic zone of the Republic; and

(c) if the Republic has entered into an agreement with another State for the purposes of this paragraph, the waters under the jurisdiction of that other State that are covered by the agreement.

"unlimited waters" means the waters beyond limited waters.

4.2 Generally, this is how the waters limitation affects the certification:

.1 Deck Officer certification automatically meets the unlimited waters standard. This means that the holders of this certification may serve in the certificated capacity on fishing vessels operating in limited and unlimited waters.

.2 Skipper certification meets the limited waters standard for command purposes and the unlimited standard for watchkeeping purposes. Holders wishing to command fishing vessels operating in unlimited waters are first required to obtain the Unlimited Waters Command Endorsement.

4.3 *Deck department*

4.3.1 **Skipper Coastal (> 9 metres).** Although this certification is issued under the ***Merchant Shipping (Small Vessel Safety) Regulations, 2002,*** it is mentioned here because the holder may serve as mate on fishing vessels of less than 24 metres in length operating in limited waters or as watchkeeping officer on fishing vessels of less the 24 metres in length operating in unlimited waters. This will allow the holder of small vessel certification to obtain sea time on larger vessels for the purpose of upgrading the certification.

4.3.2 **Deck Officer (Fishing < 24 metres).** The holder of this certification may serve in the same positions as those described in paragraph 4.3.1, but may also serve as mate on fishing vessels of less than 24 metres in length operating in unlimited waters.

4.3.3 **Deck Officer (Fishing ≥ 24 metres).** The holder of this certification may serve as mate or watchkeeping officer on fishing vessels of 24 metres or more in length operating in limited or unlimited waters. Once the holder gains 12 months sea time as a watckeeping officer, he or she can qualify for the certificate of competency as Skipper (Fishing < 24 metres) without further training or examination, since the education and assessment standards for these certificates are the same.

4.3.4 **Skipper (Fishing < 24 metres).** The education and assessment standards for this certification are the same as those for the certification mentioned in paragraph **4.3.3.** The holder of this certification may therefore serve in the same capacities as the holder of certification mentioned in that paragraph. In addition, the holder may also serve as master of a fishing vessel of less than 24 metres in length operating in limited waters. If the holder obtains the Unlimited Waters Command Endorsement, then he or she may serve in the command capacity also on fishing vessels operating in unlimited waters.

4.3.5 **Skipper (Fishing ≥ 24 metres).** The holder of this certification may serve as master of a fishing vessel of any length operating in limited waters, and in any of the other capacities, except as master of a fishing vessel operating in unlimited waters. If the holder obtains the Unlimited Waters Command Endorsement, then he or she may serve in the command capacity also on fishing vessels operating in unlimited waters.

4.3.6 **Unlimited Waters Command Endorsement.** This certification is an endorsement to the certification mentioned in paragraphs **4.3.4** and **4.3.5.** It allows the holder to command a fishing vessel (of the length stated in the certification to which the endorsement relates) operating in unlimited waters.

4.3.7 **Able Seaman (Fishing).** This certification can be obtained by a rating and entitles the holder to form part of a navigational watch on a fishing vessel. The holder can convert the certification to the STCW'78 Able Seaman certification by completing additional seagoing service on trading vessels.

4.3.8 For holders of the certification as Skipper (Fishing < 24 metres), Deck Officer (Fishing ≥ 24 metres) and Skipper (Fishing ≥ 24 metres), it is now also possible to obtain equivalent certification for certain kinds of non-fishing vessels without any requirement for additional training or sea time. However, holders of certification obtained under, or converted fiom, the old system will still be required to do bridging courses in order to obtain these equivalences. These arrangements provide the path for the holder of fishing certification to obtain *the* STCW'78 Deck Officer certification, after

meeting the educational and other requirements in terms of the *Merchant Shipping (Training and Certification) Regulations, 1999.*

4.4 *Engine department*

4.4.1 **Marine Motorman Grade 2.** The holder of this certification may serve in the following capacities:

.1 chief engineer officer of a fishing vessel of less than 350 kW propulsion power;

.2 second engineer officer of a fishing vessel of less than 750kW propulsion power;

.3 watchkeeping officer on fishing vessels of less than 2 000 kW propulsion power.

4.4.2 **Marine Motorman Grade 1.** The holder of this certification may serve in the following capacities on fishing vessels:

.1 chief engineer officer of a fishing of less than 750 kW propulsion power;

.2 second engineer officer of a fishing vessel of less than 2 000 kW propulsion power;

.3 watchkeeping officer on fishing vessels of any kilowatt propulsion power.

4.4.3 **Marine Motorman Higher Grade.** The holder of this certification may serve as chief engineer officer of a fishing vessel of less than 2 000 kW propulsion power or as second engineer officer of a fishing vessel of any kilowatt propulsion power.

4.4.4 **Chief Engineer Officer (Fishing).** The holder of this certification may serve as chief engineer officer of a fishing vessel of any kilowatt propulsion power.

4.4.5 In addition to the capacities mentioned in paragraphs 4.4.2 and 4.4.3, the holders of certification as Marine Motorman Grade 1 or Marine Motorman Higher Grade may also serve in the other (non-fishing) capacities specified in the *Merchant Shipping (Safe Manning) Regulations, 1999.*

4.4.6 These arrangements provide a path for persons with the lowest qualification to upgrade the qualifications over time. Holders of the Marine Motorman Higher Grade certification now also have the opportunity to obtain the STCW'78 Engineer Officer certification, after meeting the educational and other requirements of the *Merchant Shipping (Training and Certification) Regulations, 1999.*

4.5 In *summary,* the new certification system reduces the number of examinations and reduces significantly the seagoing service requirements for the first deck officer certificate. However, these changes are balanced by a higher standard of education for all certification.

5 Revalidation and conversion

5.1 The regulations introduce revalidation requirements for all new certificates of competency and all equivalent existing certificates. Existing certificates will have to be revalidated and exchanged within five years after the commencement of the regulations (unless **SAMSA** requires them to be exchanged within a shorter period), and every five years thereafter. New certificates will have to be revalidated at five yearly intervals, Information about revalidation arrangements will be published by marine notice (e.g. Marine Notice No. 5 of 2000 covers revalidation of STCW'78 certification).

5.2 Equivalency, revalidation and conversion arrangements will not result in the downgrading of any certification. For example, Fisherman Grade 3 certification is taken to be equivalent to certification as **Deck Officer** (Fishing ≥ 24 metres) endorsed "master of a fishing vessel of less than 30 metres in length operating in limited waters".

6 Examinations and syllabuses

6.1 The new examination policy tracks the policy already in place for STCW'78 certification. This means that **SAMSA** will no longer conduct written examinations for fishing and marine motorman certification; instead, these will be conducted by accredited maritime training providers. **SAMSA** will retain oversight through the accreditation and approval system to ensure that providers meet the relevant standards in the regulations and the *Code for* South *African Maritime Qualifications* ("the Code"). Responsibility for level 3 assessments (i.e. oral examination) will remain with **SAMSA,** as for STCW'78 certification.

6.2 The new syllabuses, which will be added to the Code, require a higher standard of competence than those under the current regulations. A significant change has been made with the introduction of Fishing Safety as a subject. There is also more emphasis and expanded content on ship stability, particularly for certification relating to vessels of 24 metres or more in length. The modules on human relations and business have also been expanded, and Morse code by light has been scrapped from all certification, except the Unlimited Waters Command Endorsement.

6.3 For ancillary courses (e.g. fire-fighting), standards have been kept common wherever possible. This also facilitates the transportability of these qualifications between fishing and other operations. However, in certain cases, such as proficiency in survival craft, additional sea time on trading vessels may be required to obtain the full STCW'78 qualification.

Part 2AA Draft Amendment to the Code for South African Maritime Qualifications: Study matrices and syllabuses for fishing and marine motorman qualifications

STUDY MATRICES AND SYLLABUSES

Contents

Study matrices
- Fishing Certification (Deck Department)
- Marine Motorman / Chief Engineer Officer (Fishing) Certification
- Workshop Training (Marine Motorman Grade 1 and Chief Engineer Officer (Fishing))

Syllabuses
- Chartwork
- Celestial Navigation
- Electronic Navigation Systems
- Naval Architecture
- Ship's Power Plant
- Personnel Management and Ship Business
- Meteorology
- Ship Manoeuvring and Handling
- Fishing Safety
- Emergency Procedures
- Communications
- Engineering Knowledge
- Mectrotechnology
- Applied Marine Science
- Drawings
- General Engineering / Applied Mechanics
- Heat Engines / Thermodynamics
- Workshop Training

STUDY MATRICES

FISHING CERTIFICATION (DECK DEPARTMENT)

(Subject modules and ancillary certification shown under certification columns)

Certification / Subject etc	Unlimited Waters Command Endorsement	Skipper (Fishing ≥ 24 metres)	Skipper (Fishing < 24 metres) / Deck Officer (Fishing ≥ 24 metres)	Deck Officer (Fishing < 24 metres)	Able Seaman (Fishing)
Chartwork	1-5	1-4	1-3	1	–
Celestial Navigation	1	–	–	–	–
Electronic Navigation Systems	1-2	1-2	1-2	1	–
Naval Architecture	1-5	1-5	1-4	1-2	–
Ship's Power Plant	1	1	1	–	–
Personnel Management and Ship Business	1-6	1-6	1-2 and 6	1	–
Meteorology	1-2	1	1	–	–
Ship Manoeuvring and Handling	1-2	1-2	1	–	–
Fishing Safety	1-2	1-2	1-2	1	1-2
Emergency Procedures	1-2	1-2	1-2	1	–
Communications	2	1	1	1	–
Proficiency in Survival Craft (Local)	X	X	X	–	X
Proficiency in Liferafts	–	–	–	X	–
First Aid at Sea	–	–	X	X	X
Ship Captain's Medical Training	X	X	–	–	–
Fire-fighting	X	X	X	X	X
Advanced Fire-fighting	X	X	X	X	–
Sea-sea Training	–	–	X	X	X
Radiotelephony	–	X	X	X	–
GMDSS	X		–	–	–
Medical certificate	X	X	X	X	X
Eyesight Certificate	X	X	X	X	X

MARINE MOTORMAN / CHIEF ENGINEER OFFICER (FISHING) CERTIFICATION

(Subject modules and ancillary certification shown under certification columns)

Certification / Subject etc	Marine Motorman Grade 2	Marine Motorman Grade 1	Marine Motorman Higher Grade	Chief Engineer Officer (Fishing)
Navat Architecture	–	1-2	1-4	–
Personnel Management and Ship Business	1	1-3	1-4	–
Engineering Knowledge	1	1-2	3	–
Emergency Procedures	1	1	1-2	1-2
Fishing Safety	–	1-2	–	1-2
Electrotechnology	–	–	–	1
Applied Marine Science	–	–	–	1
Drawings	–	–	–	1
General Engineering Science/Applied Mechanics	–	–	–	1
Heat Engines / Thermodynamics	–	–		1-2
Proficiency in Survival Craft (Local)		–	X	X
Proficiency in Liferafts	X	X	–	–
First Aid at Sea	X	X	X	X
Fire-fighting	X	X	X	X
Advanced Fire-fighting	–		X	X
Pre-sea Training	X	X	–	–

WORKSHOP TRAINING
(MARINE MOTORMAN AND CHIEF ENGINEER OFFICER (FISHING))

(Subject modules shown under certification columns)

Certification / Subject	Marine Motorman Grade 1	Marine Motorman Higher Grade	Chief Engineer Officer (Fishing)
Diesel	–	1	1-2
Electrical	–	1	1-2
Fitting	–	1	1-2
Machining	–	1	1-2
Welding	1	–	–
Sheet metal	1	–	–
Hydraulics	1	–	–
Pneumatics	1	–	–
Refrigeration	1	–	–

SYLLABUSES

CHARTWORK (FISHING)

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
MODULE 1			
Plan and conduct a safe coastal passage	1 Ability to determine the ship's position on a chart by the use of: .1 latitude and longitude. .2 simultaneous cross bearings (using compass, true or gyro bearings), transit bearings, by bearing and range, multiple ranges and relative bearings. .3 positional information from aids to navigation, including lighthouse, beacons, buoys and electronic navigation systems or by any use of the above. .4 dead reckoning, taking into account estimated speed. 2 Understands the terms "Deviation" and "Variation". 3 Ability to determine safe courses between two positions on a chart and converting true courses into magnetic and compass courses and vice versa and making due allowance for gyro error. 4 Ability to monitor a passage along a planned route. 5 Determining an ETA taking into account speed. 6 Ability to demonstrate thorough knowledge of the content, application and intent of the *International Regulations for Preventing Collisions at Sea, 1972*, especially annexes II and IV concerned with safe navigation. 7 Ability to demonstrate knowledge of keeping a navigational watch as prescribed in the STCW-F Convention.	By oral Examination, completion of approved education and training, written theoretical examination and assessment of evidence obtained from one or more of the following: 1 approved in-service experience 2 approved training ship experience 3 approved simulator training, where appropriate 4 approved laboratory equipment training, Using, amongst others, chart catalogues, charts (including lattice and pilot charts), deviation tables, navigational publications, radio navigational warnings, azimuth mirror, electronic navigation equipment, echo sounding equipment, compass, gyro compass, tide tables. *Note:* (i) ECDIS systems are considered to be included under the term "charts" (ii) The charts, notices to mariners and tide tables used at this level are those published by the Hydrographer of the SA Navy. Thorough knowledge of collision regulations by oral exams and use of small models displaying proper signals or lights or by the use of a navigation light simulator. Thorough knowledge of keeping a navigational watch as detailed in Chapter IV of the STCW-F Convention.	1 The information obtained from navigational charts and publications is relevant, interprete correctly and properly applied. All potential navigational hazards are accurately identifiec 2 The primary method of fixing the ship's position is the most appropriate to the prevailing circumstances and conditions. 3 The reliability of the information obtained from the primary methods of position fixing is checked at appropriate intervals. 4 The charts selected are the largest scale suitable for the area of navigation and charts and publications are corrected in accordance with the latest information available. 5 The degree of precision required: .1 work to a degree of precision consistent with the data available and the type of problem in question taking into account the limits of acceptable instrument/system errors. .2 information from tables is to be extracted as accurately as possible consistent with the inherent accuracy of the tables, and final answers are to be given to the best degree of precision that is justified. .3 Ship's position is to be given within a maximum of one half of a nautical

CHARTWORK (FISHING)

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	COLUMN 3 METHODS FOR DEMONSTRATING COMPETENCE	COLUMN 4 CRITERIA FOR EVALUATING COMPETENCE
			mile. .4 in the calculation of compass errors, bearings and courses, the answer is to be given to the nearest whole degree. .5 tidal calculations are required to be within 15cm of a precise result.
MODULE 2			
1 Plan and conduct a safe coastal passage	1 Ability to determine a safe course when: .1 approaching a harbour, bay, river mouth or safe anchorage; and .2 making a land fall in thick and clear weather.	As for module 1, using, in addition to the items described in module 1, the IALA buoyage system.	As for module 1.
2 Thorough knowledge of and ability to use navigational charts and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ship's routing information	2 Ability to determine compass error, deviation and/or gyro error using transit bearings.		
3 Ability to maintain navigational charts and nautical publications from information contained in notice to mariners	3 Ability to plan a coastal passage and entry into harbour.		
4 Understand the broad principles and use of conventional magnetic and gyro compasses	4 Dead reckoning, taking into account winds, tides, current and estimated speed.		

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CHARTWORK (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
MODULE 3			
Plan and conduct a safe coastal passage	1 Ability to determine, the effect of current and leeway on course and speed, the course to steer to make good a certain track (making due allowance for current and leeway), the set and rate of a current and the distance at which the ship will pass off a given point. 2 Ability to determine the compass error and deviation using the bearing of the sun at any time. 3 Ability to determine and use dipping distances of lights and distances of sighting points of land of known height. 4 Ability to determine the time and height of height and low water at Ports using South African Tide Tables. 5 Ability to determine the time the tide reaches a specified height or the height of a tide at a given time using tables and tide curves. 6 Ability to determine and use nautical tables to find courses and distances between two positions by Mercator sailing method or traverse tables.	As for module 1, using, in addition to the items described in module 1, South African Tide Tables and nautical tables (Nories or Burtons).	As for module 1.
MODULE 4			
Plan and conduct a safe passage	1 Ability to determine: .1 the time and height of high and low water using the South African Tide Tables, .2 the time the tide reaches a specified height or the height of a tide at a given time using tables and tide curves. .3 and thence the approximate correction to be applied to soundings or to chartered heights of shore objects. 2 Ability to determine the ship's position on a chart using: .1 bearings of one or more objects with the run between allowing for a current. .2 position lines obtained by any method, including	As for module 1, using, in addition to the items described in modules 1, 2 and 3, notices to mariners, tide tables and other navigational publications.	1 As for module 1. 2 Organizing the bridge watch into the most effective team to afford the safest navigation for the ship.

CHARTWORK (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	terrestrial position lines. 3 Understand the siting of the magnetic compass with reference to proximity of magnetic material and electrical appliances and the precautions to be taken with electric wiring in the vicinity of the compass.		
MODULE 5			
Plan and conduct a safe passage	1 Ability to determine: .1 the time and height of high and low water using the Admiralty tide Tables Volumes I and II , .2 the time the tide reaches a specified height or the height of a tide at a given time using tables and tide curves. .3 and thence the approximate correction to be applied to soundings or to chartered heights of shore objects. 2 Ability to determine the ship's position on a chart using: .1 bearings of one or more objects with the run between allowing for a current. .2 position lines obtained by any method, including terrestrial and celestial position lines. 3 Ability to determine the compass error and deviation using the bearing of celestial objects including the sun, moon, planets and stars as listed in the Nautical Almanac at any time.	As for module 1, using, in addition to the items described in modules 1, 2, 3 and 4, notices to mariners, tide tables and other navigational publications.	1 As for module 1. 2 Organizing the bridge watch into the most effective team to afford the safest navigation for the ship.

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CELESTIAL NAVIGATION (FISHING)

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	COLUMN 3 METHODS FOR DEMONSTRATING COMPETENCE	COLUMN 4 CRITERIA FOR EVALUATING COMPETENCE
	MODULE 1		
Determine position	1 Understands the terms poles, equator, meridians, parallels of latitude, difference of latitude, difference of longitude, departure, mean latitude, difference of meridional parts, and their use and the relationship between them. 2 Ability to determine course and distance using the traverse method and/or plane and Mercator sailing. 3 Understands the relationship between GMT, LMT, longitude, zone time and standard time. 4 Ability to alter ship's time with change of longitude and rate a chronometer. 5 Ability to determine: .1 the latitude by meridian altitude of the Sun or Venus .2 from a sextant-observation of a heavenly body near or out of the meridian, the direction of the position line and a position through which it passes .3 the ship's position using position lines obtained from two or more celestial observations, with or without a run 6 Ability to use the sextant, determine its index error and reduce the index error to an acceptable error. 7 Ability to pre-compute the approximate time (to the nearest minute) of the meridian passage of a heavenly body and the rising and setting times of the sun and the moon.	By written theoretical examination, completion of approved education and training and assessment of evidence obtained from one or more of the following: 1 approved in-service experience 2 approved training ship experience 3 approved simulator training, where appropriate 4 approved laboratory equipment training. Using sextant, almanac, sight reduction tables, star identifier, navigational tables (Nories or Burtons), pocket scientific calculator. *Note:* (i) Heavenly body in this unit means the Sun, the Moon and stars listed in the nautical almanac. (ii) Air navigation tables are allowed to be used for star sights.	The degree of precision required: 1 work to a degree of precision consistent with the data available and the type of problem in question taking into account the limits of acceptable instrument/system errors 2 information from tables is to be extracted as accurately as possible consistent with the inherent accuracy of the tables, and final answers are to be given to the best degree of precision that is justified 3 problems may be solved by any method, provided that such method is correct in principle and affords the required degree of precision 4 calculations used to obtain a position line are to be capable of giving an answer to within or maximum of one half of a nautical mile 5 when making calculations to obtain a ship's position, calculations are to be to 0,5 of a minute of arc and to the nearest second of time.

ELECTRONIC NAVIGATION SYSTEMS (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
MODULE 1			
1 Use of echo sounders	1 Understands the basic principles of ship borne echo sounders. Types in use at sea. The principle components of general purpose echo sounding equipment. Precautions to be observed in use and accuracy to be expected	1 During the training establishment phase. Evidence obtained by attending an approved course or: .1 by written examination of the theoretical knowledge; and .2 by assessment of approved simulator training. 2 Using: .1 live and simulated radar, satellite navigator (GPS and DGPS), and electronic log; .2 Charts, equipment manuals and error diagrams/tables.	1 Information obtained from manuals and error diagrams/charts is correct, accurate and properly applied. 2 Positions are determined within the limits of acceptable instrument/systems errors. 3 Categorize the usefulness of the systems in terms of the areas - oceanic, landfall, coastal and estuarial. 4 Information obtained from radar is correctly interpreted and analysed taking into account the limitations of the equipment and prevailing circumstance and conditions. 5 Action to avoid a close encounter or collision with other vessels is timely and in accordance with the International Regulations for Preventing Collisions at Sea.
2 ω ▬ gs	2 Understands the basic principles of ship borne logs. Types in use at sea. The principle components of general purpose logs. Precautions to be observed in use and accuracy to be expected		
3 ωse f GNSS	3 Understands and describes the basic principles of satellite navigation systems, typical receivers in use on board ships, corrections and expected accuracy, coverage areas, and differential systems.		
4 Operate basic radar equipment	4 Understands the basic principles of radar. Describes the basic radar installation. Identification of controls. Understand factors affecting performance and [illegible]		

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ELECTRONIC NAVIGATION SYSTEMS (FISHING)

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
Use radar for collision avoidance	Understands the principle and construction of a radar plot. Use of plot to obtain information about targets. Assessment of collision risk. Effect of alteration of courses and speed in relation in relation to collision avoidance. Radar reporting procedures. Application of collision regulations in restricted visibility		
Use of radar as an aid to navigation	Able to detect and recognise fixed targets. Sources of error in positions obtained. Use of radar for navigation in confined and coastal waters using blind pilotage techniques.		
Use of electronic plotters/ECDIS as an aid to navigation	Understands and describes the basic principles of electronic plotters and ECDIS systems.		
MODULE 2			
Conduct a safe passage using radar	Ability to operate and to interpret and analyse information obtained from radar, including the following: 1 performance, including: .1 factors affecting performance and accuracy; .2 setting up and maintaining displays; .3 detection and misrepresentation of information, false echoes, sea return etc, racons and SARTs; and 2 use, including: .1 range and bearing; course and speed of other ships; time and distance of closest approach of crossing, meeting overtaking ships; .2 identification of critical echoes; detecting course and speed changes of other ships; effect of changes in own ship's course or	1 During the training establishment phase. Evidence obtained by attending an approved course or: .1 by written examination of the theoretical knowledge; and .2 by assessment of approved simulator training. 2 Using: .1 radar simulation; .2 charts, equipment manuals and error diagrams/tables; .3 the collision regulations, notices to mariners, marine notices, safety of navigation regulations, and radar performance specifications (IMO and marine notice); .4 case studies from courts of marine enquiry and MARS reports. As for	1 Information obtained from radar is correctly interpreted and analysed taking into account the limitations of the equipment and prevailing circumstance and conditions. 2 Action to avoid a close encounter or collision with other vessels is timely and in accordance with the International Regulations for Preventing Collisions at Sea.

ELECTRONIC NAVIGATION SYSTEMS (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	speed or both; .3 application of the International Regulations for Preventing Collisions at Sea; .4 plotting techniques and relative motion concepts; .5 blind pilotage techniques.	module 1.	

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NAVAL ARCHITECTURE (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
MODULE 1			
Small vessel construction and stability	1 Able to name the principal parts and fittings of a fishing vessel including: bow, stern, stern, bulwarks, hull, hatch, access, rudder, propeller, superstructure, hull valves, grid cooler, masts etc. 2 Understands: .1 reasons for making the deck and superstructure watertight; .2 purpose of watertight bulkheads and the collision bulkhead; .3 reason for a hull survey, the items surveyed at the hull survey and the period between surveys for the issue of a local general safety certificate; .4 drawing the propeller shaft(s) and the opening of hull fittings and the period between the inspect of these items; .5 relationship between centre of gravity, centre of buoyancy and metacentric heigh; .7 conditions of: .1 stiff ship; .2 tender ship; .3 free surface effect and the dangers associated with them; .8 reasons for having efficient means of drawing water rapidly from the deck and the danger of water trapped on deck; .9 reasons for stowing heavy cargo items below and lighter items on top; .10 purpose of free board and reserve buoyancy; .11 meaning of the terms displacement, deadweight and gross tonnage. 3 Knows the danger of stowing cargo on deck only with nothing below.	By oral examination, completion of approved education and training, written theoretical examination and assessment of evidence obtained from one or more of the following: 1 approved in-service experience; 2 approved training ship experience; 3 approved simulator training, where appropriate; 4 approved laboratory equipment training.	1 The safe operating limits of the ship are not exceeded in normal operations. 2 The ship is always properly stowed ensuring that she is always safe. 3 Able to deliver clear and understandable reports issuing ship construction terminology. 4 The ship is always securely battened down for proceeding to see and severe weather conditions. 5 Bilge pumping systems are properly operated. 6 Fire mains are properly operated.

NAVAL ARCHITECTURE (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	MODULE 2		
Basics of ship dimensions and form	1 Understands the names and principal parts of a ship. 2 Illustrates the general arrangement of common ship types found in the fishing fleet. 3 Describes by means of a diagram: .1 a bilge pumping system; .2 a fire main; .3 a steering system. 4 Understands the need to maintain the watertight integrity of the vessel and can describe the methods of maintaining the following: .1 hatch covers; .2 watertight doors; .3 sounding pipes and vents; .4 offal chutes; .5 scuppers and freeing ports.	As for module 1.	As for module 1.
	MODULE 3		
1 *Flotation and displacement*	1.1 Understands the relationship between the mass of a ship and the volume of water displaced by the hull form and that volume changes with change in mass of ship. 1.2 Defines: .1 displacement (light and load displacement); .2 deadweight. 1.3 Able to calculate the displacement of a ship. 1.4 Able to use: .1 displacement/draught curve; .2 deadweight curve/scale.	As for module 1.	As for module 1.
2 Buoyancy and reserve buoyancy	2.1 Describes: .1 buoyancy;		

NAVAL ARCHITECTURE (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	.2 the relationship between force of buoyancy and displacement; .3 reserve buoyancy, its importance and the relationship between it and freeboard.		
3 Fundamental statical stability, assessment of initial stability and the curve of statical stability	3.1 Defines: centre of gravity; centre of buoyancy; metacentre; metacentric height; righting lever; righting moment. 3.2 Describes: .1 stability as the ability of the ship to return to an upright position after being heeled by an external force; .2 how the value of GM is a useful guide to the stability of the ship; .3 with the aid of diagrams, a stable and unstable ship and the position of positive, negative and zero GM; .4 with the aid of diagrams, the relationship between the righting lever, righting moment for small and large angles of heel; .5 a capsizing moment; .6 angle of loll and rolling about an angle of loll; .7 ability to interpret various stability conditions from a stability book or a set of pre-calculated stability conditions.		
4 Movement of the centre of gravity	4 Describes, with the aid of diagrams, the movement of G when a mass is: - added (loaded) - removed (discharged) - moved within the ship - suspended (from a derrick hook).		

NAVAL ARCHITECTURE (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
MODULE 4			
1 Construction of specific parts of hull structure	1.1 Identifies the structural components of a ship's hull on ships' plans and drawings. Includes items such as frames, floors, beams, knees, brackets, shell plating, decks, bulkheads, pillars, hatch girders, coamings, bulwarks, cant beams and breast hooks 1.2 Identifies longitudinal, transverse and combined systems of framing on transverse sections of ships. 1.3 Illustrates: .1 double-bottom structure for longitudinal and transverse framing; .2 bilge structure; .3 different keel structures; .4 connection of superstructures to the hull at the ship's side 1.4 Sketches: .1 different deck edge connections; .2 deck-freeing arrangements; .3 a plane and corrugated bulkhead, showing connections to deck, sides and double bottom and the arrangement of stiffeners. 1.5 Describes the stress concentration in the deck round hatch openings. 1.6 Understands why transverse bulkheads have vertical corrugations and fore-and-aft bulkheads have horizontal ones. 1.7 Explains compensation for loss of strength at hatch openings. 1.8 Describes and illustrates: .1 the purpose of bilge keels and how they are attached to the ship's side; .2 the provision of additional structural strength to withstand pounding and panting;	[illegible] for module 1.	As for module 1.

NAVAL ARCHITECTURE (FISHING)

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
	.3 function of the stern frame and stem; .4 the transom stern, showing the connections to the stern frame. 1.9 Understands why the shaft tunnel must be of watertight construction and how water is prevented from entering the engine-room if the tunnel becomes flooded.		
Z ucture and attachment of various hull ings	2.1 Describes and sketches: .1 a fishing vessel's arrangements of modern weather-deck mechanical steel hatches; .2 showing how watertightness is achieved at the coamings and cross joints where applicable. 2.2 Sketches and describes typical forecastle mooring and anchoring arrangements including the leads of moorings, rollers, multi-angle, pedestal and Panama fairleads. 2.3 Describes: .1 winch to deck connection; .2 anchor handling and securing arrangements from hawse pipe to spurling pipe; .3 watertightness of spurling pipe; .4 construction of chain lockers and securing of cables; .5 construction and use of a cable stopper. 2.4 Describes and sketches: .1 the bilge pumping system of a fishing vessel with screw-down non-return suction valves, strum boxes and sounding pipe arrangements; .2 a bilge/ballast system in a fishing vessel and the necessity of fitting air pipes to ballast and fuel tanks; .3 a fire main and states what pumps may be used to pressurize it. 2.5 Describes and sketches: .1 modern rudders: semi balanced, balanced and		

NAVAL ARCHITECTURE (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	spade; .2 the connection of the rudder to the ship; .3 how the weight of the rudder is supported; .4 how watertight integrity is maintained about the stock/hull.		
	MODULE 5		
1 Movement of centre of gravity	1.1 Describes: .1 with the aid of diagrams, the movement of G when a mass is: - added (loaded); - removed (discharged); - moved within the ship; - suspended (from a derrick hook); .2 with the aid of diagrams, a stable and unstable ship and the position of neutral equilibrium (positive, negative and zero GM); .3 a "stiff" and "tender" ship; 1.2 Describes: .1 with the aid of diagrams, the relationship between stability, the righting lever and righting moment for small and large angles of heel lever (uses the positions of G, B, M and Z); .2 a capsizing moment. 1.3 Describes: .1 the angle of "loll" and the dynamics resulting in a zero moment at the angle of loll; .2 the potentially dangerous situation of a ship rolling about the angle of loll. 1.4 Able to: .1 identify and use: - cross curves (KN curves) - hydrostatic curves to determine the metacentre	As for module 1.	As for module 1.

NAVAL ARCHITECTURE (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	above the keel (KM) - determine the GM given the KG .2 know the formula GZ = KN - KG sin ø; .3 derive and draw a GZ curve for stable and initially unstable ships from KN curves; .4 obtain from a given curve of statical stability: .4.1 the maximum righting lever and the angle at which it occurs; .4.2 the angle of vanishing stability; .4.3 the range of stability; .5 show how lowering the position of G increases all values of the righting lever and vice versa. 1.5 Knows the statutory requirements for a fishing vessel. 1.6 Calculates: .1 shift of G (horizontally and vertically) resulting from adding, removing, moving or suspending masses; .2 change in KG during a passage resulting from: .2.1 consumption of fuel and stores; .2.2 absorption of water by a deck cargo; .2.3 accretion of ice on decks and superstructures given the masses and their positions.		
2 Effect of slack tanks	2.1 Shows, with the aid of a diagram, the effect on the centre of gravity (G) when the liquid in a partly filled tank moves during rolling (*free surface effect*). 2.2 Knows: .1 that the increase in KG is affected mainly by the breadth of the free surface and is not dependent upon the mass of liquid in the tank; .2 what ship construction measures are taken to reduce the effects of free surface; .3 the procedure for ballasting tanks when the ship is at an angle of loll or when she has a small positive		

NAVAL ARCHITECTURE (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	GM. 2.3 Calculates the virtual loss in GM due free surface moments.		

SHIP'S POWER PLANT (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	MODULE 1		
Understand the working and operation of on board machinery and ship propulsion systems	1 Marine engineering terms: .1 Use the correct engineering terms when describing and explaining the operation of the machinery and equipment. .2 Explain what is meant by the efficiency of a machine. 2 Understand the construction and operation of the following: .1 Marine power plants *Diesel engines* .1.1 Describe the 4-stroke diesel engine. .1.2 Describe the methods of supercharging. .1.3 Describe the fuel oil system from bunker tank to injection. .1.4 Describe the lube oil system. .1.5 Describe the engine cooling-water systems. .1.6 Describe how a diesel engine is prepared for stand-by and starting. .1.7 Understand that the number of starts is limited by the capacity of the starting air reservoir. .2 Auxiliaries .2.1 Describe a domestic water system. .2.2 Pumps and pumping systems: .2.2.1 Classify pumps as displacement, axial-flow or centrifugal. ..2.2.2 Explain the need to prime a centrifugal pump. ..2.2.2 Explain net positive suction head ..2.2.4 State that the engine-room emergency bilge suction is	A Oral examination and assessment of evidence obtained from theoretical instruction. B Oral examination and assessment of evidence obtained from practical experience gained through on board training.	Show sufficient knowledge to discuss intelligently with the Chief Engineer, matters relating to the running and maintenance of power plants and auxiliary machinery, complying with safe operating limits at all times.

SHIP'S POWER PLANT (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	connected to the main circulating pump in the engine-room. .3 Steering gears: .31 Describe an electric steering control system. .3.2 Explain how the change from remote to local control in the engine room is made. .4 Generators, alternators and electrical distribution: .4.1 Describe the operation of generators. .4.2 Describe a navigation light circuit with indicators and alarms, showing an alternative power supply. .4.3 Describe the characteristics of lead-acid batteries and of alkaline batteries. .4.4 Describe the maintenance of batteries. .4.5 Describe the safety precautions to be observed for battery compartments. .4.6 Outline the starting requirements for emergency generating sets. 4.7 List the services to be supplied from the emergency generator. .5 Oily-water separators and oil filtering equipment: .1 Describe the main purpose and operation of oily-water separators. .2 Describe how an oil-content meter functions. .3 Describe an oil discharge monitoring and control system. .6 Deck machinery: .1 State that the design and performance of anchor windlasses is subject to approval. society.		

SHIP'S POWER PLANT (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	.2 Describe an anchor winch. .3 Describe a cargo winch. .4 Sketch and describe a slewing deck crane, its motors and its controls. .5 Describe the lubrication of deck machinery. .6 Describe a spooling device to distribute the wire evenly on the drum of a mooring winch. .7 Hydraulic systems: .1 State that a hydraulic system for deck machinery consists of an oil tank, pumps, control valves, hydraulic motors and pipework. .2 State that cooling of the hydraulic oil is necessary during an operation to maintain the correct viscosity of the oil. .3 State that the oil may need to be heated before starting from cold. .4 State that cleanliness of the oil is essential for a satisfactory operation and that all systems contain filters. .5 State that air in the system leads to erratic functioning.		

PERSONNEL MANAGEMENT AND SHIP BUSINESS (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
MODULE 1			
1 Take precaution to prevent pollution to the marine environment	1 Knows: .1 what to do in an emergency involving an oil spill on deck or in the engine-room; .2 the necessity of being aware at all times of preventing oils spills; .3 that it is prohibited to throw plastics overboard anywhere in the world; .4 that there are special areas (for the trade in which his/her ship is engaged) where certain pollutants may or may not be discharged overboard. (Candidates will only be required to know that pollution regulations apply to ships.)	By oral examination and completion of approved education and training and assessment during approved on board training.	1.1 Is able to give a clear and concise oil spill report to a ship's officer. 1.2 Can assemble appropriate equipment to control an oil spill or pollution incident with special reference to quick response. 1.3 Containment of oil spill/pollution is achieved using appropriate procedures, techniques and equipment. 1.4 Organisational procedures designed to safeguard the marine environment are observed at all times.
2 Observe safe working practices	2.1 Has a broad knowledge of the contents of the *Code of Safe Working Practices for Fishermen*. 2.2 Is aware that the maritime occupational safety regulations provide rules to assist all seafarers. 2.3 Knows and understands their importance. 2.4 Is aware that there is a safety officer on board the ship. 2.5 Knows that his/her superiors have a duty to ensure that work on board is performed to a high standard of occupational safety. 2.6 Knows the importance of adhering to safe working practices at all times. 2.7 Knows the safety and protective devices available to protect against possible hazards aboard a ship, including overalls, safety helmets, goggles, safety footwear and safety harnesses. 2.8 Knows the precautions to take before entering enclosed spaces, including the permit to work system, duties of		2.1 The requirements of the *Code of Safe Working Practises for Fishermen* have been observed. 2.2 Shows an understanding of contents thereof and has shown understanding of the basic safety requirements observed by seamen in their ordinary course of duty. 2.3 Safe working practices are observed and appropriate safety and protective equipment is correctly used at all times.

PERSONNEL MANAGEMENT AND SHIP BUSINESS (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	standby man and safe to work certificate.		
3 Contribute to effective human relationship on board ship	3 Understands: .1 importance of maintaining good human and working relationships on board ship: .2 employment conditions, working hours and rest periods; .3 individual rights and obligations in terms of the disciplinary code and grievance procedures; .4 dangers of drug and alcohol abuse in terms of their effects to health and safety of others; .5 drug and alcohol policies as applied by shipping companies; .6 basic conditions and terms of his/her contract of employment.		3 Expected standards of work and behaviour are observed at all times.
MODULE 2			
1 Take effective action in the event of an oil spill or other pollution emergency	1 Knows: .1 the ship board contingency plan for an oil spill; .2 where the emergency oil spill locker is; .3 the equipment that will be found therein and what each item is for.	As for module 1.	1 Is able to: .1 give a clear and concise oil spill report to a ship's officer; .2 assemble appropriate equipment to control an oil spill or pollution incident with special reference to quick response; .3 Contain an oil spill/pollution using appropriate procedures, techniques and equipment.
2 Protection and preservation of the marine environment	2 Knows the zones regarding the disposal of garbage and other waste at sea.		2 Current pollution regulations are observed
3 The maritime occupational safety regulations	3.1 Has a working knowledge of the maritime occupational safety regulations and associated *Code of Safe Working Practices for Fishermen* and understanding of its		3.1 The requirements of the *Code of Safe Working Practices for Fishermen* have been observed. 3.2 Shows an understanding of a contents thereof

PERSONNEL MANAGEMENT AND SHIP BUSINESS (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	importance. 3.2 Able to readily and effectively liaise with the vessel's safety officer. 3.3 Knows that the master and ship's officers have a duty to ensure that all work on board is performed to a high standard of occupational safety.		and shows full understanding of all the various safety requirements required of seamen in the ordinary course of their duty.
4 I Personnel management on board ships	4.1 Knows the principles of controlling subordinates and maintaining good relationships. 4.2 Able to lead, motivate and develop personnel. 4.3 Able to exercise authority. 4.4 Knows the conditions of employment and discipline and grievances procedure in which hearings are conducted. 4.5 Has an understanding of general industrial relations.		4.1 Applies the various factors affecting personnel management in ships. 4.2 Maintains good relations on board ship.
Organise staff	5 Knows how to organise staff and to allocate duties and tasks.		5 Organises staff tasks and duties.
Train subordinates on board	6 Understands the importance of familiarisation and ongoing training at sea.		6 Aptitude to give good practical training to subordinates during the course of normal work on board the vessel.
7 Assume command in an emergency or on the demise of the master	7 Knows what procedure is required when assuming command after the death of the master or when the master is temporarily incapacitated.		7 Command capabilities with respect to maintaining a safe ship and a well managed.
MODULE 3			
1 Organisations concerned with shipping	1 Knows the basic legal implications of rules, regulations and codes emanating from such organisations as government agencies.	By oral examination, completion of approved education and training, written theoretical examination and assessment of evidence obtained from one or more of the following:	1 International and flag state rules, regulations and codes are properly applied to the ship and cargo.

PERSONNEL MANAGEMENT AND SHIP BUSINESS (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
		1 approved in-service experience; 2 approved training ship experience.	
2 Protection and preservation of the marine environment	2.1 Knowledge of emergency pollution action and duties. 2.2 Shows full knowledge of the equipment in the emergency oil spill locker and how each item is used. 2.3 Knows what to do if called upon to rapidly organise an emergency team to tackle an oil spill/pollution hazard. 2.4 Has a working knowledge of the contents of the MARPOL Convention.		2.1 Rapidly assess an oil spill or pollution emergency. 2.2 Implement the shipboard emergency plan required by the current international pollution convention so as to preserve the marine environment.
3 Maritime occupational safety regulations	3 Has a working knowledge of contents and regulations of the maritime occupational safety regulations.		3.1 Maritime occupational safety regulations and associated *Code of Safe Working Practises for Fishermen* have been observed. 3.2 The various safety precautions required of seamen in the ordinary course of their duties are correctly observed and applied.
MODULE 4			
1 Manage personnel	1.1 At a skipper and chief engineer level: .1 organize and supervise training programmes; .2 lead, motivate and develop junior staff; .3 exercise authority; .4 allocate duties and tasks; .5 organise safety and emergency duties; .6 organise deck or engine room maintenance tasks; .7 conduct: .7.1 staff performance evaluation; .7.2 disciplinary proceedings; .7.3 grievances hearings. 1.2 Know: .1 manning requirements on board ship;	As for module 3.	1 The crew are allocated duties and informed of expected standards of work and behaviour in a manner appropriate to the individuals concerned.

PERSONNEL MANAGEMENT AND SHIP BUSINESS (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	.2 contracts of employment between company/manning agency and crew; .3 crews rights and responsibilities; .4 principles of general industrial relations. 1.3 Have an understanding of the requirements of local labour legislation as they affect ship's crews.		
2 Responsibility under the master or chief engineer, for on board training of deck or engine-room staff as applicable	2.1 Knows: .1 Training methods; .2 training planning; .3 that training and assessment on board must be conducted, monitored, evaluated and supported by suitably trained persons. 2.2 Has an understanding of the STCW-F Convention.		2 Effective ability to take charge for on board training.
MODULE 5			
1 IMO Conventions and local regulations in respect of oil pollution prevention and safety equipment	1.1 General knowledge of the requirements of the life-saving equipment regulations and MARPOL Convention and the regulations concerning life-saving, fire-fighting appliances and oil pollution prevention.	As for module 3.	1 Determine the safety, and oil prevention equipment required on board ship.
2 Protection and preservation of the marine environment	2.1 Knowledge of the chief mate's or second engineer's duties (as applicable) and ship's liability regarding pollution at sea and able to ensure that the crew are fully trained in emergency oil spill procedures and the oil pollution locker is fully equipped in accordance with requirements. 2.2 Able to organise a rapid, effective response to an oil spill or other pollution emergency on board and knows the importance of conducting regular drills.		2 Action required to be taken after a spill of oil or when chemicals or sewage waste are inadvertently dumped at sea so as to best preserve the marine environment.
3 Full knowledge of the maritime	3 Full knowledge of contents and implications of the		3 Chief mate's duties or second engineer's duties

PERSONNEL MANAGEMENT AND SHIP BUSINESS (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
occupational safety regulations	maritime occupational safety regulations.		(as applicable) of ensuring that all crew members are suitably informed/instructed and carry out the requirements of the maritime occupational safety regulations.
MODULE 6			
1 Take command of a vessel on unlimited or limited voyages	1.1 Have a clear understanding of action to be taken on assuming command. 1.2 Knows the certificates and other documents required to be carried on board ships; their use, legal significance how they may be obtained, period of validity. 1.3 Knows the handover of command requirements.	As for module 3.	1 Ability to take over command with the legal implications thereof.
2 Relationship to pilot	2 Understand the relationship between master and pilot.		2 Able to communicate and establish a working relationship with the pilot.
3 Knowledge of statutory legal requirements for the official log book and appropriate sections of the *Merchant Shipping Act*.	3 Know: .1 official log book and the law relating to entries; .2 offences relating to misconduct, endangering the ship and against persons on board; .3 have a general knowledge of Chapter 4 of the *Merchant Shipping Act* (engagements, discharges, etc.).		3 Can complete: .1 all entries in the official logbook correctly including entries regarding offences; .2 all sign on/sign off procedures correctly.
4 Manage the ship's personnel	4 Have knowledge of: .1 civil liability for certain offences; .2 Conducts meetings as chair.		4 Able to: .1 fulfill all requirements of company's manning policy, including grievance/disciplinary procedures; .2 manage the ship's crew in a professional and competent manner; .3 organise shipboard meetings; .4 implement operational plans, including their evaluation.

PERSONNEL MANAGEMENT AND SHIP BUSINESS (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
5 Custom House procedure	5 Knows: .1 procedure for entering d clearing ships; .2 role of ship's agents.		5.1 Correct procedure for Custom House entering and clearing is observed. 5.2 Deal with ship business between master and agent.
≤ Full knowledge of the legalities of "seaworthiness"	6 Understands: .1 definition of the term "seaworthiness" and the term "sub-standard ship"; .2 implications of port State inspections and the responsibility of the master.		6 Deal with the implications of a port State inspection.
7 Safety of the ship and assistance to other vessels in distress	7 Knows the duties and obligations of the master in respect of: .1 the safety of the ship, crew and passengers; .2 assistance to vessels in distress; .3 stranding, collision, casualty, towage, salvage, Lloyds Standard Form of Salvage Agreement; understands the legal implications thereof.		7.1 That the safety of the ship, crew and passengers is at all times maintained. 7.2 Deal with the legal and practical implications relating to stranding, collision, casualty towage and salvage.
8 Law relating to navigation, marine casualties, marine enquiries, territorial waters	8.1 Knows: .1 the law relating to navigation including the prevention of collisions; .2 the requirements to report dangers to navigation; .3 the use of Maritime Safety information; .4 the requirements to report maritime casualties. 8.2 Understands these terms used in the Law of the Sea Convention: .1 territorial waters; .2 internal waters; .3 right of innocent passage; .4 international straits; .5 exclusive economic zones; .6 continental shelf; .7 high seas.		8 Deal with dangers to navigation, the legal requirements about a collision and maritime casualties.

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PERSONNEL MANAGEMENT AND SHIP BUSINESS (FISHING)

COLUMN 1	COLUMN 2		COLUMN 3	COLUMN 4	
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY		METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE	
9 Organisations connected with shipping	9	*Detailed knowledge of:* .1 Organisations concerned with shipping, including IMO and SAMSA .2 safety conventions, national legislation.		9.1 The role of various organisations concerned with safe shipping. 9.2 Maritime conventions and their implications on flag states. 9.3 The implications of maritime conventions on the ship.	
10 Monitor and control compliance with legislation to ensure protection of the marine environment	10	Knowledge of: .1 the Master's duties and ship's liability regarding pollution at sea. .2 what records are to be maintained on board ship and the emergency action and response to an oil spill/pollution emergency.		10.1 No international spill or dumping at sea of oil, chemicals, sewage or waste materials occur. 10.2 That the crew are aware of their responsibilities regarding pollution prevention.	
1 Vessel traffic services	11	Knowledge of vessel traffic services, mandatory and voluntary ship reporting systems.		11 Able to follow and report as per the procedure for a vessel traffic reporting service.	
Foreign ports (Note: This is only applicable to candidates for the Unlimited Waters Command Endorsement.)	12	Knowledge of clearing vessels inwards and outwards in foreign ports with emphasis on immigration, customs and health regulations.		12 Able to deal with the correct procedures for arrival and departure from a foreign port.	

METEOROLOGY (FISHING)

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	COLUMN 3 METHODS FOR DEMONSTRATING COMPETENCY	COLUMN 4 CRITERIA FOR EVALUATING COMPETENCE
	MODULE 1		
1 Shipboard meteorological instruments 2 Weather forecasting	1.1 Understands the: .1 basic principle of an aneroid barometer; .2 function of a hygrometer; .3 basic principles of wind sensors. 1.2 Able to: .1 demonstrate ordinary readings of wind speed; .2 read the atmospheric pressure from an aneroid barometer; .3 read the temperature from a thermometer (wet and dry bulb). 2.1 Defines wind. 2.2 Describes the: .1 Beaufort scale of wind force; .2 method of estimating the strength of the wind from the appearance of the sea surface; .3 method of estimating the wind direction from the appearance of the sea surface, and demonstrates an ability to use the Beaufort scale to estimate the strength of the wind and its direction from the appearance of the sea. 2.3 Defines precipitation, rain, drizzle, hail, snow and sleet. 2.4 Defines fog, mist and haze and states that visibility is reduced by the presence of particles in the atmosphere, near the earth's surface. 2.5 Describes methods of estimating the visibility at sea by day and by night, and the difficulties involved. 2.6 Names and describes the ten basic cloud types. 2.7 Describes: .1 the stages in the life cycle of a polar front	By oral examination, completion of approved education and training, and assessment of evidence obtained from one or more of the following. 1 approved in-service experience; 2 approved training ship; 3 approved simulator training, where appropriate; 4 approved laboratory equipment training.	1 Shipboard meteorological instruments are correctly used and read. 2.1 Current weather conditions are properly understood. 2.2 The current and latest weather forecasts are obtained by the appropriate mean.

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METEOROLOGY (FISHING)

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCY	CRITERIA FOR EVALUATING COMPETENCE
	depression in the southern hemisphere and the usual movement of the front; .2 with the aid of a diagram, the weather experienced during the passage of a cold front in the southern hemisphere; .3 a family of depressions. 2.8 Knowledge of: .1 currents and seasonal weather patterns on the South African coast; .2 the formation and occurrence of abnormal waves on the eastern seaboard of South Africa; .3 the local winds and their causes. 2.9 Describes: .1 the sources of weather information available to local shipping; .2 the appropriate local weather bulletins and their contents; .3 services provided for local storm warnings.		
Weather forecasting and routing	MODULE 2		
	1 Knowledge of: .1 services provided for shipping by meteorological offices including the types of services provided by facsimile machine; .2 appropriate weather bulletin and the contents of each of its sections; .3 services provided for storm warnings. 2 Lists the areas and seasons in which: .1 strong winds at sea are experienced most often; .2 a high incidence of sea fog can be expected. 3 States: .1 the typical weather signs of the approach of a tropical storm;	By oral examination , completion of approved education and training, written theoretical examination and assessment of evidence obtained from one or more of the following. 1 approved in-service experience; 2 approved training ship; 3 approved simulator training, where appropriate; 4 approved laboratory equipment training.	Show a practical ability to encode and decode weather information, interpret synoptic information and apply this to properly plan a sea passage.

METEOROLOGY (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCY**	**CRITERIA FOR EVALUATING COMPETENCE**
	.2 area and times where tropical storms frequently occur. 4 Describes briefly: .1 the pattern of a tropical revolving storm; .2 the behaviour of tropical revolving storms in individual areas and individual pressure conditions; .3 the practical manoeuvring rules for avoiding the centre of a tropical revolving storm; .4 the aid of a figure the most probable track of a tropical storm in various ocean areas. 5 States the regulations given in SOLAS regarding reporting a tropical revolving storm. 6 Explains the: .1 importance of an early warning of a tropical storm; .2 actions to be taken to avoid the storm centre and its vicinity. 7 Lists the information that should be included in a report of a tropical storm. 8 Able to: .1 identify: .1.1 a cold front, a warm front and an occlusion on a synoptic chart; .1.2 the air masses on a weather chart; .1.3 areas of maximum waves. .2 read the codes on a synoptic chart; .3 estimate: .3.1 the probable track directions of the various air masses; .3.2 wind directions from the isobars on the weather chart. .3.3 of expected area or precipitation or fog. .3.4 or expected area of icing;		

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METEOROLOGY (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCY**	**CRITERIA FOR EVALUATING COMPETENCE**
	.4 calculate the wind force from the isobars on the weather chart; .5 demonstrate an analysis of a synoptic chart as a whole; .6 forecast area weather from a synoptic chart as a whole; .7 interpret a prognostic chart of area weather.		

SHIP MANOEUVRING AND HANDLING (FISHING)

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	COLUMN 3 METHODS FOR DEMONSTRATING COMPETENCE	COLUMN 4 CRITERIA FOR EVALUATING COMPETENCE
	MODULE 1		
Manoeuvre the ship	Knowledge of: 1 the effects of a single and twin propeller(s) on the turning circle of a ship; 2 the effects of deadweight, draught, trim, speed and under-keel clearance on turning circles and stopping distances; 3 the effects of wind and current on ship handling; 4 manoeuvres and procedures for the rescue of persons in distress and man overboard; 5 squat, shall-water, interaction between ships, canal effect and similar effects; 6 proper procedures for anchoring and mooring; and 7 basic manoeuvres and duties during berthing and unberthing and the use of the various mooring ropes when alongside. 8 manoeuvring during fishing operations with special regard to factors that could adversely affect the vessel's safety during such operations; 9 towing and being towed; 10 berthing, unberthing, anchoring and manoeuvring alongside other vessels at sea.	Oral examination and assessment of evidence obtained from one or more of the following: 1 approved in-service experience; 2 approved training ship experience; 3 approved simulator training, where appropriate 4 approved training on a manned ship model where appropriate.	1 Safe operating limits of ship propulsion, steering and power systems are not exceeded in normal manoeuvres. 2 Adjustments made to the ship's course and speed maintain safety of navigation.
	MODULE 2		
Manoeuvre and handle a ship in all conditions	Manoeuvring and handling a ship in all conditions, including: 1 manoeuvres when approaching pilot stations and embarking or disembarking pilots, with due regard to weather, tide, headreach and stopping distances;	As for module 1.	1 All decisions concerning berthing and anchoring are based on a proper assessment of the ship's manoeuvring and engine characteristics and the forces to be expected while berthed alongside or lying at anchor. 2 While under way, a full [illegible]

SHIP MANOEUVRING AND HANDLING (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	2 handling ship in rivers, estuaries and restricted waters, having regard to the effect of current, wind and restricted water on helm response; 3 interaction between passing ships and between own ship and nearby banks (canal effect); 4 berthing and unberthing under various conditions of wind, tide and current with and without tugs; 5 ship and tug interaction; 6 use of propulsion and manoeuvring systems; 7 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; 8 dragging anchor; clearing fouled anchors; 9 dry-docking, both with and without damage; 10 management and handling of ships in heavy weather, including assisting a ship or aircraft in distress; towing operations; means of keeping an unmanageable ship out of trough of the sea, lessening drift and use of oil; 11 precautions in manoeuvring to launch rescue boats or survival craft in bad weather; 12 methods of taking on board survivors from rescue boats and survival craft; 13 ability to determine the manoeuvring and propulsion characteristics of common types of ships with special reference to stopping distances and turning circles at various draughts and speeds; 14 importance of navigating at reduced speed to avoid damage caused by own ship's bow wave and stern wave; 15 use of, and manoeuvring in and near, traffic separation schemes and in vessel traffic service		possible effects of shallow and restricted waters, ice, banks, tidal conditions, passing ships and own ship's bow and stern wave so that the ship can be safely manoeuvred under various conditions of loading and weather.

SHIP MANOEUVRING AND HANDLING (FISHING)			
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
	(VTS) areas; 16 transferring fish at sea to factory ships and other vessels; 17 refuelling at sea.		

FISHING SAFETY			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
MODULE 1			
1 Prepare ship and equipment for the fishing operations	1.1 Knows the accepted practice for repairing, replacing, maintaining and positioning of the relevant fishing gear. 1.2 Can recognise irregularities, damage or defects as appropriate to the relevant fishing gear. 1.3 Knows how to report clearly and in good time, to his/her supervisor, any irregularities, damage or defects.	A Oral examination and assessment of evidence obtained from theoretical instruction. B Oral examination and assessment of evidence obtained from practical experience gained through on board training.	1 All relevant fishing gear is properly maintained, repaired, replaced and positioned as required for safe operation. 2 Reports timeously any defects, damage or irregularities to supervisor. 3 Instructions from supervisor are carried out. 4 Protective/safety gear is correctly worn during fishing operations.
2 The process of handling fishing gear	2.1 Be aware of safety rules applicable especially with regard to dangers caused by vessel's motion, slippery surfaces, fire prevention and fire hazards, and personal protection equipment. 2.2 Understand the instructions given by his/her supervisor regarding the operation and be familiar with common terms used in the fishing industry. 2.3 Knows that irregularities are likely to occur and understands the action to take to protect life and property.		
3 Stowing of the c[illegible] general safety	3.1 Understands the importance of the current safety rules. 3.2 Understands the importance of his/her supervisor's instructions. 3.3 Knows that proper catch stowage and fishing gear is important for vessel/crew safety. 3.4 Understands the operation of ship's valves and offal chutes and can seal spaces from water ingress. 3.5 Understands the operation of dill/bilge/factory decks pumps for removal of water from areas. 3.6 Knows that loading/discharging operations can affect the stability of the vessel especially with regard to heeling moments from gear and catch.		

FISHING SAFETY			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
MODULE 2			
The process of handling fishing gear/catch stowage	1 Understands the importance that sufficient and fit personnel are available to ensure safe and efficient fishing operations. 2 Knows that equipment checks must be made prior to the beginning of fishing operations and to ensure that operations are carried out in accordance with safety rules. 3 Understands that reports of any irregularities, damage or defects are evaluated and rectified. 4 Knows that instructions are to be given to ratings involved in stowing of catch (when appropriate) to ensure that the operation is carried on in time and according to safety rules. 5 Familiar with construction, application and purpose of deck equipment that includes, but is not limited to, trawl gallows, gantries, power blocks, pursing blocks, winches and booms, derricks, net drums and side rollers and line and trap haulers. 6 Be familiar with the dangers associated with fishing operations such as shooting all types of fishing gear into the water, hauling fishing gear and landing the catch on board.	As for module 1.	Plans and implements the process of gear handling in accordance with the relevant safety rules.

EMERGENCY PROCEDURES (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	MODULE 1		
Respond to emergencies and distress signals at sea, and emergencies in port	1 Able to take measures in emergencies for the protection and safety of ship, passengers and crew in that the candidate must be able to:- .1 muster persons and launch life saving appliances; .2 execute a man overboard drill; .3 organize an emergency party; .4 react properly to a distress signal; and .5 take charge of life-saving appliances. 2 Able to take initial action following a collision or grounding; initial damage assessment and control in that the candidate must be able to identify the actions: .1 to be taken following a collision; .2 to be taken following a grounding; .3 the precautions for the protection of and safety of crew passengers in emergency situations; .4 the means of limiting damage and salvaging the ship following a fire or explosion; .5 the procedure for abandoning ship; .6 the precautions for ensuring the security of the ship whilst in port; .7 the actions to be taken when emergencies arise in port; .8 the procedure to bring a ship up short or turn it short round using an anchor on a short scope of chain. 3 Able to use the auxiliary steering and know the rigging and use of jury steering arrangements. 4 Know the area of operation and procedures of the SASAR organization.	Oral examination and assessment of evidence obtained from one or more of the following: 1 approved in-service experience; 2 approved training ship experience; 3 approved simulator training where appropriate; 4 practical training.	1 The type and scale of the emergency is promptly identified. 2 Initial actions and, if appropriate, manoeuvring of the ship are in accordance with contingency plans and are appropriate to the urgency of the situation and nature of the emergency.

EMERGENCY PROCEDURES (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
MODULE 2			
Respond to emergencies and distress signals at sea, and emergencies in port	1 Thorough knowledge of the actions required to execute the correct response to those emergencies and actions listed in module 1. 2 Knowledge of: .1 precautions when beaching a ship; .2 action to be taken if grounding imminent, or after grounding; .3 refloating a grounded ship with and without assistance; and .4 action to be taken if collision is imminent and following a collision or impairment of the watertight integrity of the hull by any cause. 3 Thorough knowledge of: .1 emergency steering; .2 emergency towing arrangements and towing procedures; and .3 the assessment of damage control. 4 Thorough knowledge of the IMO world SAR plan and the SASAR manual.	Oral examination and assessment of evidence obtained from practical instruction, in-service experience and practical drills in emergency procedures.	1 The type and scale of any problem is promptly identified and decisions and actions minimize the effects of any malfunction of the ship's systems. 2 Communications are effective and comply with established procedures. 3 Decisions and actions maximize safety of persons on board.

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COMMUNICATIONS (FISHING)

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
Use MSI information	**MODULE 1**		
	1 Able to use the International Code of Signals. 2 Adequate knowledge of the English language to enable the officer to use charts and other nautical publications, to understand meteorological information and messages concerning ship's safety and operation, to communicate with other ships and coast stations. 3 Knowledge of the different types of MSI signals, their means of transmission, Navareas, Metareas, and the responsibility to generate navigational warnings. Make use of the South African list of radio signals in the ability to receive such signals. *Note:* Candidates in the examinations for skipper and deck officer certificates will only be required to have a local knowledge regarding the use, receipt and transmission of MSI.	Assessment of evidence obtained from written, practical and oral examination.	1 English language navigational publications and messages relevant to the safety of the ship are correctly interpreted or drafted. 2 Communications are clear and understood. 3 Receive a navigational warning, meteorological forecast, SAR message and make the correct decisions regarding the contents of such a message. Generate a navigational warning in accordance with the requirements of the SOLAS Convention.
	MODULE 2		
1 Transmit and receive information by visual signalling	1.1 Able to transmit and receive signals by morse light. 1.2 Able to use the International Code of Signals.	As for module 1.	1 Read a flashing morse white light at a rate of three words per minute and that the responsibility are consistently successful.
2 Use the Standard Marine Navigational Vocabulary as replaced by the IMO Phrases and use English in written and oral form	2 Adequate knowledge of the English language to enable the officer to use charts and other nautical publications, to understand meteorological information and messages concerning ship's safety and operation, to communicate with other ships and coast stations and to perform the officer's duties also with multilingual crew, including the ability to use and understand the Standard Marine		2.1 English language navigational publications and messages relevant to the safety of the ship are correctly interpreted or drafted. 2.2 Communications are clear and understood.

COMMUNICATIONS (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
3 Use MSI information	Navigational Vocabulary as replaced by the IMO Standard Marine Communication Phrases. 3 Knowledge of the different types of MSI signals, their means of transmission, Navareas, Metareas, and the responsibility to generate navigational warnings. Make use of the Admiralty list of radio signals in the ability to receive such signals.		3 Receive a navigational warning, meteorological forecast, SAR message and make the correct decisions regarding the contents of such a message. Generate a navigational warning in accordance with the requirements of the SOLAS Convention

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ENGINEERING KNOWLEDGE (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	MODULE 1		
1 Understand the theoretical principles of marine engineering knowledge 2 Understand the working and operation of onboard auxiliary machinery and ship propulsion system	1 Understand terms used in machinery spaces and names of machinery equipment and an elementary knowledge of the main parts of the propelling machinery. 2 Understand engine room watchkeeping procedures: .1 know how to and why read and record temperatures, pressures and fluid levels. Understand how to take over and hand over a watch; .2 know how to deal with minor defects in the propelling and auxiliary machinery; .3 maintain batteries in proper working order; .4 keep bilges empty and clean, is familiar with bilge pumping systems; .5 know how to take out of service and clean and put on line duplex filters; .6 know how to assist in manual operation of automated machinery; .7 know how a diesel engine is prepared for standby and starting. 3 Understand the basic construction and operation of the following: .1 diesel engines: .1.1 the 4-stroke diesel engine; .1.2 the 2-stroke diesel engine; .1.3 the main engine cooling water system, lubrication oil system, fuel system, scavenge air system and starting systems; .1.4 mechanism of starting and reversing arrangements; .2 auxiliary machinery and systems:	A Written examination and assessment of evidence obtained from theoretical instruction, display diagrams and associated practical knowledge B Oral examination and assessment of evidence obtained from practical experience gained through sea going service.	Demonstrates a clear understanding of marine engineering knowledge.

ENGINEERING KNOWLEDGE (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	.2.1 know and understand names and functions of the main parts of refrigeration machinery and has a working knowledge of a basic refrigeration systems; .2.2 classify pumps as reciprocating pumps, centripetal pumps and mono pumps; .2.3 describe the type of valves used onboard and their function; .2.4 be able to Illustrate by means of sketches typical pumping arrangements such as bilge, fire main, and deck wash and fuel oil bunkering systems. Understand the necessity to keep bilges empty; .3 steering gear arrangement: .3.1 describe basic principles of the steering system; .3.2 explain how to steer from the emergency position; .4 generators, alternators and electrical distribution: .4.1 require basic knowledge of electricity and distribution systems, including protection devices on board ship; .4.2 describe precautions to take when working on or near electrical systems; .4.3 describe the safety precautions to be observed for battery compartments. 5 Safe working practise as related to engine room operations: .1 precautions to take when working in enclosed spaces; .2 precautions to take when working on high pressure or high temperature piping systems. 6 Fuel oil bunkering: .1 know how to prepare for taking bunkers and carry		

ENGINEERING KNOWLEDGE (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	out safe bunkering procedures.		
MODULE 2			
1 Understand the theoretical principles of marine engineering knowledge 2 Understand the working and operation of onboard auxiliary machinery and ship propulsion system.	1 Prepare main and auxiliary machinery for sea and testing of steering gear. 2 Understand record of engine room logbook and significance of readings taken. 3 Understand routine pumping operations of fuel oil, fresh and salt water and bilge system and location of common faults. 4 Understand starting, coupling and changing over alternators and/or generators. 5 Know safety precautions to be observed during a watch and the immediate action to be taken in the event of a fire or accident, including electric shock. 6 Know precautions to be observed to prevent environmental pollution, operation and maintenance of emergency equipment. 7 Know the use and constructional details of measuring instruments for temperatures and pressure and the operating principles of the ammeter and voltmeter. 8 Know how various machinery components are manufactured and the effects of various treatments on the physical properties of the materials commonly used. 9 Understand and know the construction, arrangements and operation of steering systems, constructional details and maintenance of pressure vessels, constructional details and principles of action of pumps and general requirements for pumping systems. 10 Understand the safe and efficient operation and maintenance of electrical equipment. 11 Understand the efficient operation and maintenance of auxiliary boilers.	As for module 1.	As for module 1.

ENGINEERING KNOWLEDGE (FISHING)			
COLUMN 1 **COMPETENCE**	**COLUMN 2** **KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**COLUMN 3** **METHODS FOR DEMONSTRATING COMPETENCE**	**COLUMN 4** **CRITERIA FOR EVALUATING COMPETENCE**
	12 Understand the working principles and constructional details of marine diesel engines together with their ancillary equipment such as gearboxes, clutches, thrust bearings and transmission systems. 13 Understand the operation and maintenance of diesel engines, determination of engine power, starting and reversing systems. 14 Know the properties of fuel and lubricating oils used in diesel engines. 15 Understand fuel systems and lubricating oil systems. 16 Know the constructional details and working principle of air compressors. 17 Understand basic electrical circuits including alternating current and direct current systems. 18 Understand basic hydraulic and pneumatic circuits and their maintenance. 19 Understand the safe operation and maintenance of deck machinery. 20 Know precautions against factory deck flooding.		
MODULE 3			
1 Understand the theoretical principles of marine engineering knowledge 2 Understand the working and operation of onboard auxiliary machinery and ship propulsion system	**Watchkeeping practice:** 1 Routine associated with taking over and accepting a watch—understand and know: .1 responsibility of the watchkeeper; .2 procedure for taking over a watch; .3 precise nature of the logbook check; .4 routine of handing over a watch; .5 advice of changes during watch or abnormalities; .6 compilation of machinery space logbook; .7 Understanding of essential operating parameters, the upper and lower bounds; .8 recording of incidents during the watch;	As for module 1.	As for module 1.

ENGINEERING KNOWLEDGE (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	.9 changes in recording during stand-by periods; .10 The legal implications of the log book. 2 Duties undertaken during a watch—understand and know: .1 routine inspections of all machinery spaces; .2 use of all senses during rounds; .3 specific watch responsibilities; .4 unusual conditions in machinery spaces; .5 action in case of auxiliary machinery failure or black-out; .6 action in case of fire; .7 observation of leaks, pipe bursts, oil spills etc; .8 sudden main engine failure. 3 Preparing to proceed to sea—understand and be able to: .1 start air, fuel, lubricating oil and circulating water systems; .2 warm through; .3 turn over main and auxiliary engines; .4 test alarms, telegraph and steering gear; .5 prepare main engine, prime, turning gear out, etc 4 Preparing for arrival in port—understand and be able to: .1 test telegraph; .2 start stand-by auxiliaries. **Materials:** 1 Production of iron and steel—understand: .1 properties of iron and steel; .2 strength, ductility and elasticity; .3 tensile test, malleability, compression test, toughness, brittleness.2 Manufacturing processes and treatments—have knowledge of: .1 casting, forging, rolling, spinning, drawing, extrusion; .2 machining and welding;		

ENGINEERING KNOWLEDGE (FISHING)			
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
	.3 heat treatment; .4 hardening, tempering, toughening, annealing, normalising, stress relieving; .5 surface hardening. 4 Alloying and effect on properties—have knowledge of: .1 alloying elements; .2 nickel, chromium, tungsten, molybdenum, vanadium, silicon, copper, lead, cobalt, boron, titanium; .3 effect of these elements on the properties of the metal. 5 Non-ferrous metals—have knowledge of: .1 aluminium, copper, lead, platinum, tin, zinc; .2 common brasses and bronzes; .3 cupro-nickel and aluminium-nickel bronzes; .4 white metal and other bearing metals; .5 suitability of above metals to withstand corrosion, fatigue, heat, erosion, creep and cavitation; .6 castability and repairability of these metals. **Instrumentation and control:** Understand basic operating principles and constructional details: 1 pressure measurement; 2 barometers; 3 manometers: U-tube; 4 Bourdon tubes: C, spiral and helical tubes; 5 temperature measurement; 6 liquid-in-glass, liquid-in-steel, vapour and gas filled systems; 7 bimetal thermometers; 8 flow measurement; 9 level measurement; 10 direct reading methods: sight glass, floats;		

ENGINEERING KNOWLEDGE (FISHING)			
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
	11 viscosity measurement; 12 electrical: tacho generators; 13 liquid density: hydrometers. **Internal combustion engines:** 1 Understand and know principles of operation: .1 two stroke, four stroke; .2 lubrication, cooling, fuel, scavenge and air starting systems; .3 automatic control for above systems. 2 Construction—understand and have know ledge of: .1 engine framework; .2 bedplates, A-frames, cylinder blocks and tie bolts; .3 holding down bolts; .4 collision chocks; .5 crankshafts, connecting rods, crossheads; .6 cylinder liners, pistons, piston rings; .7 wear and lubrication; .8 cylinder covers, exhaust valves, cams and rocker arms; .9 fuel injectors and pumps; .10 starting and reversing arrangements. 3 Engine-room operations—be able to: .1 prepare engine for departure to sea; .2 prepare for arrival at next port; .3 take action in abnormal conditions such as failure in lube oil, fuel and cooling water systems; failure of engine component; scavenge fire; crankcase or air start system explosion. **Fuel oil and lubricants:** 1 Have an understanding and knowledge of: .1 properties of fuel oi: density, viscosity, flash point, etc;		

ENGINEERING KNOWLEDGE (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	.2 methods of storing; .3 tank fittings; .4 wire gauze; .5 danger of oil spilling, leakage and contamination; .6 precautions to be taken during routine pumping operations; .7 precautions when working in oil tanks; .8 purification, clarification, filters. Have an understanding and knowledge of: .1 animal, vegetable, mineral and compound oils; .2 methods of storing; .3 filters and strainers; .4 lubrication fundamentals; .5 boundary and hydrodynamic lubrication; .6 lubricating oil additives; .7 lubricating oil tests; .8 grease. **Steam plant and auxiliary systems:** 1 Understand the construction and operation of: .1 auxiliary boilers, steam-steam generators and exhaust gas economisers; .2 soot blowers and soot collectors; .3 boiler mountings; .4 setting safety valves and water gauges; .5 combustion equipment; .6 boxing up, filling a boiler and raising steam; .7 precautions when opening steam valves; .8 cause and danger of water hammer; .9 correct method of blowing gauge glasses; .10 routine operating observations and log; .11 shutting down a boiler for a short period; .12 shutting down, blowing down and opening up for repairs;		

ENGINEERING KNOWLEDGE (FISHING)

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
	.13 inspection of water and gas sides for defects; .14 action to be taken in abnormal conditions, high or low water level, leaking tubes or shell, soot fires in uptakes, oil leakage and furnace front fire. 2 Understand and be able to describe: .1 a closed feed system, condenser, a hot well and feed pump; .2 producing distilled water, evaporators, corrosion and scale formation; .3 boiler water treatment and routine tests; .4 caustic embrittlement; .5 sources of contamination, precautions and action. **Power transmission systems:** Understand the construction and operation of: 1 a thrust bearing; 2 shaft bearings; 3 stern tube; 4 water and oil lubricated types; 5 stern tube seals; 6 propellers, fixed blade, built up and controllable pitch; 7 steering gear, types of steering gear, pre-sea checks, routine checks and emergency operation of steering gears. **Pumps and pumping systems:** 1 Understand the construction and operation of: .1 reciprocating, single and double acting pumps; .2 gear, screw, vane, lobe pumps; .3 discharge pressure control; .4 centrifugal pumps and air pumps for suction; .5 types of valves and ship-side fittings. 2 Be able to describe by means of sketches:		

ENGINEERING KNOWLEDGE (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	.1 bilge pumping systems, oily water separators; .2 emergency bilge pumping arrangements; .3 precautions against flooding; .4 domestic cold water system; .5 fresh water generators; .6 domestic hot water system. **Refrigeration systems:** 1 Constructional arrangement, details and working of refrigerating machinery and auxiliary machinery on board fishing vessels: compressors, condensers, evaporators, expansion valves, liquid receivers, liquid stop valves, refrigerants, danger of refrigerants, lubricants, oil separators, danger of entering cool spaces, CO_2 gas. 2 Describe refrigeration cycle by means of sketch. **Fire and safety:** 1 Safety measures and precautions: .1 methods of extinguishing, fire detection methods, patrols, alarm circuits, fixed installation systems; .2 dangers of leakage from oil tanks, pipes, gas products and vaporizers, particularly in bilges and other unventilated spaces; .3 precautions against fire or explosions due to oil or gas; .4 flash point; .5 explosive properties of gas or vapour given off by fuel or lubricating oils when mixed with air; .6 action of wire gauze diaphragms and the places in which such devices should be fitted. 2 Operation of fire-fighting equipment: .1 CO_2 gas flooding systems, and fixed fire smothering installations;		

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ENGINEERING KNOWLEDGE (FISHING)			
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
	.2 Fire detection methods, patrols, alarm circuits. **Marine electrical equipment and systems:** 1 Preparing, starting and running of diesel and steam turbines. 2 Sequences of paralleling alternators and generators. 3 Operation of shaft generators. **Ship maintenance & management:** 1 Machinery and hull surveys: .1 reasons for survey, compare statutory and Class surveys, preparing for surveys; .2 inspection techniques: inspection before dismantling, recording relevant facts, usual measurement; .3 condition and performance monitoring: interpreting changes in instrument readings on machines, vibration monitoring techniques. 2 Statutory responsibility of the chief engineer, second engineer and engineer officer: .1 temporary or permanent repairs in the event of breakdown; .2 methods of dealing with wear and tear of machinery and boilers.		

ELECTROTECHNOLOGY (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
MODULE 1			
Understand and apply the principles of electricity			
1 Electron Theory	1.1 Understands and describes the following: atoms, molecules, ions, a compound, an element ionization. 1.2 Describes: .1 current flow in a conductor and circuit; .2 potential difference; .3 conductors and insulators with examples. 1.3 Explains the following electrical terms with relevant symbols: current, volt, direct and alternating current, static electricity, resistance, volt drop.	Examination and assessment of evident obtained from theoretical instruction as associated laboratory or workshop practical training.	Demonstrate a clear theoretical and practical application of electricity.
2 Diagrams and symbols	2.1 Draws simple circuit diagrams using the correct symbols for electrical components. 2.2 Describes parallel and series circuits.		
3 Electrical theory	3.1 Defines the following: Ohm's Law; Kirchoff's Law. 3.2 Describes the uses of the Wheatstone Bridge. 3.3 Calculates the voltage, current or resistance in parallel or series circuits.		
4 Electrical instruments and test applications	4.1 Sketches and describes the units and their application: Voltmeter and an ammeter. 4.2 Describes: .1 the use of shunts and series resistors; .2 the following testing equipment: insulation tester and continuity tester, multi tester.		
5 Work, energy and power	5.1 Explains, with the relevant symbols, the difference between work, energy and power.		

ELECTROTECHNOLOGY (FISHING)

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
	5.2 Calculates the energy and work. 5.3 Applies the equations related to voltage, current, power and work. 5.4 Describes the transfer of heat energy to electrical energy.		
6 Electrical safety	6 Describes electrical shock, safe voltage range and safety precautions.		
7 Conductors	7.1 Describes factors governing conductor resistance. 7.2 Determines resistivity values of conductors. 7.3 Explains and calculates temperature coefficient with respect to resistance of pure metals, carbon, germanium silicon, constantan. 7.4 Compares resistance variation with temperature increase of a conductor or semiconductor. 7.5 Explains the use of thermistors.		
Insulation	8.1 Defines the term insulator and its usage. 8.2 Describes: .1 leakage and factors affecting insulation resistance; .2 the general physical characteristics of insulation materials		
Batteries	9 Describes: .1 the voltaic cell, primary cells and secondary cells; .2 the lead-acid and alkaline battery; .3 the charging process, maintenance and dangers associated with batteries.		
Magnetism and electromagnetism	10.1 Describes natural and artificial magnetics, magnetism, magnetic materials, magnetic field, magnetic flux and magnetic flub density. 10.2 Defines the force on a conductor in a magnetic field. 10.3 Calculates field strength, conductor current and effective		

ELECTROTECHNOLOGY (FISHING)

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	length of conductor.		
11 Electromagnetic induction	11.1 Describes electromagnetic induction and its application. 11.2 Explains: .1 the affect on induced voltage from flux density, number of turns in the coil and conductor/flux cutting rate; .2 flux linkages, Faraday's and Lenz's Laws, static, mutual and self induction, dynamic induction.		
12 Generators and motors	12.1 Knows and uses Fleming's hand Rules. 12.2 Explains, with sketches the functions of : the armature, the commutator, sliprings, brush mechanism, field coils and poles, inter-poles. 12.3 Describes: .1 variation in a simple loop generator; .2 the circuits of Shunt, and applications series and compound AC Motors; .3 the purposes of a DC motor starter; .4 the DC generator circuits for excitation and draws load characteristics; .5 two types of windings for DC generators.		
13 AC alternators and motors	13.1 Describes: .1 AC voltage with respect to root means square, peak values; .2 3 phase generations and the 3 phase star connected alternator; .3 the salient pole generator; .4 excitation, automatic voltage regulation, synchronizing sequence, parallel running, cooling; .5 the emergency power generation system; .6 single and 3 phase induction motor components and basic operation;		

ELECTROTECHNOLOGY (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	.7 the graphs of the relationships: speed and load and current and load; .8 direct-on-line starter, star-delta starter, star connected running and auto-transformer starter; .9 protection and the reasons for it; for fuses, over current relays, over current trip, thermal relay, thermistor, phase open circuit, under voltage trip; .10 the term single phasing; .11 ways of varying speeds; .12 Ward-Leonard drive and variable-frequency motor principles. 13.2 Explains that frequency is proportional to rotation speed.		
14 Alternating current	14.1 Describes AC generation in a simple loop rotating in a magnetic flux and relates the loop position to voltage wave form. 14.2 Explains: .1 the relationship between instantaneous voltage, conductor velocity and the sine of the displayed angle e; .2 root mean square (rms) values. 14.3 Defines frequency and appropriate units and symbols. 14.4 Describes: .1 a 3 phase supply circuit; .2 phase difference between voltage and current.		
15 Transformers	15 Describes: .1 the construction principles and operation of transformers; .2 the transformer connections; Star-Star, Delta-Delta, Star-Delta or Delta-Star; .3 transformer checks and maintenance requirements		
16 Distribution	16.1 Describes:		

ELECTROTECHNOLOGY (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
17 Protection	.1 the purpose of switches, circuit breakers and fuses; .2 the sources of emergency electrical power supply and systems supplied; .3 insulated systems and earthed-neutral systems. 16.2 Explains: .1 an open circuit, earth and short circuit; .2 how earth faults occur and are detected. 17.1 Describes: .1 protection and the reasons for its installation; .2 3 types of overcurrent protection relay. 17.2 Explains: .1 the high rupturing-capacity fuses; .2 preferential tripping, undervoltage and reverse power protection; .3 the dangers for replacing a blown fuse, entering spaces near busbars and opening switchboard cubicles; .4 switchboard instruments transformers and any potential dangers.		
18 Cables	18 Describes: .1 materials and the reasons for the following in cables: conductors, insulation and sheathing; .2 resistance and why terminals are to be secured and locked.		
9 Maintenance	19 Describes: .1 system isolation, carbon brush replacement and insulation resistance; .2 circuit breaker maintenance noting handling, tripping and interlocks.		

APPLIED MARINE SCIENCE (FISHING)

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE, UNDERSTANDING & PROFICIENCY	COLUMN 3 METHODS FOR DEMONSTRATING COMPETENCE	COLUMN 4 CRITERIA FOR EVALUATING COMPETENCE
MODULE 1			
Obtain the mathematical skills required for an understanding of the theoretical knowledge in the certificate courses			
1 Algebra	1.1 Knows: .1 the standard algebraic manipulations leading to the transportation of equations and their solution. .2 how to produce a graph of given or observed data and extract information from the graph. .3 how to convert between polar and rectangular co-ordinates. .4 how to interpolate quickly and accurately. .5 the properties of the ellipse. 1.2 Defines: "error" as the observed or calculated value minus the true value. 1.3 Explains the meaning of "absolute error" and "relative error"	Written examination and assessment of evidence obtained from theoretical instruction.	1.1 Transposes equations to isolate a given variable. 1.2 Solves: .1 equations, giving answers rounded to a specified number of decimal places or significant figures. .2 problems leading to linear equations. .3 problems leading to simulations linear equations in two unknowns. 1.3 Plot points, given their Cartesian co-ordinates. 1.4 Draws: .1 a smooth graph through plotted points. .2 a graph of given functions. 1.5 Given the abscissa, reads the value of the ordinate and vice versa. 1.6 Extracts values from graphs on ship's data 1.7 Uses: .1 linear interpolation to find intermediate values in table such as ullage tables, deadweight scales, deviation table. .2 a calculator to convert between polar and rectangular co-ordinates. 1.8 Interpolates in tables with two arguments. 1.9 Performs linear extrapolation. 1.10 Constructs by plotting an ellipse.
2 Trigonometry	2.1 Proficient in the use of trigonometrical function of angles. 2.2 Knows:		2.1 Solves: .1 problems reducible to right-angle triangles of trigonometrical functions.

APPLIED MARINE SCIENCE (FISHING)

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE, UNDERSTANDING & PROFICIENCY	COLUMN 3 METHODS FOR DEMONSTRATING COMPETENCE	COLUMN 4 CRITERIA FOR EVALUATING COMPETENCE
	.1 the range of values of trigonometrical functions. .2 the range of values of the inverse functions. .3 the value of radian.		.2 problems on oblique plane triangles using the cosine and sine formulae. 2.2 Converts: .1 polar co-ordinates to Cartesian and vice versa. .2 angles into radians and vice versa.
3 Mensuration and geometry	3 Knows: .1 perimeters and areas. .2 the areas of sectors and segments of a circle. .3 surface areas and volumes. .4 Simpson's 1st, 2nd and 3rd Rule. .5 the construction of a circle through two known points when angle between two points is known (Snellius Problem). .6 the properties of figures, parallel lines and constructions.		3.1 Calculates: .1 the perimeters and areas of: .1.1 a square .1.2 a rectangle .1.3 a parallelogram .1.4 a trapezium .1.5 a triangle .1.6 a circle .2 the areas of sectors and segment of a circle. .3 the surface areas and volume of: .3.1 a cube .3.2 a rectangular and .3.3 a triangle prism .3.4 a cylinder .3.5 a sphere .4 areas and centroids of irregular figures. .5 volumes and centre of gravity of volumes of irregular figures. .6 the distance from an object when the height and subtended vertical angle is known. 3.2 Constructs: .1 a circle through two known points when angle subtended between the two points is known. .2 a triangle from given data.

APPLIED MARINE SCIENCE (FISHING)

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE, UNDERSTANDING & PROFICIENCY	COLUMN 3 METHODS FOR DEMONSTRATING COMPETENCE	COLUMN 4 CRITERIA FOR EVALUATING COMPETENCE
4 Vectors	4 Knows: .1 that vector quantities have direction as well as magnitude. .2 the graphical solution of sums and differences of vector quantities		3.3 Determines .1 by plotting three given points and the angles subtended by pairs of those points at a position. .2 are length given radius and angle of sector. 3.4 Users Phythagoras' theorem to calculate one side of a right-angled triangle, given the other two. 4.1 Calculates: .1 the vector sum of two or more vectors by graphical methods. .2 the difference between two vectors by graphical methods. .3 sums an difference of vectors by resolution into perpendicular directions. 4.2 Resolves: .1 a given vector into components in two specific directions by drawing. .2 a given vector into components in two specific perpendicular directions by calculation.
5 Statistics	5 Knows: .1 graphical representation of data. .2 measures of central tendency. .3 standard deviation.		5.1 Draws bar and pie charts, histograms and frequency polygons from given data. 5.2 Calculates: .1 mode, meridian and mean. .2 standard deviation.
6 Ellipse and hyperbola	6 Knows the properties of the ellipse and hyperbola.		6 Constructs: .1 an ellipse by plotting. .2 a family of hyperbola.

DRAWINGS (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
MODULE 1			
Understand and apply the principles of mechanical drawing			
1 Types of drawings	1.1 Explains the following: general arrangement assemble, component, pictorial drawings. 1.2 Storage of drawings: cabinet, computer and microfilm.	Examination and assessment of evident obtained from completing mechanical drawings.	Demonstrate by completing and extracting information from mechanical drawings.
2 Linework	2.1 Draws examples of lines, tangents. 2.2 Demonstrates first angle and third angle projections including hidden detail. 2.3 Completes orthographic projections with sectional views.		
3 Pictorial projections	3 Draws isometric and oblique projections.		
4 Development	4 Draws developments of circular tranking intersections, cone, square pyramid, square-to-round transition pad.		
5 Screw threads and fasteners	5.1 Identifies and describes left- and right-hand threads, thread terminology, thread types, multiple threads, hexagonal nut. 5.2 Draws threads, nut, studs, bolt, washer assemblies. 5.3 Identifies and describes the socket-head screw and machine screw ranges		
6 Locking and retaining devices	6 Describes: .1 locking plate; Simmonds lock-nut; lock, spring and tab washer and peering and wire locking; .2 taper pins; bifurcated taper pins; parallel and split pins; wire rings and air clips.		

Part 2AA: Draft Amendments to Code for South African Maritime Qualifications

DRAWINGS (FISHING)

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
7 *Rivetted-type fastenings*	7 Describes: .1 the different rivet heads; blind rivet nuts and blind screw anchors; .2 the 4 rivetted types of joints; .3 the "huckbolt" fastener.		
8 *Welded connections*	8 Describes various welded connections and the symbols.		
9 *Dimensioning*	9 Describes datum dimensioning and dimensions a simple component with the correct standards.		
10 Limits and fits	10 Describes limit and fit; tolerance, basic, actual nominal size; fits and selective assembly.		
11 Geometrical tolerancing	11 Describes geometrical tolerancing giving the symbols.		
12 Cams	12 Constructs cam profiles to give uniform velocities and dwell period to the follower		
13 *Bearings, seals and lubrication*	13 Describes: .1 direct lined bearings; solid or lined inserts and the lubrication properties and the different types of bearing metals; .2 Ball and roller bearings, the radial and axial load carrying capabilities; the tapered-bore bearing and location; .3 the following seals: felt seal, rubbing seal, non-rubbing seal, lip seals and V-rig seals; .4 the lubrication of bearings, bushes, ball and roller bearings, the properties of the different lubricants.		
Engineering drawing practice	14.1 Makes an engineering drawing employing: sections in 2		

DRAWINGS (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	parallel planes; revolved, thin, part, half sections; hidden detail; symbols; surface finish; angular and auxiliary dimensions; arrowheads; centre & leader lines; pitch-circle diameters; threads, hatching; enlarged views. 14.2 Uses applications as appropriate for units 1 to 13.		

GENERAL ENGINEERING SCIENCE/APPLIED MECHANICS (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE.**
MODULE 1			
Understands the principles of mechanics with respect to statics, dynamics, kinematics and hydrostatics.			
1 Statics	1.1 Defines the following terms with the relevant formulated symbols: .1 area, volume of figures and shapes; .2 mass, weight; .3 density, relative density and centre of gravity. 1.2 Defines: .1 a moment, couple and equilibrium; .2 vectors and vector diagrams applicable to the triangle and polygon of forces. 1.3 Understands the action of concentrated loads on beams and cantilevers. 1.4 Describes and defines, with the relevant symbols: .1 Stress—tensile, compressive, sheer; .2 Strain—Hooke's Law, elasticity, factor of safety, elastic limits, yield point, ultimate and breaking strength.	Examination and assessment of evidence obtained from theoretical instruction and associated laboratory equipment training.	Demonstrates a clear theoretical basis of mechanics.
2 Kinematics	2.1 Defines with the relevant symbols: distance, speed, acceleration, velocity, average velocity and relative velocity. 2.2 Applies the formulae: $V = u \pm at$ $V^2 \pm as$ $S = ut + at^2/2$		
3 Dynamics	3.1 Defines: .1 with the relevant symbols: work, power, energy,		

GENERAL ENGINEERING SCIENCE/APPLIED MECHANICS (FISHING)			
COLUMN 1 **COMPETENCE**	**COLUMN 2** **KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**COLUMN 3** **METHODS FOR DEMONSTRATING COMPETENCE**	**COLUMN 4** **CRITERIA FOR EVALUATING COMPETENCE.**
	force, force of gravity, inertia friction and coefficient of friction; .2 kinetic and potential energy; .3 Newton's 3 laws of motion. 3.2 Applies the formula: force = mass x acceleration.		
4 Hydrostatics	4.1 Defines: .1 a fluid; .2 with the relevant symbols, pressure; atmospheric pressure; absolute pressure gauge pressure; liquid lead and vacuum; .3 the principles of flotation. 4.2 Describes: .1 the operation and use of the following instruments: piezometer, manometer, barometer, Bourdon pressure gauge .2 the principles of hydraulic lifting machines; .3 the energies stored in liquids in motion pressure, kinetic and potential. a States: .1 the volumetric flow is velocity x cross-sectional area; .2 the mass of flow is velocity x cross-sectional area x density.		
5 Simple machines	S Describes: .1 the operations of simple lifting machines, screw jack, hydraulic jack, rope pulley blocks, work drivers and chain blocks; .2 the terms velocity ratio, mechanical advantage, efficiency.		

HEAT ENGINES/THERMODYNAMICS (FISHING)

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
	MODULE 1		
Understand the theoretical principles of Thermodynamics and Heat Engines in respect of the following principles			
1 Thermodynamic properties	1.1 Defines the terms and relevant symbols: Heat, temperature and scales, calorific value, specific heat, pressure, volume, engineery, absolute quantities, solids, liquids and gases, vapours expansion. 1.2 Describes: .1 linear and volumetric expansion; .2 enthalpy of fusion and enthalpy of evaporation. 1.3 Determines the amount of expansion due to heat action.	Examination and assessment of evidence from theoretical instruction and associated laboratory equipment training.	Demonstrate a clear theoretical basis of Thermodynamics and Heat Engines.
2 Thermodynamic energy	2.1 Describes "internal" or "intrinsic" energy. 2.2 Defines: .1 kinetic and potential energy as molecular energy; .2 heat flow and work; .3 the first law of thermodynamics.		
3 Heat transfer	3.1 Defines heat transfer by conduction, convection and radiation. 3.2 Describes laboratory equipment to determine specific heat capacity and final temperature. 3.3 States Fourier's Law for conduction. 3.4 Explains coefficient of thermal conductivity.		
4 Vapour	4.1 Defines saturated, dry, wet, superheated vapours and dryness fraction. 4.2 Describes the relationship between pressure and temperature for saturated liquids or vapours. 4.3 Uses tables of thermodynamic properties (Steam tables) to determine values of enthalpy, internal energy, volume at		

HEAT ENGINES/THERMODYNAMICS (FISHING)

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
	given pressures and/or temperatures.		
5 Ideal gases and gas cycles	5.1 Defines critical temperature, ideal gas and perfect gas, ideal-gas cycle. 5.2 States Boyle's and Charles's Law. 5.3 Sketches P-V and V-T curves or graphs. 5.4 Explains the following cycles with pressure-vol sketches: Otto, diesel, dual and Joule Cycles. 5.5 Describes: .1 the practical engines modelled on the cycles of 4 above; .2 single- and double-acting reciprocating engine applications; .3 the Rankie Cycle and state the effic ratio; .4 sketches the components of a steam plant: boiler, steam turbine, condenser and feed pump.		
6 Thermodynamic process	6.1 Defines a thermodynamic process in the forms of heat transfer and/or work transfer. 6.2 Explains .1 the Second Law of Thermodynamics; .2 P-V diagrams of the following standard processes: pressure remains constant, volume remains constant, temperature remains constant, zero heat transfer and polytropic expansion and compression. 6.3 Describes the following processes: isothermal as constant temperature adiabatic as a no heat transfer.		
7 Work transfer	7.1 Defines work with relevant symbols. 7.2 Describes P-V diagrams relating to work done and work transfer for a vapour in terms of pressure and volume.		
8 Heat engine cycles and internal combustion engines	8.1 Describes: .1 the 2 and 4 stroke internal combustion engines		

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HEAT ENGINES/THERMODYNAMICS (FISHING)			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING & PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	operation cycle with crank angles, port timing or valve timing; .2 heat balance 8.2 Determines: .1 the engine efficiency from energy input and energy output and energy losses and mechanical efficiency from brake and indicated power; .2 indicated power. 8.3 Defines stroke, swept volume, compression ratio, mean effective pressure, indicated power, friction power, brake power. 8.4 Sketches and describes indicator diagrams and the purpose of taking these diagrams.		
9 Air compressors	9.1 Describes the operation of an air compressor. 9.2 States that $Pn(n) = \text{constant}$ and $\frac{PV}{T} = \text{constant}$ apply.		
10 Combustion of fuels	10.1 Describes the following terms : combustion, calorific value, flash point. 10.2 Determines the minimum air required for complete combustion.		

WORKSHOP TRAINING

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	COLUMN 3 METHODS FOR DEMONSTRATING COMPETENCE	COLUMN 4 CRITERIA FOR EVALUATING COMPETENCE
1 **Diesel Module 1** .1 Safety in the workshop .2 Correct use of tools and equipment .3 Vernier and micrometer .4 Bolts and nuts .5 Fire triangle inside the engine .6 Diesel engine parts .7 Operation of the 4-stroke and 2 stroke cycle diesel engine .8 Stripping and assembling of C I engines .9 Valve timing diagrams .10 Spill timing of compression ignition engines without timing marks .11 Fuel systems .12 Lift pumps .13 Injectors .14 Lubricating systems .15 Tune-ups .16 Cylinder head.	Identify measuring, checking, forming, cutting marking and fastening tools and tooling aids. Use a micrometer and vernier- outside, depth, inside. Use a tape measure and steel rule. Use a calliper - inside and outside. Use the following gauges: thread, feeler, dial, belt tensioner. Install lock-nuts, dowels, lock-plates, split pins, taper pins. Identify nuts and bolts. Tighten; torque and torque turn bolts and nuts. Use hydraulic press, maintain and operate hydraulic and mechanical jack. Identify types of filter elements: fuel filter, oil filter/by pass, high pressure oil filter / full flow. Low pressure oil filter. Trace and repair faults on worn and faulty components. Recall the operation of a four (4) and two (2) stroke cycle engine. Adjust engine tappets. Identify and recall the functions of the major components: cylinder head and rocker shaft assembly, cylinder block, camshaft and followers, crankshaft and bearings, connecting rod and bearing, timing gear train, oil pump assembly, flywheel and dampers. Recondition cylinder head assemblies, measure crankshaft journals for taper and ovality, measure cylinder liners for taper and ovality. Dismantle, recondition and refit oil pumps Set valve and fuel injection timing.	Practical demonstration, written and/or oral questionnaire. Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g. simulation) using approved equipment.	Correctly identify all the tools and state all their physical characteristics. Standard holding technique to be maintained. Correct zeroing method applied. All measurements to be 100% correct. All burs and rough edges, ground smooth. 100 % correct according to manufacturer's procedures and specifications. All safety aspects adhered to. No tools or equipment damaged, all tools and equipment are clean. Correct according to manufacturer's lubrication and maintenance manual. Individual faults correctly traced and repaired. Correct procedures and tools used. Correctly identify all functions of major engine components. All measurements, clearances & torque valves & valve timing according to manufacturer's specifications and procedures. All measurements and clearances according to manufacturer's specifications and pump must run freely. All measurements, clearances, torque values and valve timing according to manufacturer's specifications.

WORKSHOP TRAINING			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	Recall types of bearing failures and their causes.		
Diesel Module 2 .1 Safety .2 Cooling systems .3 Diesel engine lube oil system .4 Fuel systems .5 Turbocharger and blowers. .6 Engine sub-assembly reconditioning .7 Fault finding .8 Pre-start checks	Cooling systems: Understand the functions of the water pump, thermostat, radiator, relief calve, fan and engine oil cooler. Remove, recondition and install water pumps. Remove and install an oil cooler and a thermostat. Fill cooling systems. Carry out pressure test on static cooling systems. Tests thermostat opening temperatures (outside machine). Add additives to a given cooling system.. Fuel systems: know the functions of the following components: Primary filter, lift pump, injector. Explain the operation of a plunger and barrel in an inline injector pump. Know and understand the function and operation of a mechanical governor. Know how to bleed the fuel system, remove and test the injectors, time the fuel pump to engine, fit fuel filters. Dismantle, replace, adjust and calibrate components in various types of fuel systems. Trace faults and repair fuel systems and governors. Identify the main parts of a turbo charger: Turbine wheel, shaft compressor wheel, turbine centre and compressor housing. Understand the operation of a turbocharger. Remove and install turbo charger.	Practical demonstration, written and/or oral questionnaire. Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g. simulation) using approved equipment.	All safety precautions recalled. Boiling point increases or decreases. Correct according to workshop manual procedures and specifications. All safety aspects adhered to. No fluid leaks. Correct level and all air expelled. Operation to include all four stages. All adjustments and calibrations according to manufacturer's specifications and procedures. Correct tools used and correct sequences adhered to. Indicate drive and driven side. Correct according to manufacturers' specifications.
2 **Electrical Module 1**	Use machines safely. Comply with safe practices. Use safety equipment.	Practical demonstration, written and/or oral questionnaire.	Specified start up and shut down procedures are correctly applied. Emergency procedures are

WORKSHOP TRAINING			
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
.1 Safety .2 Electrical laws .3 Electrical components .4 Measuring instruments	Explain the basic concept of electricity. Explain magnetic theory. Explain the basic fundamentals of power generation and distribution. Apply and explain e electrical units and symbols. Identify and read fixed electrical measuring instruments. Identify and select portable electrical measuring instruments. Use and interpret electrical measuring instruments. Care for electrical measuring instruments.	Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g. simulation) using approved equipment.	carried out in accordance with company and legislative procedures and requirements. A safe and unsafe machine is recognised according to company safety standards. Machine safety devices are operational as laid down in company and legislative standards. All safety signs, codes and markings are identified against legislative and company standards. Specified uses of equipment are correctly described. Maintenance requirements are identified, regularly inspected and documented. Atomic structures are explained in terms of electrical materials. Electron flow in a conductor is explained with reference to electronic theory. The effect of an external power source on the electrons in a conductor is explained with reference to electronic theory. The principles of basic electrical circuits, voltage and current in an electrical circuit are explained in terms of a power course, a load and electron theory. Permanent magnet concept is explained in terms of molecular structure of materials. All five characteristics of magnetic lines of flux are explained in terms of magnetic theory. The relationship between magnetic field and current flow is explained in terms of movement, field strength and conductor length within the magnetic field. The electromagnetic concept is explained in terms of magnetic lines of flux

COLUMN 1	WORKSHOP TRAINING		
COMPETENCE	COLUMN 2	COLUMN 3	COLUMN 4
	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
			around a current carrying conductor and cores. The production of electricity is explained with reference to pressure, heat, light, friction, magnetism chemical. Generation of DC is explained in terms of single loop in a magnetic field. Generation of single phase AC is explained in terms of single loop in a magnetic field. The relationship between voltage, current and resistance is explained in terms of Ohm's law. Factors influencing resistance is explained in terms of material type, length, diameter and temperature. Draw and interpret series, parallel and series-parallel DC resistive circuits & calculate variables. Series, parallel and series-parallel circuits are drawn and interpreted according to instructions. Resistance, voltage, current and power variances are interpreted and calculated in series circuits. Resistance, voltage, current and power variances are interpreted and calculated in parallel circuits. Resistance, voltage, current and power variances are interpreted and calculated in series-parallel circuits. Fixed electrical circuits. identified according to [illegible] measuring instruments [illegible] Unsafe and [illegible]

WORKSHOP TRAINING			
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
			marked for repair or replacement. Fixed measuring instruments are read correctly and readings recorded as per work site procedures Portable measuring instruments are selected to meet safety and job requirements. Measuring instruments are correctly set up for application. Electrical measuring instruments are handled in accordance with their specifications. Electrical measuring instruments are correctly applied to circuits and equipment when testing. Multimeters are set up for correct function and scale of measurement in accordance with manufacturers specifications.
Electrical Module 2 .1 Soldering techniques and practice .2 Joints and splices: techniques and practice .3 Circuit wiring and colour codes .4 Circuit diagram interpretation .5 Electrical and electronic components .6 Constructions of basic control, power and electronic circuits. 7 Basic testing of circuit performance	Select equipment and materials for soldering/de-soldering. Apply soldering/de-soldering techniques. Inspect solder joint. Prepare for soldering. Perform soldering. Plan to conduct the jointing task. Prepare the work area. Joint low voltage cables. Test low voltage cables. Identify all types of contacts on the diagrams. Identify all the components on the diagrams. Locate contacts of specific relays throughout the drawing. Distinguish power circuits from control diagrams. Describe the sequence of operation of relays/ contactors and all components. Diagnose electrical faults. Identify electrical power- cables. Give examples of where power-cables are applied. Identify electrical	Practical demonstration, written and/or oral questionnaire. Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g. simulation) using approved equipment.	The correct soldering equipment is selected according to the job requirements. Hazards associated with the use of soldering equipment are recognized and necessary precautions taken according to work site procedures. Connections are carefully and correctly cleaned from dirt or oxidation using the appropriate cleaning materials. The correct soldering/de-soldering techniques for the job are used. Ensure that the soldered joints are not dull in colour and does not have excessive resin. Ensure that the soldered joints do not contain solder globules or insufficient solder that will cause a poor electrical or mechanical connection. Applicable soldering equipment selected as

WORKSHOP TRAINING			
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
.8 Drawings and diagrams .9 Principles of operation and use of electrical switchgear .10 Cables .11 Electrical testing instruments .12 Wiring of motor starters .13 Installation .14 Rotating electrical machines .15 Maintenance of equipment .16 Fault finding	control-cables. Give examples of where control-cables are applied. Identify electrical power contactors and electrical control relays. Explain terminology used in conjunction with electrical and electronic components. Demonstrate knowledge of linear resistance and resistors. Demonstrate knowledge of non-linear resistors. Demonstrate knowledge of capacitance and capacitors. Plan to install electrical cables and conductors. Install electrical cables and conductors. Terminate electrical cable/ conductors. Complete work task. Explain the requirements pertaining to the installation of a distribution board. Prepare and install distribution board. Prepare and test the distribution board for operation. Plan and prepare to maintain electrical motors, circuitry and controls. Maintain AC motors, circuitry and controls. Identify and repair faults on AC motors circuitry and controls. Replace any faulty components		required by task. Correct cable is identified and selected according to test, drawing and reticulation diagrams. Isolation of circuit is confirmed and tested as per safety standards. Cable ends are prepared for jointing according to manufacturer specifications. Cable cores are jointed according to manufacturer specifications and statutory requirements. Insulation test are carried out on completed joint. Components are all identified correctly first time. Contacts are all located correctly first time. Circuit diagrams are correctly identified as power circuit or control circuit in accordance with IEC standard. Sequence of operation is correctly explained in accordance with: The grid system, the component identification codes and the contact identification codes. A systematic, structured process of elimination is used to locate faults. No good components are discarded or damaged in the process. Cables and contactors are identified for size, type and colour according to their manufacturer's designation. Consequences of over or undersized cables and contactors are explained. Relays are identified correctly for size and type. Consequences of over or undersizing of relays is explained. The unit of resistance and its multiples are

WORKSHOP TRAINING			
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
			defined, and symbols and terms are stated in line with accepted definitions and practice. Factors affecting resistance are explained. Factors must include: length, cross-sectional area, resistivity of material, temperature. Application of resistor is described in terms of control of voltage and current in electrical and electronic circuits. Demonstrate the knowledge of capacitance and capacitors. Electrical cables/conductors are installed, positioned and secured according to statutory requirements and worksite procedures. Tools and equipment are used safely to meet the requirements of the job. Cable gland is positioned; secured and assembled according to manufacture's specifications (Armouring glanding, shroud, gland plate, compression gland. Ensure that all termination connections are secure and tight according to manufacturer's specifications and work site standards. The purpose of the equipment, signs and labels on the distribution board is explained with reference to safety. Hazards and risk directly related to the installation of a distribution board are identified and addressed in accordance with specified requirements. The distribution board is mounted in accordance with specified requirements. The integrity of the installation is tested in accordance with specified

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WORKSHOP TRAINING			
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
3 Fitting Module 1 .1 Electric drill press and drills .2 Files .3 Grinders .4 Hacksaw .5 Measuring equipment .6 Micrometers .7 Punches (heat treatment and sharpening) .8 Scriber .9 Square .10 Taps .11 Vernier callipers .12 Vernier height gauge	Select and use engineering measuring equipment: tapes, rules, combination set, spirit level, micrometers, dial gauges, feeler gauges, thermometers, scales, thread gauges, pressure gauges. Select appropriate power tool attachments for required application. Engineering power tools include drills (including pedestal drilling machines), grinders, sanders, brushes, buffs, wrenches, jacks, power and band saws. Discuss and explain basic engineering drawing concepts and material list. Select and use engineering hand tools: cutting and shaping hand tools include hacksaws, chisels, files, scrapers, hole punches, tin snips. Assembly hand tools include hammers, punches, clamps, vices, spanners, wrenches, pliers, screwdrivers. Identify and report unsafe or faulty tools; hand tool maintenance includes sharpening, resetting, de-rusting,	Practical demonstration, written and/or oral questionnaire. Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g. simulation) using approved equipment.	requirements. Electric motors, circuitry and controls to be maintained are identified as per work site instructions. Safety and security lock-out system is applied. Plant is isolated electrically in accordance with work site procedures. Safe isolation of all circuits is verified and reasons for explained. Faultfinding is done by making use of logical method according to faultfinding techniques. Basic units of measure, symbols and derived units of measure are explained: Measurements taken are appropriate to scale of measuring device. Symbols used are relevant to measurement. Appropriate measuring equipment selected for job. A clean and tidy work environment is maintained. Measuring equipment used as recommended by the manufacturer to meet job/task requirement. Measurements are taken and recorded. Correct safety precautions taken while using power tools. Appropriate power tools selected for job. Appropriate attachments selected for particular application. A clean and tidy work environment is maintained. Engineering drawings are correctly interpreted, taking into account line structures, dimensions and projections. Interpretation done in a methodical manner. Correct safety precautions

WORKSHOP TRAINING			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
	oiling.		taken while using hand tools. Appropriate hand tools selected for job A clean and tidy work environment is maintained.
Fitting Module 2 .1 Bearings .2 Dial test indicator .3 Motor and shaft .4 Pump and motor .5 V-Belt .6 Chain drives .7 Pumps and valves: stripping and assembling .8 Identification, inspection, gland packing cutting and fitting of gaskets	Plan and prepare for bearing replacement. Bearings include anti-friction bearings and plain types. Anti-friction bearings include (single and double thrust) and roller (needle, spherical, taper) types. Plain bearings include plain, wrapped, flanged, split and thrust types in brass, bronze, white metal, phosphor bronze, aluminium and synthetics. Prepare site and equipment for bearing replacement: site and equipment perpetration includes isolating equipment electrically, mechanically and from other energy sources. Check bearing in situ: bearing loading includes axial, radial and combination of these. Inspect bearing while machine is in operation and static. Inspect and assess pump condition. Identify problems and take corrective action. Problems include low pressure, excessive heat, and vibration.		Site and equipment are prepared for bearing replacement. Bearing serviceability is determined in situ. Bearings are removed and inspected Bearings are installed. Site and equipment are prepared for pump maintenance. Pump is maintained to specifications. Pump is checked for compliance with operational requirements. Pump condition is recorded and reported. Work is carried out in a safe manner in accordance with schedules and manufacturer specifications. A clean and tidy work environment is maintained.
4 **Machining Module 1** .1 Boring .2 Drilling include centre drilling, counter bore, counter sinking, tapping and reaming. .3 Three jaw chuck work .4 Grinding and wheel dressing	Prepare for work activity: Interpret drawings and job instructions and determine sequence of operations. Prepare machine for operation including lubrication, routine maintenance and pre- operational checks. Check materials and tools required are at workstation. Set drilling, milling machine and lathe: Select and install required accessories and work holding fixtures. Select, prepare and install required tools. Select and set	Practical demonstration, written and/or oral questionnaire. Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g. simulation) using approved equipment.	Machine is set up to accept work safely and without damage to work piece or machine. Accessories and work holding fixtures are appropriate to task. Tools selected are appropriate to material type and safety requirements. Cutting speed and feeds selected are appropriate to machine, material and tooling. Materials are prepared and correctly

WORKSHOP TRAINING			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
.5 Measuring equipment .6 Parallel turning .7 Taper turning .8 Tool sharpening and grinding .9 Milling: flat machining, square machining, blocking, step cutting and slot cutting, keyway cutting	cutting speeds and feeds. Perform drilling, milling, grinding and turning operations: Start and shut down drilling, milling, grinding machine and lathe. Monitor drilling, milling, grinding machine and lathe while in operation, making adjustments to speeds and feed where required. Remove machined component on completion of drilling, milling, grinding and turning process. Set grinding machine: select and install required accessories and work holding fixtures. Select and mount grinding wheels. Dress and balance grinding wheels.		marked out if required. Machine operating instructions and worksite procedures are adhered to. Adjustments during drilling, milling, grinding and turning process are made quickly and appropriately. Safe working practices are adhered to. Components are measured and conformance to specification documented. A clean and tidy work environment is maintained. Grinding wheels selected and mounted are appropriate to material type and safety requirements. Table speeds and feeds selected are appropriate to machine, material and tooling.
Machining Module 2 .1 Boring parallel internal .2 Four jaw chuck work .3 Screw cutting: V- threads (male and female) and square threads (male and female) .4 Taper turning external and internal, mandrel work.	Set lathe: Select and install required accessories and work holding fixtures. Select, prepare and install required tools. Select and set cutting speeds and feeds. Perform turning operations: Start and shut down lathe. Monitor lathe while in operation, making adjustments to speeds and feed where required. Remove machined component on completion of turning process. Select and prepare appropriate measuring equipment. Measure component. Recognise changes and/or malfunctions while operating.		
5 **Welding Module 1** .1 SAFETY Workshop	Discuss and explain procedures for dealing with safety, health and environmental emergencies or incidents in the workplace and minimise damage or injury. Identify the nature of an incident and the relevant	Practical demonstration, written and/or oral questionnaire. Practical exercises and instruction conducted	Nature of incident and appropriate emergency procedure identified. Relevant emergency service is notified. Emergency procedures are carried out. Emergency work is carried out in

WORKSHOP TRAINING			
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
Gas cylinders Machines Welding .2 PERSONAL Clothing Lighting up Closing down Rings and watches Ventilation .3 PRACTICAL Arc welding Gas welding Brazing Oxy-acetylene soldering .4 THEORY Apparatus knowledge Design factors Gas cylinders Strength and weakness Technique	emergency procedure. Describe the preparation and assembling of welding/cutting equipment. Identify, select, and prepare, welding/cutting equipment. Assemble welding/cutting equipment. Plan the preparation process for the job. Identify and select tools and equipment. Prepare work pieces for welding. Describe and explain the oxyacetylene gas welding process. Prepare Oxy-fuel brazing equipment. Prepare work pieces prior to brazing. Braze work piece. Select, assemble and conduct pre operational checks of oxyacetylene gas welding equipment. Prepare work pieces prior to welding. Weld metals with oxyacetylene gas welding process. Describe the shielded metal arc welding process. Prepare work pieces prior to welding. Weld work piece.	under approved and truly realistic training conditions (e.g. simulation) using approved equipment. Practical demonstration, written and/or oral questionnaire. Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g. simulation) using approved equipment.	a calm and timely manner. Communication with relevant emergency personnel and personnel is clear and to the point. Basic and major components of the welding/cutting equipment are identified and the explanation of function and purpose is correct in terms of manufacturer's specifications and requirements. Welding machines and equipment are correctly identified in relation to welding processes. Work pieces prepared in accordance with work instruction sheet and drawing. Pre-operational checks on tools and equipment are carried out in accordance with operations manuals and manufacture's specifications. The importance of correct assembly of oxy-fuel gas brazing equipment is explained with reference to the manufacturer requirements. Components of the oxyacetylene gas brazing equipment are identified and the explanation of function and purpose is correct in terms of manufacturer's requirements and standards. Terms and definitions used are consistent with generally accepted brazing terminology. Work pieces are identified and prepared prior to brazing as specified on drawing. Work piece tack welding in position as per drawing specifications. Inspect work piece prior to complete brazing in accordance with drawing and work instructions.

WORKSHOP TRAINING			
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
			Brazing filler material selected as specified on brazing procedure specification. Work-piece brazed in position. Flame used is compatible to type of material to be brazed. The importance of correct assembly of the oxyacetylene gas welding equipment, and the consequences of incorrect assembly is explained. Components of the oxyacetylene gas welding equipment are identified and the explanation of function and purpose is correct in terms of manufacturer's requirements and standards. Parts and components correctly identified and the implications for not testing for leaks are explained. Terms and definitions used are consistent with generally accepted welding terminology. Pre operational checks are carried out in accordance with vendor specifications and to be leak free. Weld metals with oxyacetylene gas welding process. Workpiece welded in position. Safety precaution adhered to during welding process The importance of correct assembly of the shielded metal arc welding equipment, and the consequences of incorrect assembly is explained. Components of the shielded metal arc welding equipment are identified and the explanation of function and purpose is correct in terms of manufacturer's requirements and standards.

WORKSHOP TRAINING			
COLUMN 1	**COLUMN 2**	**COLUMN 3**	**COLUMN 4**
COMPETENCE	**KNOWLEDGE, UNDERSTANDING AND PROFICIENCY**	**METHODS FOR DEMONSTRATING COMPETENCE**	**CRITERIA FOR EVALUATING COMPETENCE**
			Parts and components correctly identified and the implications for incorrect identification explained. Work pieces prepared prior to welding as specified on drawing. Welding electrodes selected as specified on welding procedure specification. Workpiece welded in position. Safety precaution adhered to during welding process.
6 **Sheet metal and pipe Module 1** .1 SAFETY Workshop Hand tools Machines .2 PERSONAL Clothing Correct gear Lighting up Closing down .3 DRAWINGS Marking off Reading of technical drawings Setting out Wastage	Discuss and explain procedures for dealing with safety, health and environmental emergencies or incidents in the workplace and minimise damage or injury. Identify the nature of an incident and the relevant emergency procedure. Prepare for work activity: Mark off workpiece according to the job requirements. Identify potential hazards and take preventive action. Equipment includes bending rolls and bending presses. Material types include low carbon and alloy steels, stainless steels, aluminium alloys and copper alloys. Material thickness ranges from 0.4 to 6 mm. Form and shape material: Adjust machine settings; carry out forming and shaping operations. Apply safe working practices and discuss issues related to safety of self, fellow workers, machines. Describe and explain the oxy-fuel pipe cutting process of low carbon steel pipes.	Practical demonstration, written and/or oral questionnaire. Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g. simulation) using approved equipment.	Nature of incident and appropriate emergency procedure identified. Relevant emergency service is notified. Emergency procedures are carried out. Emergency work is carried out in a calm and timely manner. Communication with relevant emergency personnel and personnel is clear and to the point. Job instructions are correctly interpreted and complied with. Operations are correctly sequenced. Correct equipment and tools are selected. Equipment is set up to work safely and without damage to workpiece or equipment. Material limitations are evaluated correctly. Workpiece is correctly marked off. Machines are correctly adjusted. A clean and tidy work environment is maintained.

COLUMN 1	WORKSHOP TRAINING		
	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
.4 CONSTRUCTION Bending up Edging Rolling .5 PRACTICAL Gas equipment Flame setting Technique Plate and pipe cutting Plate handling	Prepare for the oxy-fuel cutting operation. Cut plate and pipe to job requirement.		The importance of correct setting of cutting pressure, and the consequences of incorrect settings, is explained with reference to the pipe and plate thickness, size of cutting nozzles and the effect of travelling speed during the cutting process. Basic and major components of the oxy-fuel cutting device and equipment are identified. Cutting characteristics of materials are correctly identified and the implications for unsafe conditions are accurately described. Gas pressures are set according to wall thickness of pipe or plate. Cutting speed is controlled on relation to wall thickness of pipe or plate. Cutting is carried out in accordance with the work instruction sheet and drawing requirements. End product conforms to the job requirements and drawing specifications.
7 *Hydraulic Module 1* .1 Theory and principles of Hydraulic transmission of power .2 hydraulic symbols and the reading of schematic diagrams .3 Layout and explanation of a basic hydraulic system .4 Construction, principles	Work safely with due care for self, workers, equipment, materials and environment. Obtain documentation, interpret engineering drawings, maintain schedules and procedures and select appropriate tools and equipment. Isolation, depressurisation and use protective equipment. Apply quality checks on completed work. (Quality checks include commissioning system and inspecting for leaks, coolant levels.	Practical demonstration, written and/or oral questionnaire. Practical exercises and instruction conducted under approved and truly realistic training conditions (eg simulation) using approved equipment.	System is ensured to be safe. System non-conformance are identified. System maintenance activities are performed. Plant care checks are undertaken. System is returned to service. Maintained components are replaced without damage to the component or system. Removed components are serviced using appropriate tools and equipment. Accumulator pre-charge pressures are visually

WORKSHOP TRAINING			
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
and application of: Hydraulic pump and motors. Pressure control valves Flow control valves Directional control valves Hydraulic actuators Fluids, filters and filtration Reservoirs and coolers Accumulators .5 Simple circuit design and construction of circuits on simulators .6 Basic maintenance and faultfinding procedures	Care for and store maintenance tools and equipment. Report on system condition.		checked. Work is carried out in a safe manner in accordance with schedules and manufacturer specifications. A clean and tidy work environment is maintained.
8 Pneumatics Module 1 .1 Air service units .2 Analysis and fault finding procedures .3 Operation, construction and application components .4 Pneumatic circuits and diagram interpretation .5 Pneumatic symbols .6 Theory and physical principles related to pneumatics	Work safely with due care for self, workers, equipment, materials and environment. Obtain documentation, interpret engineering drawings, maintain schedules and procedures and select appropriate tools and equipment. Isolation, depressurisation and use protective equipment. Apply quality checks on completed work. (Quality checks include commissioning system and inspecting for leaks, coolant levels. Care for and store maintenance tools and equipment. Report on system condition.	Practical demonstration, written and/or oral questionnaire. Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g. simulation) using approved equipment.	System is ensured to be safe. System non-conformance are identified. System maintenance activities are performed. Plant care checks are undertaken. System is returned to service. Maintained components are replaced without damage to the component or system. Removed components are serviced using appropriate tools and equipment. Accumulator pre-charge pressures are visually checked. Work is carried out in a safe manner in accordance with schedules and manufacturer specifications.

WORKSHOP TRAINING

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
9 Refrigeration Module 1			
.1 WORKSHOP SAFETY Workshop Refrigerants	Define temperature and heat and explain the different forms of heat. Define pressure and explain the different pressures. Define the terms used to describe an ON-OFF control system and its functions.	Practical demonstration, written and/or oral questionnaire.	A clean and tidy work environment is maintained.
.2 THEORY Evacuating Recovery and recycling Specialist tools and equipment System components Types of systems	State and describe the commonly used control systems based on their energy source State and describe the three types of control devices used on air conditioning and refrigeration systems. State and describe the commonly used types of measuring elements and sensors Measure or determine and define the operating parameters of refrigeration systems.	Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g. simulation) using approved equipment.	Temperature and heat are defined and the difference illustrated. Sensible heat and latent heat are defined and examples are given. The three phases of matter are stated and the names for changes are listed. The terms absolute pressure, barometric pressure, gauge pressure and vacuum are defined and explained. A control system is defined and its main parts are named.
.3 PRACTICAL Evacuation Pressure testing and leak detecting Refrigerant charging Replacement of components Servicing and maintenance Trouble-shooting	Compare the observations with the design parameters foe the plant or with normally expected operating parameters. Explain with the aid of a block diagram the operation of the vapour compression refrigeration system. Name and indicate the components and pipes in the block diagram drawn and indicate the direction of flow of refrigerant, air and water is correctly indicated. Explain the process taking place in each component. Discuss the relationship between the pressure and the temperature of a refrigerant. Identify and explain the function on components and accessories of a refrigerant system.		Terms used to describe the function and operation of a control system are listed and discussed. The commonly used variables that are controlled in a refrigeration system are demonstrated. The three types of control devices used on refrigeration systems are stated. The types of measuring elements and sensors used are listed and described. The control devices are correctly connected. The control devices are correctly set to stated parameters. Operation of the control devices is checked. Possible malfunctions are identified and listed. Correct block diagrams of the vapour

WORKSHOP TRAINING			
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
	Handle and store refrigeration system components and accessories.		compression refrigeration system are drawn. The operation of a vapour compression system is explained Each component is indicated and named correctly. The processes taking place in the components are explained and demonstrated correctly. The phases and temperature of the refrigerant at the inlet and outlet of all components is stated correctly. The temperature of the refrigerant and the water at the inlet and outlet of all components is stated correctly. The relationship between the pressure and the temperature of the refrigerant is stated correctly. The various components and accessories of a Refrigerant system is correctly identified and their position is a refrigeration plant is indicated. The gauge manifold is connected correctly and hoses are purged. Superheat and sub cooling deviations are noted, discussed and explained. The desirability of superheat and sub cooling is explained. Reasons for high or low temperature or pressure reading are explained.

Part 2B Draft Merchant Shipping (Training and Certification) Amendment Regulations, 2006 (No. 2)

1 Title and commencement

(1) These regulations are called the ***Merchant Shipping (Training and Certification)Amendment Regulations, 2006 (No. 2).***

(2) These regulations commence on 1January **2007.**

2 Definitions

In these regulations **"the** Regulations" means the ***Merchant Shipping (Training and Certification) Regulations, 1999,*** published by Government Notice No. R. **1547** of 30 December **1999, as** amended by Government Notices Nos, R. **502** of 26 **April 2002, and 1196** and **1197 of 15** October **2004, and** <<the ***Merchant Shipping (Training and Certification) Amendment Regulations, 2006 (No. 1)***>>.

3 Amendment of regulation *I* of Regulations

Regulation 1 of the Regulations is amended by the substitution in subregulation (1) for the definition of **"fishing** vessel" of the following definition:

> "'fishing vessel' means a vessel that is used wholly or principally for the taking, catching or capturing of fish or other living resources of the sea or seabed for financial gain or reward;".

4 Amendment of regulation 43 of Regulations

Regulation 43 of the Regulations is amended by the addition of the following ALTERNATIVE:

> "or
>
> ALTERNATIVE D
>
> ***(if the candidate holds the certificate of qualification as able seaman (fishing))***
>
> **(a)** have completed, **while** holding **as a** minimum the certificate of qualification as able seaman (fishing),

at least six months port operations service in the deck department on ships of 100 GT or more; and

(b) have completed, during the required port operations service, onboard training that is documented in an approved training record book; and

(c) have completed approved training and meet the standard of competence specified in the Code.".

5 Amendment of regulation 43A of Regulations

Regulation 43A of the Regulations is amended by the addition of the following ALTERNATIVE:

"or

ALTERNATIVE E

(if the candidate holds the certificate of qualification as able seaman fishing))

(a) have completed, while holding as a minimum the certificate of qualification as able seaman (fishing), at least six months sea service in the deck department on trading ships of 100 GT or more on unlimited or near-coastal voyages; and

(b) have completed, during the required sea service, onboard training that is documented in an approved training record book; and

(c) have completed approved training and meet the standard of competence specified in the Code.".

6 Amendment of regulation 60 of Regulations

Regulation 60 of the Regulations is amended by the insertion of the following subregulations after subregulation (2):

"(2A) Subject to subregulation (2B), the holder of certification specified in column 1 of an item in the following table may apply to the Authority for the certification specified in column 2 of the item:

Item	Column 1	Column 2
	Certificate of competency	*Endorsement in terms of these regulations*
1	Unlimited Waters Command Endorsement	Master of a ship of less than 200 GT on unlimited voyages

Item	Column 1 *Certificate of competency*	Column 2 *Endorsement in terms of these regulations*
2	Skipper (Fishing ≥ 24 metres)	Master of a ship of less than 500 GT on near-coastal voyages
3	Deck Officer (Fishing ≥ 24 metres)	Chief mate/officer in charge of a navigational watch on ships of less than 500 GT on near-coastal voyages
4	Skipper (Fishing < 24 metres)	Master of a ship of less than 200 GT on near-coastal voyages Master of a ship of less than 200 GT operating within a port operations area

(2B) However, if the certification held by the candidate is the certification issued in terms of regulation 4(2) of the ***Merchant Shipping (Training and Certification) (Fishing and Marine Motorman Qualifications) Regulations, 2006,*** the candidate shall —

(a) have completed approved training, appropriate to the endorsement desired, covering the following syllabuses in the Code: naval architecture; business law and personnel management; and, for the certification mentioned in item 1 of the table in subregulation (2A), ships' power plants; and

(b) meet the standard of competence specified in the Code.".

7 Amendment of regulation 71 of Regulations

Regulation 71 of the Regulations is amended by the deletion of subregulation (2).

Explanatory note

(This note is not part of the regulations)

1 These regulations amend the ***Merchant Shipping (Training and Certification) Regulations, 1999,*** made under section ***356*** of the ***Merchant Shipping Act, 1951.***

2 The amendments are consequential upon the making of the ***Merchant Shipping (Training and Certification) (Fishing and Marine Motorman Qualifications) Regulations, 2006,*** which overhaul the training and certification requirements **and** arrangements for seagoing fishing vessel personnel and certain ***other*** non-STCW engine department personnel.

3 The main object of the amendments is to make provision about the transportability of fishing vessel service and qualifications into the port operations and merchant shipping environments.

Part 2 C Draft Merchant Shipping (Safe Manning) Amendment Regulations, 2006 (No. 2)

1 Title and commencement

(1) These regulations are called the ***Merchant Shipping (Safe Manning) Amendment Regulations, 2006 (No. 2).***

(2) These regulations commence on **1 January 2007.**

2 Definitions

In these regulations **"the Regulations"** means the ***Merchant Shipping (Safe Manning) Regulations, 1999,*** published by Government Notice No. 1548 of 30 December 1999, as amended by Government Notices Nos. R. 501 of 26 April **2002** (as corrected by Government Notice No. R. 893 of 28 June 2002), R. 545 of 30 April 2004 and ***<<Merchant Shipping (Safe Manning) Amendment Regulations, 2006 (No. 1)>>.***

3 Amendment of regulation 1 of Regulations

Regulation **1** of the Regulations is amended—

(a) by the deletion in subregulation (1) of the definition of "defined fishing zone";

(b) by the substitution in subregulation (1) for the definition of "fishing vessel" of the following definition:

> "'**fishing vessel**' means a vessel that **is** used wholly or principally for the taking, catching or capturing of fish or other living resources of the sea or seabed for financial gain or reward;";

(c) by the insertion in subregulation (1) after the definition of "length" of the following definition:

> "'**limited waters',** in relation to a fishing vessel, has the same meaning as in regulation 2(1) of the ***Merchant Shipping (Training and Certification) (Fishing and Marine Motorman Qualifications) Regulations, 2006;";*** and

(d) by the insertion in subregulation (1) after the definition of "unlimited **voyage**" of the following definition:

> "'**unlimited waters', in** relation to a fishing vessel, has the same meaning **as** in regulation 2(1) of the ***Merchant Shipping (Training and Certification) (Fishing and Marine Motorman Qualifications) Regulations, 2006;".***

4 Substitution of regulation 12 of Regulations

The following regulation is substituted for regulation 12 of the Regulations:

"12 Employment of certificated deck officers on fishing vessels

The owner and the master of every fishing vessel shall ensure that there is **employed on the vessel in their appropriate capacities the number and description** of **appropriately certificated deck officers specified in the applicable item of the following table:**

Item	Type *of* voyage	Length of vessel (metres)	Capacity of employment	Appropriate minimum certification and number *of* persons to be employed	
				Certification	Number
1	Limited waters	< 24	Master	Skipper (Fishing < 24 metres)	1
			Mate	Deck Officer (Fishing < 24 metres)(B)	1(A)
2		≥ 24	Master	Skipper (Fishing ≥ 24 metres)	1
			Mate	Deck Officer (Fishing ≥ 24 metres)	1
			Watchkeeping officer	Deck Officer (Fishing ≥ 24 metres)	1

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Item	Type of voyage	Length of vessel (metres)	Capacity of employment	Appropriate minimum certification and number of persons to be employed	
				Certification	Number
3	Unlimited waters	< 24	Master	Skipper (Fishing < 24 metres) with Unlimited Waters Command Endorsement	1
			Mate	Deck Officer (Fishing < 24 metres)	1
			watchkeeping officer	Deck Officer (Fishing < 24 metres)(B)	1
4		≥ 24	Master	skipper (Fishing ≥ 24 metres) with Unlimited Waters Command Endorsement	1
			Mate	Deck Officer (Fishing ≥ 24 metres)	1
			Watchkeeping officer	Deck Officer (Fishing ≥ 24 metres)	1

Votes:
A) Not required for vessels < 50 GT going to sea for periods not exceeding 12 consecutive hours.
B) *Or Coastal* Skipper (> 9 metres).

5 Repeal *of* regulation 13 of Regulations

Regulation 13 of the Regulations is repealed.

6 Substitution of regulation 15 of Regulations

The following regulation is substituted for regulation 15 of the Regulations:

"15 Employment *of* certificated engineer officers on fishing vessels

The owner and the master of every fishing vessel shall ensure that there is employed on the vessel in their appropriate capacities the number and description of appropriately certificated engineer officers specified in the applicable item of the following table:

Item	Propulsion power of vessel (kW)	Capacity of employment	Appropriate minimum certification and number of persons to be employed	
			Certification	Number
1	< 350	Chief engineer	Marine Motorman Grade 2	1
2	≥ 350 but < 750	Chief engineer	Marine Motoman Grade	1
		Second engineer	Marine Motorman Grade 2	1
	≥ 750 but < 2000	Chief engineer	Marine Motorman Higher Grade	1
		engineer	Marine Motorman	1
		Watchkeeping officer	Marine Motoman Grade 2	1(A)
4	≥ 2000	Chief engineer	Chief Engineer Officer (Fishing)	1
		Second engineer	Marine Motorman Higher Grade	1
		Watchkeeping officer	Marine Motorman Grade 1	1

Notes:
(A) Not required on fishing vessels operating in limited waters.".

7 Amendment of regulation 16 of Regulations

Regulation 16 of the Regulations is amended by the substitution for the existing table of the following table:

"Item	Voyage	Tonnage / Length of ship	Appropriate certification and number of persons to be employed	
			Certification	Number
Ships other than fishing vessels				
1	Port operations	≥ 25 GT	Restricted Radiotelephone Operator	1
2	Near ———	1.25 GT but < 300 GT	Restricted Radiotelephone Operator	2
3		≥ 300 GT	GMDSS General Operator	2
4	Unlimited	≥ 25 GT but < 300 GT	Restricted Radiotelephone Operator	2
S		≥ 300 GT	GMDSS General Operator	2
6	Limited waters within 60 miles offshore	≥ 25 GT	Restricted Radiotelephone Operator (VHF only)	1

"Item	Voyage	Tonnage / Length of ship	Appropriate certification and number of persons to be employed	
			Certification	Number
7	Limited waters beyond 40 nautical miles offshore	≥ 25 GT	Restricted Radiotelephone Operator	2
8	Unlimited waters	< 45 metres	Restricted Radiotelephone Operator	2
9		≥ 45 metres	GMDSS General Operator	2".

8 Substitution of regulation 18 of Regulations

The following regulation is substituted for regulation 18 of the Regulations:

"18

Item	Number of persons on vessel	Minimum certification and number of persons *to* be employed		
		Able seaman	Proficient in survival *craft*	Efficient cook
1	≥ 15 but < 30	1	1	—
2	≥ 30	1	2	1

9 Amendment of regulation 23 *of* Regulations

Regulation 23 of the Regulations is amended—

(a) by the insertion in the table in subregulation (1)(b) after item 20 of the following item:

"Item	Column 1 Title of certificate issued before commencement of repealed regulations	Column 2 Equivalent certificate or endorsement under repealed regulations	Column 3 Equivalent certificate or endorsement under Training and Certification Regulations
20A	—	Fisherman Grade 2 with High Seas Command Endorsement	Skipper (Fishing ≥ 24 metres) with Unlimited Waters Command Endorsement";

(b) by the substitution in the table in subregulation (1)(b) for item 21 of the following item:

"Item	Column 1 Title of certificate issued before commencement of repealed regulations	Column 2 Equivalent certificate or endorsement under repealed regulations	Column 3 Equivalent certificate or endorsement under Training and Certification Regulations
21	Skipper of a fishing, sealing or shore-based whaling boat of 100 GT or more	Fisherman Grade 2	Skipper (Fishing ≥ 24 metres)";

(c) by the insertion in the table in subregulation (1)(b) after item 21 of the following item:

"Item	Column 1 Title of certificate issued before commencement of repealed regulations	Column 2 Equivalent certificate or endorsement under repealed regulations	Column 3 Equivalent certificate or endorsement under Training and Certification Regulations
21A	—	Fisherman Grade 3 with High Seas Command Endorsement	Deck Officer (Fishing ≥ 24 metres) endorsed: —*Master of a fishing vessel of less than 30 metres in length operating in unlimited waters*";

(d) by the substitution in the table in subregulation (1)(b) for item 22 of the following item:

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"Item	Column 1	Column 2	Column 3
	Title of certificate Issued before commencement of repealed regulations	Equivalent certificate or endorsement under repealed regulations	Equivalent certificate or endorsement under Training and Certification Regulations
22	Mate of a fishing, sealing or shore-based whaling boat of 100 GT or more	Fisherman Grade 3	≥ 24 metres) endorsed: —*Master of a fishing vessel of less than 30 metres in length operating in limited*

(e) by the insertion in the table in subregulation (1)(b) after item 22 of the following items:

"Item	Column 1	Column 2	Column 3
	Title of certificate Issued before commencement of repealed regulations	Equivalent certificate or endorsement under repealed regulations	Equivalent certificate or endorsement under Training and Certification Regulations
22A	—	Fisherman Grade 4 (Skipper) with High Seas Command Endorsement	Skipper (Fishing < 24 metres) with Unlimited Waters Command Endorsement";
22B	—	Fisherman Grade 4 with High Seas Command Endorsement	

"Item	Column 1	Column 2	Column 3
	Title of certificate Issued before commencement of repealed regulations	Equivalent certificate or endorsement under repealed regulations	Equivalent certificate or endorsement under Training and Certification Regulations
23	Boatswain of a fishing, sealing or shore-based whaling boat of 100 GT or more	Fisherman Grade 4 (Skipper)	Skipper (Fishing < 24 metres)
24	Skipper of a coasting ship or a fishing sealing or shore-based whaling boat of less than 100 GT		

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"Iten	Column 1 Title of certificate issued before commencement of repealed regulations	Column 2 Equivalent certificate or endorsement under repealed regulations	Column 3 Equivalent certificate or endorsement unde Training and Certification Regulations
25	Mate of a coasting ship or a fishing, sealing or shore-based whaling *boat* of less than 100 GT	Fisherman Grade 4 (Watchkeeper)	(a) Deck Officer (Fishing < 24 metres); or (b) if seagoing servic has been performed on ships ≥ 24 metres in length: Deck *Officer* (Fishing < 24 metres) endorsed: *—Officer in charge of a navigational watch on fishing vessels of 24 metres or more in length operating in limited waters*
26	—	Fisherman Grade 4	ikipper (Fishing < 24 metres)";

(g) by the substitution in the table in subregulation (1)(b) for item 29 of the following item:

"Iten	Column 1 Title of certificate Issued before commencement of repealed regulations	Column 2 Equivalent certificate or endorsement under repealed	Column 3 Equivalent certificate or endorsement under Training and Certification Regulations
29	—	Marine Engineer-*Officer* Class 3 with Service Endorsement	(a) Second Engineer Officer (< 3 000 kW) endorsed: *—Chief Engineer Officer of a ship of less than 750 kW propulsionpower -Chief Engineer Officer of a ship of any kilowatt propulsionpower operating within a port operations mea* (b) Chief Engineer Officer (Fishing)";

(h) by the insertion in the table in subregulation (1)(b) after item **30** of the following item:

"Item	Column 1	Column 2	Column 3
	Title of certificate issued before commencement of repealed regulations	Equivalent certificate or endorsement under repealed regulations	Equivalent certificate or endorsement under Training and Certification Regulations
30A	—	Marine Engineer-Officer Class 4 with Service Endorsement	Chief Engineer Officer (Fishing)";

(i) by the substitution in the table in subregulation (1)(b) for item **3**1 of the following item:

"Item	Column 1	Column 2	Column 3
	Title of certificate issued before commencement of repealed regulations	Equivalent certificate or endorsement under repealed regulations	Equivalent certificate or endorsement under Training and Certification Regulations
31	Second Engineer-*Officer* of a coasting ship	Marine Engineer-Officer Class 4	(a) Engineer Officer endorsed: *—Chief Engineer Officer of a ship of less than 1 500 kW propulsion power operating within a port operations area* (b) Second Engineer Officer (Port Operations) (c) Chief Engineer Officer (Fishing)"; and

(j) by the substitution in the table in subregulation (1)(b) for item 35 of the following item:

"Item	Column 1	Column 2	Column 3
	Title of certificate issued before commencement of repealed regulations	Equivalent certificate or endorsement under repealed regulations	Equivalent certificate or endorsement under Training and Certification Regulations
35	Assistant Marine Engineman, under 150 brake horsepower	Marine Motorman Grade 3	Marine Motorman Grade 2".

Explanatory note

(This note is not part of the regulations)

1 These regulations amend the *Merchant Shipping (Safe Manning) Regulations, 1999,* made under section 356 of the *Merchant Shipping Act, 1951.*

2 The amendments are consequential upon the making of the *Merchant Shipping (Training and Certification) (Fishing and Marine Motorman Qualifications) Regulations, 2006,* which overhaul the training and certification requirements and arrangements for seagoing fishing vessel personnel and certain other non-STCW engine department personnel. The main object of the amendments is to introduce consistency with these regulations.