Maritime & Coastguard Agency

MARINE INFORMATION NOTE

MIN 653 (M)

Deck Oral Exam Syllabus – To Be Applied From 01 November 2021

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

This notice should be read with MSN 1856, MIN 620 and replaces MGN 69
This MIN expires 01 May 2022

Summary

This Marine Information Note (MIN) provides information and outlines the updated Oral exam syllabus, for Merchant Navy deck officers, leading to the issue of a UK Certificate of Competency.

This MIN Covers:

1. Introduction
2. Further information
3. Oral exam Syllabus for Officer in charge of a Navigational Watch (OOW) Unlimited for ships of 500 Gross Tonnage (GT) and above STCW Code A-II/1
4. Oral exam syllabus for Chief Mate Unlimited and Master Ships less than 3000 GT, Unlimited –STCW Code II/2
5. Oral exam syllabus for Master Unlimited STCW Code II/2
6. Oral exam syllabus for Chief Mate Ships less than 3000 GT Unlimited STCW Code II/2.
7. Oral exam syllabus for OOW Ships of less than 500 GT engaged on Near-Coastal Voyages STCW Code II/3.
8. Oral exam Syllabus for Master Ships less than 500 GT engaged on Near-Coastal Voyages STCW Code II/3.

Annex A of this MIN contains:

A. The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) Code, as amended, Part A, Chapter VIII, section A-VIII/2, Part 4 – 1 – Principles to be observed in keeping a navigational watch

1. Introduction

1.1. The STCW Convention requires all officers to complete an approved education and training programme and meet the standards of competence specified in the STCW Code. All education and training programmes leading to a Certificate of Competency (CoC) must be mapped to the Code and approved by the MCA. The MCA Deck oral examination syllabus is mapped to the relevant STCW Code tables. The oral examination forms part of the assessment for the attainment of all MCA Certificates of Competency, and all candidates must demonstrate an adequate knowledge of the English language.

1.2. The Examiner is expected to base the assessment on the competence and relate them to tasks, responsibilities and duties considered necessary for ship operations, safety of life at sea and the protection of the marine environment.

1.3. The oral exam can draw on any part of the syllabus. It is recommended that candidates complete the associated qualification that delivers the underpinning knowledge[1] for each oral exam prior to undertaking the oral assessment.

2. Further Information in the Oral Examination Process

2.1. Further information on the current process for Oral Examinations is available in MIN 620, as amended.

2.2. Further information on the requirements and application for a Notice of Eligibility (NOE) for an Oral Examination and how to obtain the associated CoC is available here:

Quick Reference	Application Form (including link)	M-Notice Number (including link)
Deck Officers	MSF 4274	MSN 1856

[1] Underpinning knowledge is the appropriate Higher Education academic qualification such as a Foundation Degree or HND and the applicable ancillary training courses listed in MSN 1856 (Amendment 1), section 10.

3. Oral exam Syllabus for Officer in charge of a Navigational Watch (OOW) Unlimited for ships of 500 GT and above STCW Code A-II/1

3.1 Oral Exam Aim:

The MCA oral examination is aimed at ensuring the candidate's ability to undertake the duties appropriate to the Officer Of the Watch (OOW). Candidates should demonstrate the ability to apply the knowledge required for competencies outlined in this oral examination syllabus by appropriate responses, anticipations and reactions to a range of routine, non-routine and contingency scenarios as presented by the examiner, from the perspective of OOW (U) - Ships of 500 GT and above.

3.2 Considerations for the Examination

1. Candidates are required to demonstrate competence to undertake the tasks, duties and responsibilities listed in the 'Competence' column of this oral examination syllabus.

2. The level of responses of the subjects listed in the 'Knowledge, understanding and proficiency' column of this oral examination syllabus shall be such that in the examiners professional judgement it would be enough for officers of the watch to carry out their watchkeeping and operational level duties and responsibilities.

3. Underpinning knowledge, understanding and proficiency should take into account STCW Code, Part A, Section A-VIII/2, part 4-1 – Principles to be observed in keeping a navigational watch (see **Annex A**).

4. Candidates and Examiners should refer to the 'Criteria for evaluating competence' and 'Further guidance for evaluating competence' columns for further details.

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Plan and conduct a passage and determine position	*Celestial Navigation* Ability to use celestial bodies to determine the ship's position *Terrestrial and coastal navigation* Ability to determine the ship's position by use of: 1. Landmarks 2. aids to navigation, including lighthouses, beacons and buoys 3. dead reckoning, taking into account winds, tides, currents and estimated speed Thorough knowledge of and ability to use nautical charts, and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ships' routeing information	The information obtained from nautical charts and publications is relevant, interpreted correctly and properly applied. All potential navigational hazards are accurately identified The primary method of fixing the ship's position is the most appropriate to the prevailing circumstances and conditions The position is determined within the limits of acceptable instrument/system errors The reliability of the information obtained from the primary method of position fixing is checked at appropriate intervals Calculations and measurements of navigational information are accurate The charts selected are the largest scale suitable for the area of navigation and charts and publications are corrected in accordance with the latest information available	Passage planning/chart work; passage planning with respect to the use of navigational publications including navigational charts (including ENCs and RNCs), sailing directions, light lists, tide tables, radio navigational warnings and ships' routeing information Use of ECDIS to plan the navigational passage and monitor the ship's position and progress with and without availability of GNSS. Monitoring position with GNSS denial Use a sextant, identify and correct errors

	Electronic systems of position fixing and navigation Ability to determine the ship's position by use of electronic navigational aids *Echo-sounders* Ability to operate the equipment and apply the information correctly *Compass – magnetic and gyro* Knowledge of the principles of magnetic and gyro-compasses Ability to determine errors of the magnetic and gyro-compasses, using celestial and terrestrial means, and to allow for such errors *Steering control system* Knowledge of steering control systems, operational procedures and change-over from manual to automatic control and vice versa. Adjustment of controls for optimum performance	Performance checks and tests to navigation systems comply with manufacturer's recommendations and good navigational practice Errors in magnetic and gyro-compasses are determined and correctly applied to courses and bearings The selection of the mode of steering is the most suitable for the prevailing weather, sea and traffic conditions and intended manoeuvres Measurements and observations of weather conditions are accurate and appropriate to the passage	Identify and understand IALA systems of maritime buoyage Limitations and sources of error, methods of correction Use an azimuth mirror

	Meteorology Ability to use and interpret information obtained from shipborne meteorological instruments Knowledge of the characteristics of the various weather systems, reporting procedures and recording systems Ability to apply the meteorological information available	Meteorological information is correctly interpreted and applied	Ability to detect the presence of Tropical Revolving Storms Acknowledge and manage alarms Sources of meteorological information, ability to use and interpret information obtained from meteorological charts and equipment
Maintain a safe navigational watch	*Watchkeeping* Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972, as amended	The conduct, handover and relief of the watch conforms with accepted principles and procedures A proper look-out is maintained at all times and in such a way as to conform to accepted principles and procedures Lights, shapes and sound signals conform with the requirements contained in the International Regulations for Preventing Collisions at Sea, 1972, as amended, and are correctly recognised	Knowledge and application of the ICS Bridge Procedures Guide and relevant publications Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972, as amended.

	Thorough knowledge of the Principles to be observed in keeping a navigational watch The use of routeing in accordance with the General Provisions on Ships' Routeing The use of information from navigational equipment for maintaining a safe navigational watch Knowledge of blind pilotage techniques The use of reporting in accordance with the General Principles for Ship Reporting Systems and with VTS procedures *Bridge resource management* Knowledge of bridge resource management principles, including:	The frequency and extent of monitoring of traffic, the ship and the environment conform with accepted principles and procedures A proper record is maintained of the movements and activities relating to the navigation of the ship Responsibility for the safety of navigation is clearly defined at all times, including periods when the master is on the bridge and while under pilotage Resources are allocated and assigned as needed in correct priority to perform necessary tasks Communication is clearly and unambiguously given and received Questionable decisions and/or actions result in appropriate challenge and response Effective leadership behaviours are identified	Preparation for getting under way. Duties prior to proceeding to sea and arrival in port The requirements of ship routeing and mandatory reporting systems Appropriate initial responses to navigational emergencies and/or malfunction of electronic equipment and its impact on related critical equipment

	1. allocation, assignment, and prioritization of resources 2. effective communication 3. assertiveness and leadership 4. obtaining and maintaining situational awareness 5. consideration of team experience	Team member(s) share accurate understanding of current and predicted vessel state, navigation path, and external environment	
Use of radar and ARPA to maintain safety of navigation Note: Training and assessment in the use of ARPA is not required for those who serve exclusively on ships not fitted with ARPA. This limitation shall be reflected in the endorsement issued to the seafarer concerned	*Radar navigation* Knowledge of the fundamentals of radar and automatic radar plotting aids (ARPA) Ability to operate and to interpret and analyse information obtained from radar, including the following: Performance, including: 1. factors affecting performance and accuracy 2. setting up and maintaining displays	Information obtained from radar and ARPA is correctly interpreted and analysed, taking into account the limitations of the equipment and prevailing circumstances and conditions. Action taken to avoid a close encounter or collision with other vessels is in accordance with the International Regulations for Preventing Collisions at Sea, 1972, as amended Decisions to amend course and/or speed are both timely and in accordance with accepted navigation practice	Advantages and the disadvantages of different radar and ARPA display modes with respect to target detection and tracking. Interpretation of different radar and ARPA targets' data to avoid a close encounter or collision with other vessels is in accordance with the International Regulations for Preventing Collisions at Sea, 1972, as amended

	3. detection of misrepresentation of information, false echoes, sea return, etc., RACONs and SARTs 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 speed or both 3. application of the International Regulations for Preventing Collisions at Sea, 1972, as amended 4. plotting techniques and relative- and true-motion concepts 5. parallel indexing Principal types of ARPA, their display characteristics, performance standards and the dangers of over-reliance on ARPA	Adjustments made to the ship's course and speed maintain safety of navigation Communication is clear, concise and acknowledged at all times in a seamanlike manner Manoeuvring signals are made at the appropriate time and are in accordance with the International Regulations for Preventing Collisions at Sea, 1972, as amended	Advantages and limitations of ground and sea stabilised display Function and purpose of radar beacons (RACON) and search and rescue transponder (SART) Correctly interpreting and analysing radar information after taking account of the limitations and errors of the equipment and prevailing circumstances and conditions

	Ability to operate and to interpret and analyse information obtained from ARPA, including: 1. system performance and accuracy, tracking capabilities and limitations, and processing delays 2. use of operational warnings and system tests 3. methods of target acquisition and their limitations 4. true and relative vectors, graphic representation of target information and danger areas 5. deriving and analysing information, critical echoes, exclusion areas and trial manoeuvres		Interpret the display to establish the correct aspect of target echoes The dangers of misuse of trial manoeuvres Appropriate responses to relevant alarms The applications of true and relative vectors Radar and ARPA – practical use of, modes of operation, limitations, sources of error and parallel indexing The effect of changes in own vessel's course or speed (or both) on the ARPA displayed information
Use of ECDIS to maintain the safety of navigation Note: Training and assessment in the use of ECDIS is not required for those who serve	*Navigation using ECDIS* Knowledge of the capability and limitations of ECDIS operations, including:	Monitors information on ECDIS in a manner that contributes to safe navigation Information obtained from ECDIS (including radar overlay and/or radar tracking functions, when fitted) is	Interpret and analyse information from ECDIS and other interface equipment, taking into account the limitations of the equipment including ENCs and RNCs and prevailing circumstances and conditions. Explain the need to carry out

exclusively on ships not fitted with ECDIS These limitations shall be reflected in the endorsements issued to the seafarer concerned	1. a thorough understanding of Electronic Navigational Chart (ENC) data, data accuracy, presentation rules, display options and other chart data formats 2. the dangers of over-reliance 3. familiarity with the functions of ECDIS required by performance standards in force Proficiency in operation, interpretation, and analysis of information obtained from ECDIS, including: 1. use of functions that are integrated with other navigation systems in various installations, including proper functioning and adjustment to desired settings 2. safe monitoring and adjustment of information, including own position, sea area display, mode and orientation, chart data displayed, route monitoring, user-created information layers, contacts (when interfaced with AIS	correctly interpreted and analysed, taking into account the limitations of the equipment, all connected sensors (including radar and AIS where interfaced), and prevailing circumstances and conditions Safety of navigation is maintained through adjustments made to the ship's course and speed through ECDIS-controlled track-keeping functions (when fitted) Communication is clear, concise and acknowledged at all times in a seamanlike manner	performance checks and tests of ECDIS equipment Advantage and disadvantages of ENC and RNC ENC (S57 and S52) updates

	and/or radar tracking) and radar overlay functions (when interfaced) 3. confirmation of vessel position by alternative means 4. efficient use of settings to ensure conformance to operational procedures, including alarm parameters for anti-grounding, proximity to contacts and special areas, completeness of chart data and chart update status, and backup arrangements 5. adjustment of settings and values to suit the present conditions 6. situational awareness while using ECDIS including safe water and proximity of hazards, set and drift, chart data and scale selection, suitability of route, contact detection and management, and integrity of sensors		Interpretation of ENC`s data displayed on ECDIS Acknowledge and manage ECDIS alarms Appropriate initial responses to malfunction of ECDIS and its impact on related critical equipment
Respond to emergencies	*Emergency procedures* Precautions for the protection and	The type and scale of the emergency is promptly identified	Appropriate initial responses to navigational emergencies and/or

	safety of passengers in emergency situations Initial action to be taken following a collision or a grounding; initial damage assessment and control Appreciation of the procedures to be followed for rescuing persons from the sea, assisting a ship in distress, responding to emergencies which arise in port	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	malfunction of electronic equipment and its impact on related critical equipment Initial response to emergencies, including but not limited to: 1. Man overboard, 2. Collision, 3. Grounding, 4. Flooding, or 5. Major mechanical damage/failure of: - Bridge control, telegraph or steering; emergency steering arrangements., and 6. Receipt of a distress message Correct use of distress signals and awareness of penalties for misuse Initial damage assessment and control, protection of the marine environment Initial action to be taken when emergencies arise in port (including co-operation with Port Authorities where appropriate) to include but not limited to:- 1. Fire 2. Man overboard 3. Mooring failures

			4. Cargo accidents 5. Accidents to personnel
Respond to a distress signal at sea	*Search and rescue* Knowledge of the contents of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual	The distress or emergency signal is immediately recognised Contingency plans and instructions in standing orders are implemented and complied with	Use of the International Aeronautical and Marine Search and Rescue (IAMSAR) Manual (Volume III), distress and emergency signals; Search and Rescue around the UK and worldwide Emergency communications within the GMDSS regulations
Use the IMO Standard Marine Communication Phrases and use English in written and oral form	*English language* Adequate knowledge of the English language to enable the officer to use charts and other nautical publications, to understand meteorological information and messages concerning ship's safety and operation, to communicate with other ships, coast stations and VTS centres and to perform the officer's duties also with a multilingual crew, including the ability to use and understand the IMO Standard Marine Communication Phrases (IMO SMCP)	English language nautical publications and messages relevant to the safety of the ship are correctly interpreted or drafted Communications are clear and understood	
Transmit and receive information by visual signalling	*Visual signalling* Ability to use the International Code of Signals	Communications within the operator's area of responsibility are consistently successful	Use of distress and emergency signals, International Code of Signals and the IMO Standard Marine Communication Phrases

	Ability to transmit and receive, by Morse light, distress signal SOS as specified in Annex IV of the International Regulations for Preventing Collisions at Sea, 1972, as amended, and appendix 1 of the International Code of Signals, and visual signalling of single-letter signals as also specified in the International Code of Signals		
Manoeuvre the ship	*Ship manoeuvring and handling* Knowledge of: 1. the effects of deadweight, draught, trim, speed and under-keel clearance on turning circles and stopping distances 2. the effects of wind and current on ship handling 3. manoeuvres and procedures for the rescue of person overboard 4. squat, shallow-water and similar effects	Safe operating limits of ship propulsion, steering and power systems are not exceeded in normal manoeuvres Adjustments made to the ship's course and speed to maintain safety of navigation	Making harbour entry, entering a dock, berthing alongside quays, jetties, or other ships, and securing to buoys Use of mooring lines and associated equipment Ship manoeuvring characteristics Helm orders, conning the ship, effects of propellers on the steering of a ship, effects of wind and current, stopping, going astern, turning short round, manoeuvring in the vicinity of pilot vessels and other craft, embarking and disembarking a pilot; Ability to take appropriate manoeuvring actions in case of Man overboard

	5. proper procedures for anchoring and mooring		Ability to take appropriate actions in the situations of interaction and squat effects Vessel preparations for anchoring and mooring

Function: Cargo handling and stowage at the operational level

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Monitor the loading, stowage, securing care during the voyage and the unloading of cargoes	*Cargo handling, stowage and securing* Knowledge of the effect of cargo, including heavy lifts, on the seaworthiness and stability of the ship Knowledge of safe handling, stowage and securing of cargoes, including dangerous, hazardous and harmful cargoes, and their effect on the safety of life and of the ship Ability to establish and maintain effective communications during loading and unloading	Cargo operations are carried out in accordance with the cargo plan or other documents and established safety rules/regulations, equipment operating instructions and shipboard stowage limitations The handling of dangerous, hazardous and harmful cargoes complies with international regulations and recognized standards and codes of safe practice Communications are clear, understood and consistently successful	Basic knowledge of the regulations and recommendations affecting cargo handling, stowage, securing and carriage, including the IMDG Code Ability to carry out cargo operations and various associated duties, including but not limited to the following: (a) Containerised cargoes (b) Liquid cargoes (c) General cargoes (d) Deck cargoes (e) Refrigerated cargoes (f) Dry bulk cargoes (g) Vehicular/roll on-roll off cargoes

			(h) Grain cargoes (i) Timber cargoes (j) Offshore vessel operations Use of the hydrometer The safety and security procedure to be observed when carrying out a cargo operations Understanding the factors that can affect the ships stability (input of incorrect weights (mis declared weights), ice on deck (accretion) Interpretation of data from loading instrument (GZ curve understanding IMO minimum intact stability criteria).
Inspect and report defects and damage to cargo spaces, hatch covers and ballast tanks	Knowledge and ability to explain where to look for damage and defects most commonly encountered due to: 1. loading and unloading operations 2. corrosion 3. severe weather conditions	The inspections are carried out in accordance with laid-down procedures, and defects and damage are detected and properly reported Where no defects or damage are detected, the evidence from testing and examination clearly indicates adequate competence in adhering to procedures and ability to distinguish	Procedures as per the current Code of Safe working practices for merchant seafarers (COSWP) and on-board publications/documentation On-board plans, documents, and procedures

	Ability to state which parts of the ship shall be inspected each time in order to cover all parts within a given period of time Identify those elements of the ship structure which are critical to the safety of the ship State the causes of corrosion in cargo spaces and ballast tanks and how corrosion can be identified and prevented Knowledge of procedures on how the inspections shall be carried out Ability to explain how to ensure reliable detection of defects and damages Understanding of the purpose of the "enhanced survey programme"	between normal and defective or damaged parts of the ship	

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

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence

Ensure compliance with pollution- prevention requirements	*Prevention of pollution of the marine environment and anti-pollution procedures* Knowledge of the precautions to be taken to prevent pollution of the marine environment Anti-pollution procedures and all associated equipment Importance of proactive measures to protect the marine environment	Procedures for monitoring shipboard operations and ensuring compliance with MARPOL requirements are fully observed Actions to ensure that a positive environmental reputation is maintained	Precautions to be taken to prevent pollution of the marine environment as required by the MARPOL conventions, including Restricted Areas and the disposal of pollutants The procedures to prevent pollution of the marine environment for various operations including but not limited to the following; (a) Carriage of hazardous substances on board (b) Garbage and tank residue disposal (c) Routine vessel operations. (d) Bunkering Basic understanding of SOPEP and SMPEP manual, Garbage Management Plan and anti-pollution equipment Various operations are carried out in compliance with the MARPOL Annexes
Maintain seaworthiness of the ship	*Ship stability* Working knowledge and application of stability, trim and stress tables, diagrams and stress-calculating equipment	The stability conditions comply with the IMO intact stability criteria under all conditions of loading	Preparations for heavy weather Ability to understand/explain at basic level the vessel`s stability terms,

	Understanding of fundamental actions to be taken in the event of partial loss of intact buoyancy Understanding of the fundamentals of watertight integrity *Ship construction* General knowledge of the principal structural members of a ship and the proper names for the various parts	Actions to ensure and maintain the watertight integrity of the ship are in accordance with accepted practice	including but not limited to the following • Effect on G during loading, discharging and moving weights • Causes of List • Difference between list and loll and the methods of correction. • Changes in stability during the voyage • Free surface and the dangers and effect at small angles of heel • Effect of tank subdivision and density on free surface • Allowance for the effect of free surface • The terms relating to statical stability • GZ curves • Own vessel's state of stability Ability to prepare the vessel for sea ensuring seaworthiness
Prevent, control and fight fires on board	*Fire prevention and fire-fighting appliances* Ability to organize fire drills Knowledge of classes and chemistry of fire Knowledge of fire-fighting systems	The type and scale of the problem is promptly identified and initial actions conform with the emergency procedure and contingency plans for the ship Evacuation, emergency shutdown and isolation procedures are appropriate to the nature of the emergency and are implemented	Initial action to be taken in the event of fire including fires involving oil Use and care of fire-fighting appliances (Portable and fixed),

	Knowledge of action to be taken in the event of fire, including fires involving oil systems	promptly The order of priority and the levels and time-scales of making reports and informing personnel on board are relevant to the nature of the emergency and reflect the urgency of the problem	emergency escape devices, self-contained breathing apparatus (SCBA), fire and safety plans Understanding of the organisational procedures for emergency parties and drills
Operate life-saving appliances	*Life-saving* Ability to organize abandon ship drills and knowledge of the operation of survival craft and rescue boats, their launching appliances and arrangements, and their equipment, including radio life-saving appliances, satellite EPIRBs, SARTs, immersion suits and thermal protective aids	Actions in responding to abandon ship and survival situations are appropriate to the prevailing circumstances and conditions and comply with accepted safety practices and standards	Use and care of life-saving appliances and equipment including hand held radios, EPIRBs, SARTs, immersion suits and thermal protective aids, and rocket line throwing apparatus Meaning of markings on survival craft and associated equipment Launch and manage survival craft, recover rescue boats at sea Precautions for the protection and safety of passengers in emergencies Knowledge of the contents of SOLAS training manuals and maintenance logs Basic principles of survival

			Understanding of the organisational procedures for emergency parties and drills
Apply medical first aid on board ship	*Medical aid* Practical application of medical guides and advice by radio, including the ability to take effective action based on such knowledge in the case of accidents or illnesses that are likely to occur on board ship	The identification of probable cause, nature and extent of injuries or conditions is prompt and treatment minimises immediate threat to life	Identify the immediate measures to be taken when accidents, medical emergencies or illnesses occur, including prioritising actions to be taken and minimising risk of harm to self and casualty Knowledge of medical equipment as listed in the Annex 1 of MSN 1768 (M+F) or subsequent amendments
Monitor compliance with legislative requirements	Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment	Legislative requirements relating to safety of life at sea, security and protection of the marine environment are correctly identified	Purpose and application of the ISPS code Purpose and application of the International Safety Management (ISM) Code. Understanding of the MLC Understanding of STCW convention. Purpose of Flag State and Port State Control Contents and use of Merchant Shipping Notices, Marine Guidance Notes, Marine Information Notes and

			Annual Summary of Admiralty Notices to Mariners Knowledge and application of current Merchant Shipping Health and Safety legislation, and the Code of Safe Working Practices for Merchant Seamen
Application of leadership and teamworking skills	Working knowledge of shipboard personnel management and training A knowledge of related international maritime conventions and recommendations, and national legislation Ability to apply task and workload management, including: 1. planning and co-ordination 2. personnel assignment 3. time and resource constraints 4. prioritization Knowledge and ability to apply effective resource management:	The crew are allocated duties and informed of expected standards of work and behaviour in a manner appropriate to the individuals concerned Training objectives and activities are based on assessment of current competence and capabilities and operational requirements Operations are demonstrated to be in accordance with applicable rules Operations are planned and resources are allocated as needed in correct priority to perform necessary tasks Communication is clearly and	

	1. allocation, assignment, and prioritization of resources 2. effective communication onboard and ashore 3. decisions reflect consideration of team experiences 4. assertiveness and leadership, including motivation 5. obtaining and maintaining situational awareness Knowledge and ability to apply decision-making techniques: 1. situation and risk assessment 2. identify and consider generated options 3. selecting course of action 4. evaluation of outcome effectiveness	unambiguously given and received Effective leadership behaviours are demonstrated Necessary team member(s) share accurate understanding of current and predicted vessel status and operational status and external environment Decisions are most effective for the situation	
Contribute to the safety of personnel and ship	Knowledge of personal survival techniques	Appropriate safety and protective equipment is correctly used	

	Knowledge of fire prevention and ability to fight and extinguish fires Knowledge of elementary first aid Knowledge of personal safety and social responsibilities	Procedures and safe working practices designed to safeguard personnel and the ship are observed at all times Procedures designed to safeguard the environment are observed at all times Initial and follow-up action on becoming aware of an emergency conforms with established emergency response procedures	

4 Oral exam syllabus for Chief Mate Unlimited and Master Ship less than 3000 GT Unlimited STCW Code II/2

Section A-II/2

Mandatory minimum requirements for certification of chief mates on ships of 500 gross tonnage or more and Master Unlimited - Ships less than 3000 GT

Standard of competence

1. Candidates are required to demonstrate competence to undertake the tasks, duties and responsibilities listed in the 'Competence' column of this oral examination syllabus.

2. The minimum knowledge, understanding and proficiency required for certification is listed in 'Knowledge, understanding and proficiency' column of table A-II/2.

3. The level of responses of the subjects listed in the 'Knowledge, understanding and proficiency' column of this oral examination syllabus shall be such that in the examiner's professional judgement it would be sufficient for a Chief Mate and Master to carry out their watchkeeping duties.

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

5. The level of theoretical knowledge, understanding and proficiency required under the different sections in 'Knowledge, understanding and proficiency' column of table A-II/2 may be varied according to whether the certificate is to be valid for ships of 3,000 gross tonnage or more or for ships of between 500 gross tonnage and 3,000 gross tonnage.

6. Candidates and Examiners should refer to the 'Criteria for evaluating competence' and 'Further guidance for evaluating competence' columns for further details.

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Plan a voyage and conduct navigation	Voyage planning and navigation for all conditions by acceptable methods of plotting ocean tracks, taking into account, e.g.: 1. restricted waters 2. meteorological conditions 3. ice 4. restricted visibility 5. traffic separation schemes 6. vessel traffic service (VTS) areas 7. areas of extensive tidal effects Routeing in accordance with the General Provisions on Ships' Routeing Reporting in accordance with the General principles for Ship Reporting Systems and with VTS procedures	The equipment, charts and nautical publications required for the voyage are enumerated and appropriate to the safe conduct of the voyage The reasons for the planned route are supported by facts and statistical data obtained from relevant sources and publications Positions, courses, distances and time calculations are correct within accepted accuracy standards for navigational equipment All potential navigational hazards are accurately identified	Passage planning with respect to the use of navigational publications including ENCs and RNCs used in ECDIS Assessing all risks and with strategic overview for the intended passage The requirements of ship routeing and mandatory reporting systems IALA systems of maritime buoyage Responsibilities with respect to monitoring the vessel's safe navigation Ability to safely adjust the passage plan due to change in circumstances or related hazards The requirements of ship routeing and mandatory reporting systems

Determine position and the accuracy of resultant position fix by any means	Position determination in all conditions: 1. by celestial observations 2. by terrestrial observations, including the ability to use appropriate charts, notices to mariners and other publications to assess the accuracy of the resulting position fix 3. using modern electronic navigational aids, with specific knowledge of their operating principles, limitations, sources of error, detection of misrepresentation of information and methods of correction to obtain accurate position fixing	The primary method chosen for fixing the ship's position is the most appropriate to the prevailing circumstances and conditions The fix obtained by celestial observations is within accepted accuracy levels The fix obtained by terrestrial observations is within accepted accuracy levels The accuracy of the resulting fix is properly assessed The fix obtained by the use of electronic navigational aids is within the accuracy standards of the systems in use. The possible errors affecting the accuracy of the resulting position are stated and methods of minimizing the effects of system errors on the resulting position are properly applied	Determining the accuracy of a ships position by assessing various position fixing methods
Determine and allow for compass errors	Ability to determine and allow for errors of the magnetic and gyro-compasses Knowledge of the principles of magnetic and gyro-compasses An understanding of systems under	The method and frequency of checks for errors of magnetic and gyro-compasses ensures accuracy of information	Use, care and limitations of the magnetic and gyro compasses, and associated equipment including automatic pilot

	the control of the master gyro and a knowledge of the operation and care of the main types of gyro-compass		
Coordinate search and rescue operations	A thorough knowledge of and ability to apply the procedures contained in the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual	The plan for coordinating search and rescue operations is in accordance with international guidelines and standards Radiocommunications are established and correct communication procedures are followed at all stages of the search and rescue operations	Use of most current the International Aeronautical and Marine Search and Rescue (IAMSAR) Manual (Volume III), distress and emergency signals Search and Rescue (SAR) around the UK and world-wide Initiate search patterns for various situations Search and Rescue (SAR) plans for passenger ships Safety during helicopter operations Assisting a ship or aircraft in distress; rescuing the passengers and crew of a disabled ship or ditched aircraft Correct use of distress signals and awareness of penalties for misuse Emergency communications within the GMDSS regulations Sources of radio medical advice

Establish watchkeeping arrangements and procedures	Thorough knowledge of content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972, as amended Thorough knowledge of the content, application and intent of the Principles to be observed in keeping a navigational watch	Watchkeeping arrangements and procedures are established and maintained in compliance with international regulations and guidelines so as to ensure the safety of navigation, protection of the marine environment and safety of the ship and persons on board	Application of the principles of watchkeeping in line with the STCW conv and ICS Bridge Procedures Guide
Maintain safe navigation through the use of information from navigation equipment and systems to assist command decision making Note: Training and assessment in the use of ARPA is not required for those who serve exclusively on ships not fitted with ARPA. This limitation shall be reflected in the endorsement issued to the seafarer concerned	An appreciation of system errors and thorough understanding of the operational aspects of navigational systems Blind pilotage planning Evaluation of navigational information derived from all sources, including radar and ARPA, in order to make and implement command decisions for collision avoidance and for directing the safe navigation of the ship The interrelationship and optimum use of all navigational data available for conducting navigation	Information obtained from navigation equipment and systems is correctly interpreted and analysed, taking into account the limitations of the equipment and prevailing circumstances and conditions Action taken to avoid a close encounter or collision with another vessel is in accordance with the International Regulations for Preventing Collisions at Sea, 1972, as amended	Electronic navigational systems – limitations and sources of error, methods of correction Radar and ARPA – practical use of, modes of operation, performance monitoring, limitations, sources of error, methods of correction and parallel indexing Understand the use of bridge equipment, including but not limited to rate of turn indicators, course recorders, echo sounders and NAVTEX, BNWAS and VDR/SVDR A thorough knowledge and understanding of the content, application and intent of the International Regulations for Preventing Collisions at Sea

Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making Note: Training and assessment in the use of ECDIS is not required for those who serve exclusively on ships not fitted with ECDIS. This limitation shall be reflected in the endorsement issued to the seafarer concerned	Management of operational procedures, system files and data, including: 1. manage procurement, licensing and updating of chart data and system software to conform to established procedures 2. system and information updating, including the ability to update ECDIS system version in accordance with vendor's product development 3. create and maintain system configuration and backup files 4. create and maintain log files in accordance with established procedures 5. create and maintain route plan files in accordance with established procedures 6. use ECDIS log-book and track history functions for inspection of	Operational procedures for using ECDIS are established, applied, and monitored Actions taken to minimize risk to safety of navigation	Interpret and analyse information from ECDIS and other interface equipment, taking into account the limitations of the equipment including ENC and RNC and prevailing circumstances and conditions Explain the need to carry out performance checks and tests of ECDIS equipment Appropriate initial responses to malfunction of ECDIS and its impact on related critical equipment ECDIS, S57 and S52 updates Interpretation of ENC`s data ECDIS updates and setting of safety parameters for a passage

	system functions, alarm settings and user responses Use ECDIS playback functionality for passage review, route planning and review of system functions		
Forecast weather and oceanographic conditions	Ability to understand and interpret a synoptic chart and to forecast area weather, taking into account local weather conditions and information received by weather fax Knowledge of the characteristics of various weather systems, including tropical revolving storms and avoidance of storm centres and the dangerous quadrants Knowledge of ocean current systems Ability to calculate tidal conditions Use all appropriate nautical publications on tides and currents	The likely weather conditions predicted for a determined period are based on all available information Actions taken to maintain safety of navigation minimise any risk to safety of the ship Reasons for intended action are backed by statistical data and observations of the actual weather conditions	Sources of meteorological information, ability to use and interpret information obtained from ship borne meteorological instruments, knowledge of characteristics of various weather systems, reporting and recording systems Ability to detect the presence of Tropical Revolving Storms.
Respond to navigational emergencies	Precautions when beaching a ship Action to be taken if grounding is imminent, and after grounding	The type and scale of any problem is promptly identified and decisions and actions minimise the effects of any malfunction of the ship's systems	Measures to be taken following: accidental damage including collision, grounding, flooding or major mechanical damage, including the possibility of beaching a ship; protection of the marine Environment

	Refloating a grounded ship with and without assistance Action to be taken if collision is imminent and following a collision or impairment of the watertight integrity of the hull by any cause Assessment of damage control Emergency steering Emergency towing arrangements and towing procedure	Communications are effective and comply with established procedures Decisions and actions maximize safety of persons on board	Use of the effect on trim and stability, and subsequent actions in the event of damage to and consequent flooding of a compartment Action to be taken when disabled and in distress Application of damage stability information to assess vessel's condition to ensuring the safety of crew, passenger and the vessel; including protection of marine environment Use of emergency steering systems Preparations and precautions for towing and being towed
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 2. handling ship in rivers, estuaries and restricted waters, having regard to the effects of current,	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 While under way, a full assessment is made of possible effects of shallow and restricted waters, ice, banks, tidal conditions, passing ships and own ship's bow and stern wave so that the ship can be safely manoeuvred under	Manoeuvres in restricted waters and open seas Use of steering control systems, including automatic pilot, operational procedures and change-over from manual to automatic control and vice-versa, adjustment of controls for optimum performance Handling a ship during embarkation and disembarkation of a pilot

	wind and restricted water on helm response 3. application of constant- rate-of-turn techniques 4. manoeuvring in shallow water, including the reduction in under-keel clearance caused by squat, rolling and pitching 5. interaction between passing ships and between own ship and nearby banks (canal effect) 6. berthing and unberthing under various conditions of wind, tide and current with and without tugs 7. ship and tug interaction 8. use of propulsion and manoeuvring systems 9. 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	various conditions of loading and weather	Berthing and unberthing at jetties, quays, mooring buoys and single-point moorings with/without tugs, with/without tidal stream, with/without wind Conning the ship, effects of wind and current, effects of dead-weight, draft, trim, speed and under-keel clearance on turning circles and stopping distances; interaction and squat Different types of anchors and their advantages and disadvantages, preparation for anchoring, anchoring in a tideway and in confined water, operation of anchoring with a single anchor and use of a second anchor, dragging anchor, clearing a foul anchor and hawse, hanging off an anchor, breaking and slipping cables, getting under way

	10 dragging anchor; clearing fouled anchors 11 dry-docking, both with and without damage 12 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 13 precautions in manoeuvring to launch rescue boats or survival craft in bad weather 14 methods of taking on board survivors from rescue boats and survival craft 15 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		Manoeuvres to launch and recover rescue boats/survival craft

	16 importance of navigating at reduced speed to avoid damage caused by own ship's bow wave and stern wave 17 practical measures to be taken when navigating in or near ice or in conditions of ice accumulation on board 18 use of, and manoeuvring in and near, traffic separation schemes and in vessel traffic service (VTS) areas		Navigation in the vicinity of ice, ice reporting and steps to be taken in the event of ice accretion Conduct in and near traffic separation schemes and vessel traffic service (VTS) areas
Operate remote controls of propulsion plant and engineering systems and services	Operating principles of marine power plants Ships' auxiliary machinery General knowledge of marine engineering terms	Plant, auxiliary machinery and equipment is operated in accordance with technical specifications and within safe operating limits at all times	Understanding of working principles of main propulsion and auxiliary machinery

Function: Cargo handling and stowage at the management level

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Knowledge of and ability to apply relevant international regulations, codes and standards concerning the safe handling, stowage, securing and transport of cargoes Knowledge of the effect on trim and stability of cargoes and cargo operations Use of stability and trim diagrams and stress-calculating equipment, including automatic data-based (ADB) equipment, and knowledge of loading cargoes and ballasting in order to keep hull stress within acceptable limits Stowage and securing of cargoes on board ships, including cargo-handling gear and securing and lashing equipment Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing General knowledge of tankers and tanker operations	The frequency and extent of cargo condition monitoring is appropriate to its nature and prevailing conditions Unacceptable or unforeseen variations in the condition or specification of the cargo are promptly recognised and remedial action is immediately taken and designed to safeguard the safety of the ship and those on board Cargo operations are planned and executed in accordance with established procedures and legislative requirements Stowage and securing of cargoes ensures that stability and stress conditions remain within safe limits at all times during the voyage	The safe stability of the vessel is maintained throughout all-cargo operations Use of all information available to the vessel including the advice from the shipper prior to loading a cargo Methods of pest control and required safeguards for fumigation of cargo spaces Use and care of deck machinery commonly fitted including lifting equipment Application of the contents of relevant regulations, codes and guidelines concerning the safe stowage, securing and carriage of cargoes

	Knowledge of the operational and design limitations of bulk carriers Ability to use all available shipboard data related to loading, care and unloading of bulk cargoes Ability to establish procedures for safe cargo handling in accordance with the provisions of the relevant instruments such as IMDG Code, IMSBC Code, MARPOL 73/78 Annexes III and V and other relevant information Ability to explain the basic principles for establishing effective communications and improving working relationship between ship and terminal personnel		The requirements to ensure cargo is secured effectively Manage the onboard preparation to ensure that the cargo operations comply with respective legislation and codes for all cargoes. Understanding of Bills of Lading and its implications with off-spec cargo. Importance of Mates receipts when the Bills of lading not signed by Master. Use, maintenance and testing of cargo handling equipment on board the vessel concerned Application of the contents of relevant codes and guidelines concerning the safe handling of cargoes on board the vessel concerned Ship/shore interface Limitations, use and maintenance of stress-calculating equipment and stability programs
Assess reported defects and damage to cargo spaces, hatch covers and	Knowledge of the limitations on strength of the vital constructional parts of a standard bulk carrier and	Evaluations are based on accepted principles, well-founded arguments and correctly carried out. The	Stability/stress diagrams and stress calculating equipment

ballast tanks and take appropriate action	ability to interpret given figures for bending moments and shear forces Ability to explain how to avoid the detrimental effects on bulk carriers of corrosion, fatigue and inadequate cargo handling	decisions taken are acceptable, taking into consideration the safety of the ship and the prevailing conditions	The causes of corrosion and structural failure Preparation for dry-docking and undocking with and without cargo/damage; general procedure and precautions to be observed
Carriage of dangerous goods	International regulations, standards, codes and recommendations on the carriage of dangerous cargoes, including the International Maritime Dangerous Goods (IMDG) Code and the International Maritime Solid Bulk Cargoes (IMSBC) Code Carriage of dangerous, hazardous and harmful cargoes; precautions during loading and unloading and care during the voyage	Planned distribution of cargo is based on reliable information and is in accordance with established guidelines and legislative requirements Information on dangers, hazards and special requirements is recorded in a format suitable for easy reference in the event of an incident	Application of various codes related to dangerous goods

Function: Controlling the operation of the ship and care for persons on board at the management level

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Control trim, stability and stress	Understanding of fundamental principles of ship construction and the theories and factors affecting trim and stability and measures necessary to preserve trim and stability Knowledge of the effect on trim and stability of a ship in the event of damage to and consequent flooding of a compartment and countermeasures to be taken Knowledge of IMO recommendations concerning ship stability	Stability and stress conditions are maintained within safe limits at all times	Use of stability and trim information, use of stress-calculating equipment, knowledge of loading cargoes and ballasting with respect to stability and hull stress Action in event of loss of stability due to cargo shift, damage to hull or hatches, loss of cargo overboard or ingress of water into hull including flooding of compartment
Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions Regard shall be paid especially to the following subjects: 1. certificates and other documents required to be carried on board ships by international conventions, how they may be obtained and their period of validity	Procedures for monitoring operations and maintenance comply with legislative requirements Potential non-compliance is promptly and fully identified Planned renewal and extension of certificates ensures continued validity of surveyed items and equipment	The application of current Merchant Shipping Health and Safety legislation, including the Code of Safe Working Practices for Merchant Seamen and the main elements of Risk Assessment Improvement and Prohibition Notices Safe manning, Seafarer Employment Agreements, conditions of employment, official log book and the law relating to entries

	2. responsibilities under the relevant requirements of the International Convention on Load Lines, 1966, as amended 3. responsibilities under the relevant requirements of the International Convention for the Safety of Life at Sea, 1974, as amended 4. responsibilities under the International Convention for the Prevention of Pollution from Ships, as amended 5. maritime declarations of health and the requirements of the International Health Regulations 6. responsibilities under international instruments affecting the safety of the ship, passengers, crew and cargo 7. methods and aids to prevent pollution of the marine environment by ships		Understanding of load line marks, entries and reports in respect of freeboard, draft and allowances Routine inspection of living quarters and storerooms, and complaints procedure Requirements for records including Oil Record Book; Requirements for drills and training The requirements of the regulations concerning fire-fighting appliances The requirements of the regulations concerning life-saving appliances The international conventions relevant to the operation of ships including certificates and other documents required to be carried on board ships Requirements for statutory and classification surveys Reports required by the Marine Accident Investigation Branch (MAIB) Putting into port with damage to ship and/or cargo, both from business and technical points of view – safeguarding of cargo

	8. national legislation for implementing international agreements and conventions		Obligations with respect to pilotage Towage and salvage agreements Purpose of Flag State and Port State Control Purpose and application of the International Safety Management (ISM) Code Purpose and application of the MLC 2006. Measures to be taken to prevent pollution in port and at sea Take appropriate action in response to pollution incidents on board and found at sea Knowledge of the contents of the SOPEP & SMPEP manual, Garbage Management Plan and use of provided anti-pollution equipment Practical knowledge of the requirements of MARPOL Conventions Knowledge of responsibilities, duties, obligations and liabilities in respect of pollution and Ballast Water Management (BWM) convention.

Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems	Thorough knowledge of life-saving appliance regulations (International Convention for the Safety of Life at Sea) Organization of fire drills and abandon ship drills Maintenance of operational condition of life-saving, fire-fighting and other safety systems Actions to be taken to protect and safeguard all persons on board in emergencies Actions to limit damage and salve the ship following a fire, explosion, collision or grounding	Procedures for monitoring fire-detection and safety systems ensure that all alarms are detected promptly and acted upon in accordance with established emergency procedures	Preparations for sea prior to sailing with respect to watertight integrity and additional precautions to be taken before the onset of heavy weather Practical knowledge of the particular loadline items affecting seaworthiness Master's responsibility with respect to stowaways and prevention of smuggling Precautions to safeguard against terrorism, piracy and armed robbery Precautions to be taken in pest control in living spaces The organisation and direction of fire-fighting and abandon ship parties Methods of dealing with fire on board ship; prevention of fire at sea and in port Action to be taken to prevent the spread of fire Operation, maintenance and testing of the following equipment but not

			limited to; fire-fighting equipment, fire doors, dampers, screens and detection equipment Operation, maintenance and testing of watertight doors, side scuttles and scuppers Operation, maintenance and testing of lifesaving appliances The contents of SOLAS training manuals
Develop emergency and damage control plans and handle emergency situations	Preparation of contingency plans for response to emergencies Ship construction, including damage control Methods and aids for fire prevention, detection and extinction Functions and use of life-saving appliances	Emergency procedures are in accordance with the established plans for emergency situations	Application of decision support system in emergency situations The organisation of fire-fighting and abandon ship parties Launch, manage and ensure survival in survival craft, recover survival craft at sea and beach or land survival craft
Use of leadership and managerial skill	Knowledge of shipboard personnel management and training A knowledge of related international maritime conventions and	The crew are allocated duties and informed of expected standards of work and behaviour in a manner appropriate to the individuals concerned	Knowledge of personnel management, organisation and training including disciplinary Procedures

	recommendations, and national legislation Ability to apply task and workload management, including: 1. planning and co-ordination 2. personnel assignment 3. time and resource constraints 4. prioritization Knowledge and ability to apply effective resource management: 1. allocation, assignment, and prioritization of resources 2. effective communication on board and ashore 3. decisions reflect consideration of team experiences 4. assertiveness and leadership, including motivation	Training objectives and activities are based on assessment of current competence and capabilities and operational requirements Operations are demonstrated to be in accordance with applicable rules Operations are planned and resources are allocated as needed in correct priority to perform necessary tasks Communication is clearly and unambiguously given and received Effective leadership behaviours are demonstrated Necessary team member(s) share accurate understanding of current and predicted vessel state and operational status and external environment Decisions are most effective for the situation Operations are demonstrated to be effective and in accordance with applicable rules	Application of hours of work and rest legislation

	5. obtaining and maintaining situation awareness Knowledge and ability to apply decision-making techniques: 1. situation and risk assessment 2. identify and generate options 3. selecting course of action 4. evaluation of outcome effectiveness Development, implementation, and oversight of standard operating procedures		
Organise and manage the provision of medical care on board	A thorough knowledge of the use and contents of the following publications: 1. International Medical Guide for Ships or equivalent national publications 2. medical section of the International Code of Signals	Actions taken and procedures followed correctly apply and make full use of advice available	Sources of medical advice from on board publications and from the shore

	3. Medical First Aid Guide for Use in Accidents Involving Dangerous Goods		

5 Oral exam syllabus for Master Unlimited STCW Code II/2

Section A-II/2
Mandatory minimum requirements for certification of Master Unlimited

Standard of competence

1. Every candidate for certification as *Master Unlimited* shall be required to demonstrate the competence to undertake, at the management level, the tasks, duties and responsibilities listed in the ‘Competence’ column of table A-II/2.

2. The minimum knowledge, understanding and proficiency required for certification is listed in the ‘knowledge, understanding and proficiency’ column of table A-II/2.

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

4. The level of knowledge of the subjects listed in the ‘Knowledge, understanding and proficiency’ column of table A-II/2 shall be such that in the examiners professional judgement it would be sufficient to enable the candidate to serve in the capacity of master and undertake management level functions.

5. Candidates and Examiners should refer to the ‘Criteria for evaluating competence’ and ‘Further guidance for evaluating competence’ columns for further details.

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Plan a voyage and conduct navigation	Voyage planning and navigation for all conditions by acceptable methods of plotting ocean tracks, taking into account, e.g.: 1. restricted waters 2. meteorological conditions 3. ice 4. restricted visibility 5. traffic separation schemes 6. vessel traffic service (VTS) areas 7. areas of extensive tidal effects Routeing in accordance with the General Provisions on Ships' Routeing Reporting in accordance with the General principles for Ship Reporting Systems and with VTS procedures	The equipment, charts and nautical publications required for the voyage are enumerated and appropriate to the safe conduct of the voyage The reasons for the planned route are supported by facts and statistical data obtained from relevant sources and publications Positions, courses, distances and time calculations are correct within accepted accuracy standards for navigational equipment All potential navigational hazards are accurately identified	Passage planning with respect to the use of navigational publications including ENCs and RNCs used in ECDIS Assessing all risks and with strategic overview for the intended passage Understand and interpret a synoptic chart and use of weather routing services Knowledge of characteristics of various weather systems, including tropical revolving storms, the avoidance of storm centres and dangerous quadrants Practical measures to be taken when navigating in or near ice and dealing with ice accumulation on board The requirements of ship routeing and mandatory reporting systems IALA systems of maritime buoyage Responsibilities with respect to monitoring the vessel’s safe navigation.

			Ability to safely adjust the passage plan due to change in circumstances or related hazards The requirements of ship routeing and mandatory reporting systems Danger messages and obligatory reporting requirements
Determine position and the accuracy of resultant position fix by any means	Position determination in all conditions: 1. by celestial observations 2. by terrestrial observations, including the ability to use appropriate charts, notices to mariners and other publications to assess the accuracy of the resulting position fix 3. using modern electronic navigational aids, with specific knowledge of their operating principles, limitations, sources of error, detection of misrepresentation of information and methods of correction to obtain accurate position fixing	The primary method chosen for fixing the ship's position is the most appropriate to the prevailing circumstances and conditions The fix obtained by celestial observations is within accepted accuracy levels The fix obtained by terrestrial observations is within accepted accuracy levels The accuracy of the resulting fix is properly assessed The fix obtained by the use of electronic navigational aids is within the accuracy standards of the systems in use. The possible errors affecting the accuracy of the resulting position are stated and methods of minimizing the effects of system	Determining the accuracy of the ship’s position by assessing various position fixing methods

		errors on the resulting position are properly applied	
Determine and allow for compass errors	Ability to determine and allow for errors of the magnetic and gyro-compasses Knowledge of the principles of magnetic and gyro-compasses An understanding of systems under the control of the master gyro and a knowledge of the operation and care of the main types of gyro-compass	The method and frequency of checks for errors of magnetic and gyro-compasses ensures accuracy of information	The operation and care of various types of compasses Care and maintenance of the magnetic compass and binnacle Knowledge of the purpose and use of compass correctors (candidates will not be required to demonstrate a compass correction procedure) Knowledge of how to find the magnetic bearing of a distant object and subsequent construction of a deviation card
Coordinate search and rescue operations	A thorough knowledge of and ability to apply the procedures contained in the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual	The plan for coordinating search and rescue operations is in accordance with international guidelines and standards	Use of most current the International Aeronautical and Marine Search and Rescue (IAMSAR) Manual (Volume III), distress and emergency signals Search and Rescue (SAR) around the UK and world-wide Initiate search patterns for various situations Search and Rescue (SAR) plans for passenger ships Safety during helicopter operations

		Radiocommunications are established and correct communication procedures are followed at all stages of the search and rescue operations	Assisting a ship or aircraft in distress; rescuing the passengers and crew of a disabled ship or ditched aircraft Correct use of distress signals and awareness of penalties for misuse Emergency communications within the GMDSS regulations
Establish watchkeeping arrangements and procedures	Thorough knowledge of content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972, as amended Thorough knowledge of the content, application and intent of the Principles to be observed in keeping a navigational watch	Watchkeeping arrangements and procedures are established and maintained in compliance with international regulations and guidelines so as to ensure the safety of navigation, protection of the marine environment and safety of the ship and persons on board	A thorough knowledge of the principles of navigational watchkeeping at sea, including under pilotage, at anchor and in port Application of the ICS Bridge Procedures Guide
Maintain safe navigation through the use of information from navigation equipment and systems to assist command decision making Note: Training and assessment in the use of ARPA is not required for	An appreciation of system errors and thorough understanding of the operational aspects of navigational systems Blind pilotage planning Evaluation of navigational information derived from all sources, including radar and ARPA, in order to make and implement command decisions	Information obtained from navigation equipment and systems is correctly interpreted and analysed, taking into account the limitations of the equipment and prevailing circumstances and conditions	Electronic navigational systems – limitations and sources of error, methods of correction Radar and ARPA – practical use of, modes of operation, performance monitoring, limitations, sources of error, methods of correction and parallel indexing

those who serve exclusively on ships not fitted with ARPA. This limitation shall be reflected in the endorsement issued to the seafarer concerned	for collision avoidance and for directing the safe navigation of the ship The interrelationship and optimum use of all navigational data available for conducting navigation	Action taken to avoid a close encounter or collision with another vessel is in accordance with the International Regulations for Preventing Collisions at Sea, 1972, as amended	Understand the use of bridge equipment, including rate of turn indicators, course recorders, echo sounders and NAVTEX, BNWAS and VDR/SVDR A thorough knowledge and understanding of the content, application and intent of the International Regulations for Preventing Collisions at Sea
Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making Note: Training and assessment in the use of ECDIS is not required for those who serve exclusively on ships not fitted with ECDIS. This limitation shall be reflected in the endorsement issued to the seafarer concerned	Management of operational procedures, system files and data, including: 1. manage procurement, licensing and updating of chart data and system software to conform to established procedures 2. system and information updating, including the ability to update ECDIS system version in accordance with vendor's product development 3. create and maintain system configuration and backup files	Operational procedures for using ECDIS are established, applied, and monitored Actions taken to minimize risk to safety of navigation	Interpret and analyse information from ECDIS and other interface equipment, taking into account the limitations of the equipment including ENC and RNC and prevailing circumstances and conditions Explain the need to carry out performance checks and tests of ECDIS equipment Appropriate initial responses to malfunction of ECDIS and its impact on related critical equipment ECDIS, S57 and S52 updates

	4. create and maintain log files in accordance with established procedures 5. create and maintain route plan files in accordance with established procedures 6. use ECDIS log-book and track history functions for inspection of system functions, alarm settings and user responses Use ECDIS playback functionality for passage review, route planning and review of system functions		Interpretation of ENC`s data ECDIS updates and setting of safety parameters for a passage
Forecast weather and oceanographic conditions	Ability to understand and interpret a synoptic chart and to forecast area weather, taking into account local weather conditions and information received by weather fax Knowledge of the characteristics of various weather systems, including tropical revolving storms and avoidance of storm centres and the dangerous quadrants Knowledge of ocean current systems Ability to calculate tidal conditions	The likely weather conditions predicted for a determined period are based on all available information Actions taken to maintain safety of navigation minimise any risk to safety of the ship Reasons for intended action are backed by statistical data and observations of the actual weather conditions	Sources of meteorological information, ability to use and interpret information obtained from ship borne meteorological instruments, knowledge of characteristics of various weather systems, reporting and recording systems. Ability to detect the presence of Tropical Revolving Storms.

	Use all appropriate nautical publications on tides and currents		
Respond to navigational emergencies	Precautions when beaching a ship Action to be taken if grounding is imminent, and after grounding Refloating a grounded ship with and without assistance Action to be taken if collision is imminent and following a collision or impairment of the watertight integrity of the hull by any cause Assessment of damage control Emergency steering Emergency towing arrangements and towing procedure	The type and scale of any problem is promptly identified and decisions and actions minimise the effects of any malfunction of the ship's systems Communications are effective and comply with established procedures Decisions and actions maximize safety of persons on board	Actions to be taken following: accidental damage including collision, grounding, flooding or major mechanical damage, loss of rudder and/or propeller and impairment of watertight integrity of the ship through any cause including the possibility of beaching a ship and subsequent surveys Protection of the marine environment Use of the effect on trim and stability, and subsequent actions in the event of damage to and consequent flooding of a compartment Action to be taken when disabled and in distress Application of damage stability information to assess vessel’s condition to ensure the safety of the crew, passengers and vessel; including protection of the marine environment Use of emergency steering systems

			Preparations and precautions for emergency towing and being towed Action to safeguard all persons on board in emergencies Assisting a ship or aircraft in distress
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, head reach and stopping distances 2. handling ship in rivers, estuaries and restricted waters, having regard to the effects of current, wind and restricted water on helm response 3. application of constant-rate-of-turn techniques 4. maneuvering in shallow water, including the reduction in under-keel clearance caused by squat, rolling and pitching	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 While under way, a full assessment is made of possible effects of shallow and restricted waters, ice, banks, tidal conditions, passing ships and own ship's bow and stern wave so that the ship can be safely manoeuvred under various conditions of loading and weather	Demonstrate an understanding of ship manoeuvres commonly undertaken under all weather conditions including approaching pilot stations, restricted waters and shallow water Embarking and disembarking pilots Use of steering control systems, including automatic pilot, operational procedures and change-over from manual to automatic control and vice-versa, adjustment of controls for optimum performance Berthing and unberthing at jetties, quays, mooring buoys and single-point moorings with/without tugs, with/without tidal stream, with/without wind

	5. interaction between passing ships and between own ship and nearby banks (canal effect) 6. berthing and unberthing under various conditions of wind, tide and current with and without tugs 7. ship and tug interaction 8. use of propulsion and maneuvering systems 9. 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 10 dragging anchor; clearing fouled anchors 11 dry-docking, both with and without damage 12 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		Conning the ship, effects of wind and current, effects of dead-weight, draft, trim, speed and under-keel clearance on turning circles and stopping distances; interaction and squat Different types of anchors and their advantages and disadvantages, preparation for anchoring, anchoring in a tideway and in confined water, operation of anchoring with a single anchor and use of a second anchor, dragging anchor, clearing a foul anchor and hawse, hanging off an anchor, breaking and slipping cables, getting under way Management and handling of ships in heavy weather

	13 precautions in manoeuvring to launch rescue boats or survival craft in bad weather 14 methods of taking on board survivors from rescue boats and survival craft 15 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 16 importance of navigating at reduced speed to avoid damage caused by own ship's bow wave and stern wave 17 practical measures to be taken when navigating in or near ice or in conditions of ice accumulation on board 18 use of, and manoeuvring in and near, traffic separation schemes and in vessel traffic service (VTS) areas		Precautions when manoeuvring to launch rescue boats or survival craft in bad weather Importance of navigating at reduced speed to avoid damage caused by own ship’s bow wave and stern wave Manoeuvres to launch and recover rescue boats/survival craft Navigation in the vicinity of ice, ice reporting and steps to be taken in the event of ice accretion Conduct in and near traffic separation schemes and vessel traffic service (VTS) areas

Operate remote controls of propulsion plant and engineering systems and services	Operating principles of marine power plants Ships' auxiliary machinery General knowledge of marine engineering terms	Plant, auxiliary machinery and equipment is operated in accordance with technical specifications and within safe operating limits at all times	Understanding of working principles of main propulsion and auxiliary machinery

Function: Cargo handling and stowage at the management level

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Knowledge of and ability to apply relevant international regulations, codes and standards concerning the safe handling, stowage, securing and transport of cargoes Knowledge of the effect on trim and stability of cargoes and cargo operations Use of stability and trim diagrams and stress-calculating equipment, including automatic data-based (ADB) equipment, and knowledge of loading cargoes and ballasting in order to keep hull stress within acceptable limits Stowage and securing of cargoes on	The frequency and extent of cargo condition monitoring is appropriate to its nature and prevailing conditions Unacceptable or unforeseen variations in the condition or specification of the cargo are promptly recognised and remedial action is immediately taken and designed to safeguard the safety of the ship and those on board	The safe stability of the vessel is maintained throughout all-cargo operations Use of all information available to the vessel including the advice from the shipper prior to loading a cargo Methods of pest control and required safeguards for fumigation of cargo spaces Master`s responsibilities on vessel Plan Maintenance System (PMS)

	board ships, including cargo-handling gear and securing and lashing equipment Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing General knowledge of tankers and tanker operations Knowledge of the operational and design limitations of bulk carriers Ability to use all available shipboard data related to loading, care and unloading of bulk cargoes Ability to establish procedures for safe cargo handling in accordance with the provisions of the relevant instruments such as IMDG Code, IMSBC Code, MARPOL 73/78 Annexes III and V and other relevant information Ability to explain the basic principles for establishing effective communications and improving working relationship between ship and terminal personnel	Cargo operations are planned and executed in accordance with established procedures and legislative requirements Stowage and securing of cargoes ensures that stability and stress conditions remain within safe limits at all times during the voyage	Application of the contents of relevant regulations, codes and guidelines concerning the safe stowage, securing and carriage of cargoes The requirements to ensure cargo is secured effectively Manage the onboard preparation to ensure that the cargo operations and handling comply with respective legislation and codes for all cargoes Understanding of Bills of Lading and its implications with off-spec cargo. Importance of Mates receipts when the Bills of lading not signed by Master. Ship/shore interface Limitations, use and maintenance of stress-calculating equipment and stability programs

Assess reported defects and damage to cargo spaces, hatch covers and ballast tanks and take appropriate action	Knowledge of the limitations on strength of the vital constructional parts of a standard bulk carrier and ability to interpret given figures for bending moments and shear forces Ability to explain how to avoid the detrimental effects on bulk carriers of corrosion, fatigue and inadequate cargo handling	Evaluations are based on accepted principles, well-founded arguments and correctly carried out. The decisions taken are acceptable, taking into consideration the safety of the ship and the prevailing conditions	Stability/stress diagrams and stress calculating equipment The causes of corrosion and structural failure Preparation for dry-docking and undocking with and without cargo/damage; general procedure and precautions to be observed
Carriage of dangerous goods	International regulations, standards, codes and recommendations on the carriage of dangerous cargoes, including the International Maritime Dangerous Goods (IMDG) Code and the International Maritime Solid Bulk Cargoes (IMSBC) Code Carriage of dangerous, hazardous and harmful cargoes; precautions during loading and unloading and care during the voyage	Planned distribution of cargo is based on reliable information and is in accordance with established guidelines and legislative requirements Information on dangers, hazards and special requirements is recorded in a format suitable for easy reference in the event of an incident	Application of various codes related to dangerous cargoes

Function: Controlling the operation of the ship and care for persons on board at the management level

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Control trim, stability and stress	Understanding of fundamental principles of ship construction and the theories and factors affecting trim and stability and measures necessary to preserve trim and stability Knowledge of the effect on trim and stability of a ship in the event of damage to and consequent flooding of a compartment and countermeasures to be taken Knowledge of IMO recommendations concerning ship stability	Stability and stress conditions are maintained within safe limits at all times	Use of stability and trim information, use of stress-calculating equipment, knowledge of loading cargoes and ballasting with respect to stability and hull stress Action in event of loss of stability due to cargo shift, damage to hull or hatches, loss of cargo overboard or ingress of water into hull including flooding of compartment Effect of heavy weather on the ship's structure Effect upon ship behaviour of lists, stiff and tender stability conditions, large angles of heel/list and associated righting precautions: the effect of excessive trim The importance of free surface effects and the identification and correction of an angle of loll Specific effects on stability and stress caused by ship type or nature of trade

Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions Regard shall be paid especially to the following subjects: 1. certificates and other documents required to be carried on board ships by international conventions, how they may be obtained and their period of validity 2. responsibilities under the relevant requirements of the International Convention on Load Lines, 1966, as amended 3. responsibilities under the relevant requirements of the International Convention for the Safety of Life at Sea, 1974, as amended 4. responsibilities under the International Convention for the Prevention of Pollution from Ships, as amended	Procedures for monitoring operations and maintenance comply with legislative requirements Potential non-compliance is promptly and fully identified Planned renewal and extension of certificates ensures continued validity of surveyed items and equipment	The application of current Merchant Shipping Health and Safety legislation, including the Code of Safe Working Practices for Merchant Seamen and the main elements of Risk Assessment Improvement and Prohibition Notices Safe manning, Seafarer Employment Agreements, conditions of employment, official log book and the law relating to entries Maritime declarations of health and requirements of the international health regulations Understanding of load line marks, entries and reports in respect of freeboard, draft and allowances Routine inspection of living quarters and storerooms, and complaints procedure Requirements for records including Oil Record Book; Requirements for drills and training The requirements of the regulations concerning fire-fighting appliances

	5. maritime declarations of health and the requirements of the International Health Regulations 6. responsibilities under international instruments affecting the safety of the ship, passengers, crew and cargo 7. methods and aids to prevent pollution of the marine environment by ships 8. national legislation for implementing international agreements and conventions		The requirements of the regulations concerning life-saving appliances The international conventions relevant to the operation of ships including certificates and other documents required to be carried on board ships Requirements for statutory and classification surveys Reports required by the Marine Accident Investigation Branch (MAIB) Putting into port with damage to ship and/or cargo, both from business and technical points of view – safeguarding of cargo Obligations with respect to pilotage Towage and salvage agreements Purpose of Flag State and Port State Control Purpose and application of the International Safety Management (ISM) Code Purpose and application of the MLC 2006

			Responsibilities under International Convention for Prevention of Pollution including masters' duties, obligations and liabilities, including the keeping of records Methods and equipment to prevent pollution Measures to be taken to prevent pollution in port and at sea and Ballast Water Management (BWM) convention
Maintain safety and security of the ship's crew and passengers and the operational condition of life- saving, fire- fighting and other safety systems	Thorough knowledge of life-saving appliance regulations (International Convention for the Safety of Life at Sea) Organization of fire drills and abandon ship drills Maintenance of operational condition of life-saving, fire-fighting and other safety systems Actions to be taken to protect and safeguard all persons on board in emergencies Actions to limit damage and salve the ship following a fire, explosion, collision or grounding	Procedures for monitoring fire-detection and safety systems ensure that all alarms are detected promptly and acted upon in accordance with established emergency procedures	Preparations for sea prior to sailing with respect to watertight integrity and additional precautions to be taken before the onset of heavy weather Practical knowledge of the particular loadline items affecting seaworthiness Master's responsibility with respect to stowaways and prevention of smuggling Precautions to safeguard against terrorism, piracy and armed robbery Precautions to be taken in pest control in living spaces

			The organisation and direction of fire-fighting and abandon ship parties Organisation of fire and abandon ship exercises including the training and use of SOLAS training manuals Methods of dealing with fire on board ship; prevention of fire at sea and in port Action to be taken to prevent the spread of fire Master`s responsibilities on condition of life saving appliances, firefighting appliances and other safety systems
Develop emergency and damage control plans and handle emergency situations	Preparation of contingency plans for response to emergencies Ship construction, including damage control Methods and aids for fire prevention, detection and extinction Functions and use of life-saving appliances	Emergency procedures are in accordance with the established plans for emergency situations	Application of decision support system in emergency situations The organisation of fire-fighting and abandon ship parties Launch, manage and ensure survival in survival craft, recover survival craft at sea and beach or land survival craft
Use of leadership and managerial skill	Knowledge of shipboard personnel management and training A knowledge of related international maritime conventions and	The crew are allocated duties and informed of expected standards of work and behaviour in a manner appropriate to the individuals	Knowledge of personnel management, organisation and training including disciplinary Procedures

	recommendations, and national legislation Ability to apply task and workload management, including: 1. planning and co-ordination 2. personnel assignment 3. time and resource constraints 4. prioritization Knowledge and ability to apply effective resource management: 1. allocation, assignment, and prioritization of resources 2. effective communication on board and ashore 3. decisions reflect consideration of team experiences 4. assertiveness and leadership, including motivation 5. obtaining and maintaining situation awareness	concerned Training objectives and activities are based on assessment of current competence and capabilities and operational requirements Operations are demonstrated to be in accordance with applicable rules Operations are planned and resources are allocated as needed in correct priority to perform necessary tasks Communication is clearly and unambiguously given and received Effective leadership behaviours are demonstrated	Application of hours of work and rest legislation

	Knowledge and ability to apply decision-making techniques: 1. situation and risk assessment 2. identify and generate options 3. selecting course of action 4. evaluation of outcome effectiveness Development, implementation, and oversight of standard operating procedures	Necessary team member(s) share accurate understanding of current and predicted vessel state and operational status and external environment Decisions are most effective for the situation Operations are demonstrated to be effective and in accordance with applicable rules	
Organise and manage the provision of medical care on board	A thorough knowledge of the use and contents of the following publications: 1. International Medical Guide for Ships or equivalent national publications 2. Medical section of the International Code of Signals 3. Medical First Aid Guide for Use in Accidents Involving Dangerous Goods	Actions taken and procedures followed correctly apply and make full use of advice available	Sources of medical advice from on board publications and the radio medical advice from the shore

6 Oral exam syllabus for Chief Mate Ships less than 3000 GT Unlimited STCW Code II/2

Section A-II/2

Mandatory minimum requirements for certification of chief mate on ships ***less than 3000 GT***

Standard of competence

1. Every candidate for certification as *chief mate on ships* ***less than 3000 GT*** shall be required to demonstrate the competence to undertake, at the management level, the tasks, duties and responsibilities listed in the 'Competence' column of table A-II/2.

2. The minimum knowledge, understanding and proficiency required for certification is listed in the 'Knowledge, understanding and proficiency' column of table A-II/2.

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

4. The level of knowledge of the subjects listed in the 'Knowledge, understanding and proficiency' column of table A-II/2 shall be such that in the examiners professional judgement it would be sufficient to enable the candidate to serve in the capacity of master or chief mate and undertake management level functions.

5. The level of theoretical knowledge, understanding and proficiency required under the different sections in the 'Knowledge, understanding and proficiency' column of table A-II/2 may be varied according to whether the certificate is to be valid for ships less than 3,000 gross tonnage.

6. Candidates and Examiners should refer to the 'Criteria for evaluating competence' and 'Further guidance for evaluating competence' columns for further details.

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Plan a voyage and conduct navigation	Voyage planning and navigation for all conditions by acceptable methods	The equipment, charts and nautical publications required for the voyage	Passage planning with respect to the use of navigational publications

	of plotting ocean tracks, taking into account, e.g.: 1. restricted waters 2. meteorological conditions 3. ice 4. restricted visibility 5. traffic separation schemes 6. vessel traffic service (VTS) areas 7. areas of extensive tidal effects Routeing in accordance with the General Provisions on Ships' Routeing Reporting in accordance with the General principles for Ship Reporting Systems and with VTS procedures	are enumerated and appropriate to the safe conduct of the voyage The reasons for the planned route are supported by facts and statistical data obtained from relevant sources and publications Positions, courses, distances and time calculations are correct within accepted accuracy standards for navigational equipment All potential navigational hazards are accurately identified	including ENCs and RNCs used in ECDIS Demonstrate an ability to undertake voyage planning, taking into consideration: (i) restricted waters; (ii) meteorological conditions, through the interpretation of a synoptic chart, and to forecast local area weather, the characteristics of various weather systems; (iii) restricted visibility Roles and Responsibilities of chief mate with respect to monitoring the vessel`s safe navigation IALA systems of maritime buoyage
Determine position and the accuracy of resultant position fix by any means	Position determination in all conditions: 1. by celestial observations	The primary method chosen for fixing the ship's position is the most appropriate to the prevailing circumstances and conditions The fix obtained by celestial observations is within accepted	Determining the accuracy of the ship`s position by assessing various position fixing methods

	2. by terrestrial observations, including the ability to use appropriate charts, notices to mariners and other publications to assess the accuracy of the resulting position fix 3. using modern electronic navigational aids, with specific knowledge of their operating principles, limitations, sources of error, detection of misrepresentation of information and methods of correction to obtain accurate position fixing	accuracy levels The fix obtained by terrestrial observations is within accepted accuracy levels The accuracy of the resulting fix is properly assessed The fix obtained by the use of electronic navigational aids is within the accuracy standards of the systems in use. The possible errors affecting the accuracy of the resulting position are stated and methods of minimizing the effects of system errors on the resulting position are properly applied	
Determine and allow for compass errors	Ability to determine and allow for errors of the magnetic and gyro-compasses Knowledge of the principles of magnetic and gyro-compasses An understanding of systems under the control of the master gyro and a knowledge of the operation and care of the main types of gyro-compass	The method and frequency of checks for errors of magnetic and gyro-compasses ensures accuracy of information	Compasses commonly fitted on board the ships concerned – variation and deviation, causes and effects, siting of other equipment with reference to magnetic compasses Knowledge of the purpose of correctors/corrections
Coordinate search and rescue operations	A thorough knowledge of and ability to apply the procedures contained in the International Aeronautical and	The plan for coordinating search and rescue operations is in accordance with international guidelines and	Use of most current the International Aeronautical and Marine Search and Rescue (IAMSAR) Manual (Volume

	Maritime Search and Rescue (IAMSAR) Manual	standards Radiocommunications are established and correct communication procedures are followed at all stages of the search and rescue operations	III), distress and emergency signals Search and Rescue (SAR) around the UK and world-wide Initiate search patterns for various situations Search and Rescue (SAR) plans for passenger ships Search and rescue procedures, assisting a ship or aircraft in distress, rescuing the passengers and crew of a disabled ship or ditched aircraft Emergency communications within the GMDSS regulations
Establish watchkeeping arrangements and procedures	Thorough knowledge of content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972, as amended Thorough knowledge of the content, application and intent of the principles to be observed in keeping a navigational watch	Watchkeeping arrangements and procedures are established and maintained in compliance with international regulations and guidelines so as to ensure the safety of navigation, protection of the marine environment and safety of the ship and persons on board	Application of the ICS Bridge Procedures Guide Principles of establishing a safe engineering watch at sea, anchor and in port
Maintain safe navigation through the use of information from navigation equipment and systems to assist	An appreciation of system errors and thorough understanding of the operational aspects of navigational systems	Information obtained from navigation equipment and systems is correctly interpreted and analysed, taking into account the limitations of the equipment and prevailing	Electronic navigational systems – limitations and sources of error, methods of correction

command decision making Note: Training and assessment in the use of ARPA is not required for those who serve exclusively on ships not fitted with ARPA. This limitation shall be reflected in the endorsement issued to the seafarer concerned	Blind pilotage planning Evaluation of navigational information derived from all sources, including radar and ARPA, in order to make and implement command decisions for collision avoidance and for directing the safe navigation of the ship The interrelationship and optimum use of all navigational data available for conducting navigation	circumstances and conditions Action taken to avoid a close encounter or collision with another vessel is in accordance with the International Regulations for Preventing Collisions at Sea, 1972, as amended	Radar and ARPA – practical use of, modes of operation, performance monitoring, limitations, sources of error, methods of correction and parallel indexing Understand the use of bridge equipment, including rate of turn indicators, course recorders, echo sounders and NAVTEX, BNWAS and VDR/SVDR A thorough knowledge and understanding of the content, application and intent of the International Regulations for Preventing Collisions at Sea
Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making Note: Training and assessment in the use of ECDIS is not required for those who serve exclusively on ships not fitted with ECDIS. This limitation shall be reflected in the endorsement issued to the seafarer concerned	Management of operational procedures, system files and data, including: 1. manage procurement, licensing and updating of chart data and system software to conform to established procedures 2. system and information updating, including the ability to update ECDIS system version in accordance with vendor's product development	Operational procedures for using ECDIS are established, applied, and monitored Actions taken to minimize risk to safety of navigation	Interpret and analyse information from ECDIS and other interface equipment, taking into account the limitations of the equipment including ENC and RNC and prevailing circumstances and conditions Explain the need to carry out performance checks and tests of ECDIS equipment Appropriate initial responses to malfunction of ECDIS and its impact on related critical equipment

	3. create and maintain system configuration and backup files 4. create and maintain log files in accordance with established procedures 5. create and maintain route plan files in accordance with established procedures 6. use ECDIS log-book and track history functions for inspection of system functions, alarm settings and user responses Use ECDIS playback functionality for passage review, route planning and review of system functions		ECDIS, S57 and S52 updates Interpretation of ENC`s data ECDIS updates and setting of safety parameters for a passage
Forecast weather and oceanographic conditions	Ability to understand and interpret a synoptic chart and to forecast area weather, taking into account local weather conditions and information received by weather fax Knowledge of the characteristics of various weather systems, including tropical revolving storms and avoidance of storm centres and the	The likely weather conditions predicted for a determined period are based on all available information Actions taken to maintain safety of navigation minimise any risk to safety of the ship Reasons for intended action are backed by statistical data and	Sources of meteorological information, ability to use and interpret information obtained from ship borne meteorological instruments, knowledge of characteristics of various weather systems, reporting and recording systems

	dangerous quadrants Knowledge of ocean current systems Ability to calculate tidal conditions Use all appropriate nautical publications on tides and currents	observations of the actual weather conditions	
Respond to navigational emergencies	Precautions when beaching a ship Action to be taken if grounding is imminent, and after grounding Reflating a grounded ship with and without assistance Action to be taken if collision is imminent and following a collision or impairment of the watertight integrity of the hull by any cause Assessment of damage control Emergency steering Emergency towing arrangements and towing procedure	The type and scale of any problem is promptly identified and decisions and actions minimise the effects of any malfunction of the ship's systems Communications are effective and comply with established procedures Decisions and actions maximize safety of persons on board	Measures to be taken following: accidental damage including collision, grounding, flooding or major mechanical damage, including the possibility of beaching a ship; protection of the marine Environment Use of the effect on trim and stability, and subsequent actions in the event of damage to and consequent flooding of a compartment Action to be taken when disabled and in distress, abandoning ship, survival procedure, and use of a vessels pyrotechnics Application of damage stability information to assess vessels condition to ensure the safety of the crew, passengers and vessel,

			including the protection of the marine environment Use of emergency steering systems Preparations and precautions for towing and being towed
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 2. handling ship in rivers, estuaries and restricted waters, having regard to the effects of current, wind and restricted water on helm response 3. application of constant- rate-of-turn techniques 4. manoeuvring in shallow water, including the reduction in under-	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 While under way, a full assessment is made of possible effects of shallow and restricted waters, ice, banks, tidal conditions, passing ships and own ship's bow and stern wave so that the ship can be safely manoeuvred under various conditions of loading and weather	Anchoring and working anchors and cables in all circumstances Proper procedures for berthing, unberthing and factors affecting safe manoeuvring and handling Knowledge of the operation of ship power plants and auxiliaries Embarking and disembarking pilots Manoeuvres in restricted waters and open seas Use of steering control systems, including automatic pilot, operational procedures and change-over from manual to automatic control and vice-versa, adjustment of controls for optimum performance

	keel clearance caused by squat, rolling and pitching 5. interaction between passing ships and between own ship and nearby banks (canal effect) 6. berthing and unberthing under various conditions of wind, tide and current with and without tugs 7. ship and tug interaction 8. use of propulsion and manoeuvring systems 9. 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 10 dragging anchor; clearing fouled anchors 11 dry-docking, both with and without damage		Proper procedures for berthing and unberthing Conning the ship, effects of wind and current, effects of dead-weight, draft, trim, speed and under-keel clearance on turning circles and stopping distances; interaction and squat Anchoring and working anchors and cables in all circumstances Different types of anchors and their advantages and disadvantages, preparation for anchoring, anchoring in a tideway and in confined water, operation of anchoring with a single anchor and use of a second anchor, dragging anchor, clearing a foul anchor and hawse, hanging off an anchor, breaking and slipping cables, getting under way

	12 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 13 precautions in manoeuvring to launch rescue boats or survival craft in bad weather 14 methods of taking on board survivors from rescue boats and survival craft 15 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 16 importance of navigating at reduced speed to avoid damage caused by own ship's bow wave and stern wave		Manoeuvres to launch and recover rescue boats/survival craft

	17 practical measures to be taken when navigating in or near ice or in conditions of ice accumulation on board 18 use of, and manoeuvring in and near, traffic separation schemes and in vessel traffic service (VTS) areas		Navigation in the vicinity of ice, ice reporting and steps to be taken in the event of ice accretion Conduct in and near traffic separation schemes and vessel traffic service (VTS) areas
Operate remote controls of propulsion plant and engineering systems and services	Operating principles of marine power plants Ships' auxiliary machinery General knowledge of marine engineering terms	Plant, auxiliary machinery and equipment is operated in accordance with technical specifications and within safe operating limits at all times	Understanding of working principles of main propulsion and auxiliary machinery

Function: Cargo handling and stowage at the management level

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Plan and ensure safe loading, stowage,	Knowledge of and ability to apply relevant international regulations,	The frequency and extent of cargo condition monitoring is appropriate to	

securing, care during the voyage and unloading of cargoes	codes and standards concerning the safe handling, stowage, securing and transport of cargoes Knowledge of the effect on trim and stability of cargoes and cargo operations Use of stability and trim diagrams and stress-calculating equipment, including automatic data-based (ADB) equipment, and knowledge of loading cargoes and ballasting in order to keep hull stress within acceptable limits Stowage and securing of cargoes on board ships, including cargo-handling gear and securing and lashing equipment Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing General knowledge of tankers and tanker operations Knowledge of the operational and design limitations of bulk carriers Ability to use all available shipboard data related to loading, care and	its nature and prevailing conditions Unacceptable or unforeseen variations in the condition or specification of the cargo are promptly recognised and remedial action is immediately taken and designed to safeguard the safety of the ship and those on board Cargo operations are planned and executed in accordance with established procedures and legislative requirements Stowage and securing of cargoes ensures that stability and stress conditions remain within safe limits at all times during the voyage	The safe stability of the vessel is maintained throughout all-cargo operations The regulations and recommendations affecting cargo handling, stowage, securing and carriage Use of all information available to the vessel including the advice from the shipper prior to loading a cargo Methods of pest control and required safeguards for fumigation of cargo spaces Use and care of deck machinery commonly fitted including lifting equipment The requirements to ensure cargo is secured effectively Manage the onboard preparation to ensure that the cargo operations

	unloading of bulk cargoes Ability to establish procedures for safe cargo handling in accordance with the provisions of the relevant instruments such as IMDG Code, IMSBC Code, MARPOL 73/78 Annexes III and V and other relevant information Ability to explain the basic principles for establishing effective communications and improving working relationship between ship and terminal personnel		comply with respective legislation and codes for all cargoes Use, maintenance and testing of cargo handling equipment on board the vessel concerned Application of the contents of relevant codes and guidelines concerning the safe handling of cargoes on board the vessel concerned Ship/shore interface Limitations, use and maintenance of stress-calculating equipment and stability programs
Assess reported defects and damage to cargo spaces, hatch covers and ballast tanks and take appropriate action	Knowledge of the limitations on strength of the vital constructional parts of a standard bulk carrier and ability to interpret given figures for bending moments and shear forces Ability to explain how to avoid the detrimental effects on bulk carriers of corrosion, fatigue and inadequate cargo handling	Evaluations are based on accepted principles, well-founded arguments and correctly carried out. The decisions taken are acceptable, taking into consideration the safety of the ship and the prevailing conditions	Stability/stress diagrams and stress calculations The causes of corrosion and structural failure Preparation for dry-docking and undocking with and without cargo/damage; general procedure and precautions to be observed
Carriage of dangerous goods	International regulations, standards, codes and recommendations on the carriage of dangerous cargoes,	Planned distribution of cargo is based on reliable information and is in accordance with established	

	including the International Maritime Dangerous Goods (IMDG) Code and the International Maritime Solid Bulk Cargoes (IMSBC) Code Carriage of dangerous, hazardous and harmful cargoes; precautions during loading and unloading and care during the voyage	guidelines and legislative requirements Information on dangers, hazards and special requirements is recorded in a format suitable for easy reference in the event of an incident	Application of various codes related to dangerous cargoes Use of the IMDG Code

Function: Controlling the operation of the ship and care for persons on board at the management level

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Control trim, stability and stress	Understanding of fundamental principles of ship construction and the theories and factors affecting trim and stability and measures necessary to preserve trim and stability Knowledge of the effect on trim and stability of a ship in the event of damage to and consequent flooding of a compartment and countermeasures to be taken Knowledge of IMO recommendations concerning ship stability	Stability and stress conditions are maintained within safe limits at all times	Action in event of loss of stability due to cargo shift, damage to hull or hatches, loss of cargo overboard or ingress of water into hull including flooding of compartment

Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions Regard shall be paid especially to the following subjects: 1. certificates and other documents required to be carried on board ships by international conventions, how they may be obtained and their period of validity 2. responsibilities under the relevant requirements of the, as amended 3. responsibilities under the relevant requirements of the International Convention for the Safety of Life at Sea, 1974, as amended 4. responsibilities under the International Convention for the Prevention of Pollution from Ships, as amended 5. maritime declarations of health and the requirements of the International Health Regulations	Procedures for monitoring operations and maintenance comply with legislative requirements Potential non-compliance is promptly and fully identified Planned renewal and extension of certificates ensures continued validity of surveyed items and equipment	Use of relevant Statutory Instruments (SI) UK, Merchant Shipping Notices, Marine Guidance Notes, Marine Information Notes and the Annual Summary of Admiralty Notices to Mariners The application of current Merchant Shipping Health and Safety legislation, including the Code of Safe Working Practices for Merchant Seamen and the main elements of Risk Assessment Improvement and Prohibition Notices Safe manning, Seafarer Employment Agreements, conditions of employment, official logbook and the law relating to entries Understanding of load line marks, entries and reports in respect of freeboard, draft and allowances The relevant IMO conventions concerning safety of life at sea and protection of the marine environment Routine inspection of living quarters and storerooms, and complaints procedure

	6. responsibilities under international instruments affecting the safety of the ship, passengers, crew and cargo 7. methods and aids to prevent pollution of the marine environment by ships 8. national legislation for implementing international agreements and conventions		Requirements for records including Oil Record Book; Requirements for drills and training The requirements of the regulations concerning fire-fighting appliances The requirements of the regulations concerning life-saving appliances The international conventions relevant to the operation of ships including certificates and other documents required to be carried on board ships Requirements for statutory and classification surveys Reports required by the Marine Accident Investigation Branch (MAIB) Putting into port with damage to ship and/or cargo, from technical points of view – safeguarding of cargo Obligations with respect to pilotage Towage and salvage agreements Purpose of Flag State and Port State Control

			Purpose and application of the International Safety Management (ISM) Code Purpose and application of the MLC 2006 Measures to be taken to prevent pollution in port and at sea Take appropriate action in response to pollution incidents on board and found at sea Knowledge of the contents of the SOPEP & SMPEP manual, Garbage Management Plan and use of provided anti-pollution equipment Practical knowledge of the requirements of MARPOL Conventions Knowledge of responsibilities, duties, obligations and liabilities in respect of pollution
Maintain safety and security of the ship's crew and passengers and the operational condition of life- saving, fire- fighting and other safety systems	Thorough knowledge of life-saving appliance regulations (International Convention for the Safety of Life at Sea) Organization of fire drills and abandon ship drills	Procedures for monitoring fire-detection and safety systems ensure that all alarms are detected promptly and acted upon in accordance with established emergency procedures	Preparations for sea prior to sailing with respect to watertight integrity and additional precautions to be taken before the onset of heavy weather

	Maintenance of operational condition of life-saving, fire-fighting and other safety systems Actions to be taken to protect and safeguard all persons on board in emergencies Actions to limit damage and salve the ship following a fire, explosion, collision or grounding		Practical knowledge of the particular loadline items affecting seaworthiness Chief mate's responsibility with respect to stowaways and prevention of smuggling Precautions to safeguard against terrorism, piracy and armed robbery Precautions to be taken in pest control in living spaces The organisation and direction of firefighting and abandon ship parties Methods of dealing with fire on board ship; prevention of fire at sea and in port Action to be taken to prevent the spread of fire Operation, maintenance and testing of firefighting equipment, fire doors, dampers, screens and detection equipment Operation, maintenance and testing of watertight doors, side scuttles and scuppers

			Operation, maintenance and testing of lifesaving appliances The contents of SOLAS training manuals
Develop emergency and damage control plans and handle emergency situations	Preparation of contingency plans for response to emergencies Ship construction, including damage control Methods and aids for fire prevention, detection and extinction Functions and use of life-saving appliances	Emergency procedures are in accordance with the established plans for emergency situations	Application of decision support system in emergency situations The organisation of fire-fighting and abandon ship parties Launch, manage and ensure survival in survival craft, recover survival craft at sea and beach or land survival craft
Use of leadership and managerial skill	Knowledge of shipboard personnel management and training A knowledge of related international maritime conventions and recommendations, and national legislation Ability to apply task and workload management, including: 1. planning and co-ordination	The crew are allocated duties and informed of expected standards of work and behaviour in a manner appropriate to the individuals concerned Training objectives and activities are based on assessment of current competence and capabilities and operational requirements Operations are demonstrated to be in accordance with applicable rules Operations are planned and	Knowledge of personnel management, organisation and training including disciplinary procedures Management of hours of work and rest as per legislation

	2. personnel assignment 3. time and resource constraints 4. prioritization Knowledge and ability to apply effective resource management: 1. allocation, assignment, and prioritization of resources 2. effective communication on board and ashore 3. decisions reflect consideration of team experiences 4. assertiveness and leadership, including motivation 5. obtaining and maintaining situation awareness Knowledge and ability to apply decision-making techniques: 1. situation and risk assessment 2. identify and generate options	resources are allocated as needed in correct priority to perform necessary tasks Communication is clearly and unambiguously given and received Effective leadership behaviours are demonstrated Necessary team member(s) share accurate understanding of current and predicted vessel state and operational status and external environment Decisions are most effective for the situation Operations are demonstrated to be effective and in accordance with applicable rules	

	3. selecting course of action 4. evaluation of outcome effectiveness Development, implementation, and oversight of standard operating procedures		
Organise and manage the provision of medical care on board	A thorough knowledge of the use and contents of the following publications: 1. International Medical Guide for Ships or equivalent national publications 2. medical section of the International Code of Signals 3. Medical First Aid Guide for Use in Accidents Involving Dangerous Goods	Actions taken and procedures followed correctly apply and make full use of advice available	Sources of medical advice from on board publications and from the shore

7 Oral exam syllabus for Officer in charge of a Navigational Watch (OOW) STCW Code II/3 – Ships less than 500 Gross Tonnage (GT) engaged on Near-Coastal Voyages

Section A-II/3

Mandatory minimum requirements for certification of officers in charge of a navigational watch on ships of less than 500 gross tonnage, engaged on near-coastal voyages

OFFICER IN CHARGE OF A NAVIGATIONAL WATCH

Standard of competence

1. Candidates are required to demonstrate competence to undertake the tasks, duties and responsibilities listed in the 'Competence' column of table A-II/3;

2. The minimum knowledge, understanding and proficiency required for certification is listed in the 'Knowledge, understanding and proficiency' column of table A-II/3.

3. The level of responses of the subjects listed in the 'Knowledge, understanding and proficiency' column of table A-II/3 shall be such that in the examiners professional judgement it would be enough for the candidate to serve in the capacity of officer in charge of a navigational watch and undertake operational level functions.

4. Underpinning knowledge, understanding and proficiency should take into account STCW Code, Part A, Section A-VIII/2, part 4-1 – Principles to be observed in keeping a navigational watch (see **Annex A**).

5. Candidates and Examiners should refer to the 'Criteria for evaluating competence' and 'Further guidance for evaluating competence' columns for further details.

Table A-II/3

Specification of minimum standard of competence for officers in charge of a navigational watch on ships of less than 500 gross tonnage engaged on near-coastal voyages

Function: Navigation at the operational level

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Plan and conduct a coastal passage and determine position Note: Training and assessment in the use of ECDIS is not required for those who serve exclusively on ships not fitted with ECDIS. These limitations shall be reflected in the endorsement issued to the seafarer concerned	Navigation Ability to determine the ship's position by the use of: 1. Landmarks 2. aids to navigation, including lighthouses, beacons and buoys 3. dead reckoning, taking into account winds, tides, currents and estimated speed *4.* Thorough knowledge of and ability to use nautical charts and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ships' routeing information Reporting in accordance with General Principles for Ship Reporting Systems and with VTS procedures	Information obtained from nautical charts and publications is relevant, interpreted correctly and properly applied The primary method of fixing the ship's position is the most appropriate to the prevailing circumstances and conditions The position is determined within the limits of acceptable instrument/system errors The reliability of the information obtained from the primary method of position fixing is checked at appropriate intervals	Passage planning with respect to the use of navigational publications including navigational charts, sailing directions, light lists, tide tables, radio navigational warnings and ships' routeing information Contents and use of the Annual Summary of Admiralty Notices to Mariners Use of navigational publications including ENCs and RNCs used in ECDIS Limitations and updates of electronic chart systems including ECDIS and RCDS navigational chart systems

	Voyage planning and navigation for all conditions by acceptable methods of plotting coastal tracks, taking into account, e.g.: *1.* restricted waters *2.* meteorological conditions *3.* ice *4.* restricted visibility *5.* traffic separation schemes *6.* vessel traffic service (VTS) areas *7.* areas of extensive tidal effects Thorough knowledge of and ability to use ECDIS *Navigational aids and equipment*	Calculations and measurements of navigational information are accurate Charts and publications selected are the largest scale on board suitable for the area of navigation and charts are corrected in accordance with the latest information available Performance checks and tests of navigation systems comply with manufacturer's recommendations, good navigational practice and IMO resolutions on performance standards for navigational equipment Interpretation and analysis of information obtained from radar is in accordance with accepted navigational practice and takes account of the limits and accuracy levels of radar Errors in magnetic compasses are determined and applied correctly to courses and bearings Selection of the mode of steering is the most suitable for prevailing weather, sea and traffic conditions and intended manoeuvres Measurements and observations of weather conditions are accurate and	The requirements of ship routeing and mandatory reporting systems To use an azimuth mirror for taking bearings, including the determination of compass errors Operational limitations of the navigational equipment commonly fitted on board

	Ability to operate safely and determine the ship's position by use of all navigational aids and equipment commonly fitted on board the ships concerned *Compasses* Knowledge of the errors and corrections of magnetic compasses Ability to determine errors of the compass, using terrestrial means, and to allow for such errors *Automatic pilot* Knowledge of automatic pilot systems and procedures; change-over from manual to automatic control and vice versa; adjustment of controls for optimum performance *Meteorology* Ability to use and interpret information obtained from shipborne meteorological instruments	appropriate to the passage Meteorological information is evaluated and applied to maintain the safe passage of the vessel	The use of all bridge equipment commonly fitted on board the ships concerned Radar – practical use of, modes of operation, sources of error, plotting and parallel indexing Use and limitations of compasses commonly fitted on board the ship concerned

	Knowledge of the characteristics of the various weather systems, reporting procedures and recording systems Ability to apply the meteorological information available		
Maintain a safe navigational watch	*Watchkeeping* Thorough knowledge of content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972, as amended Knowledge of content of the Principles to be observed in keeping a navigational watch Use of routeing in accordance with the General Provisions on Ships' Routeing Use of reporting in accordance with the General Principles for Ship Reporting Systems and with VTS procedures	The conduct, handover and relief of the watch conforms with accepted principles and procedures A proper look-out is maintained at all times and in conformity with accepted principles and procedures Lights, shapes and sound signals conform with the requirements contained in the International Regulations for Preventing Collisions at Sea, 1972, as amended and are correctly recognized The frequency and extent of monitoring of traffic, the ship and the environment conform with accepted principles and procedures Action to avoid close encounters and collision with other vessels is in accordance with the International Regulations for Preventing Collisions at Sea, 1972, as amended	A thorough knowledge of the principles of navigational watchkeeping at sea, including under pilotage, and watchkeeping at anchor and in port Maritime buoyage systems - IALA region ‘A’

		Decisions to adjust course and/or speed are both timely and in accordance with accepted navigation procedures A proper record is maintained of movements and activities relating to the navigation of the ship Responsibility for safe navigation is clearly defined at all times, including periods when the master is on the bridge and when under pilotage	
Respond to emergencies	Emergency procedures, including: 1. precautions for the protection and safety of passengers in emergency situations 2. initial assessment of damage and damage control 3. action to be taken following a collision 4. action to be taken following a grounding	The type and scale of the emergency is promptly identified Initial actions and, if appropriate, manoeuvring are in accordance with contingency plans and are appropriate to the urgency of the situation and the nature of the emergency	Initial action for emergencies including: • man overboard, • collision, grounding, • flooding or major mechanical damage Precautions for the protection and safety of passengers in emergency situations Initial action in event of failure of: - bridge control, telegraph, or steering; emergency steering arrangements

			Emergency organisational procedures commonly found on board the ships concerned
Respond to a distress signal at sea	*Search and rescue* Knowledge of the contents of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual	The distress or emergency signal is immediately recognized Contingency plans and instructions in standing orders are implemented and complied with	Initial action following receipt of a distress message Use of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual (Volume III), distress and emergency signals Use of International Code of Signals Emergency communications within the GMDSS regulations Correct use of distress signals and awareness of penalties for misuse
Manoeuvre the ship and operate small ship power plants	*Ship manoeuvring and handling* Knowledge of factors affecting safe manoeuvring and handling The operation of small ship power plants and auxiliaries Proper procedures for anchoring and mooring	Safe operating limits of ship propulsion, steering and power systems are not exceeded in normal manoeuvres Adjustments made to the ship's course and speed maintain safety of navigation Plant, auxiliary machinery and equipment is operated in accordance with technical specifications and within safe operating limits at all times	Preparation for getting under way, duties prior to proceeding to sea, making harbour, entering a dock, berthing alongside quays, jetties, or other ships, and securing to buoys; Helm orders, conning the ship, effects of propellers on the steering of a ship, effects of wind and current, stopping, going astern, turning short round, interaction, and squat

Function: Cargo handling and stowage at the operational level

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Monitor the loading, stowage, securing and unloading of cargoes and their care during the voyage	*Cargo handling, stowage and securing* Knowledge of safe handling, stowage and securing of cargoes, including dangerous, hazardous and harmful cargoes, and their effect on the safety of life and of the ship Use of the International Maritime Dangerous Goods (IMDG) Code	Cargo operations are carried out in accordance with the cargo plan or other documents and established safety rules/regulations, equipment operating instructions and shipboard stowage limitations The handling of dangerous, hazardous and harmful cargoes complies with international regulations and recognized standards and codes of safe practice	Use and care of synthetic fibre and wire ropes, ascertaining of safe-working loads Basic knowledge of regulations and recommendations affecting cargo handling, stowage, securing and carriage, including the IMDG, IBC, IGC and IMSBC Code Use of the hydrometer

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

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Ensure compliance with pollution- prevention requirements	*Prevention of pollution of the marine environment and anti-pollution procedures* Knowledge of the precautions to be taken to prevent pollution of the marine environment	Procedures for monitoring shipboard operations and ensuring compliance with MARPOL requirements are fully observed	Precautions to be taken to prevent pollution of the marine environment as required by the MARPOL Convention, including Restricted Areas

	Anti-pollution procedures and all associated equipment		Basic understanding of the Shipboard Oil Pollution Emergency Plan (SOPEP) & Shipboard Marine Pollution Emergency Plan (SMPEP) manual and Garbage Management Plans
Maintain seaworthiness of the ship	Ship stability Working knowledge and application of stability, trim and stress tables, diagrams and stress-calculating equipment Understanding of fundamental actions to be taken in the event of partial loss of intact buoyancy Understanding of the fundamentals of watertight integrity *Ship construction* General knowledge of the principal structural members of a ship and the proper names for the various parts	The stability conditions comply with the IMO intact stability criteria under all conditions of loading Actions to ensure and maintain the watertight integrity of the ship are in accordance with accepted practice	Understand fundamentals of watertight integrity, and the closing of all openings including hatch covers, access hatches and watertight doors Preparations for heavy weather Working knowledge of the use of stability and trim information on board small vessels
Prevent, control and fight fires on board	Fire prevention and fire-fighting appliances Ability to organize fire drills Knowledge of classes and chemistry of fire	The type and scale of the problem is promptly identified and initial actions conform with the emergency procedure and contingency plans for the ship Evacuation, emergency shutdown	

	Knowledge of fire-fighting systems Understanding of action to be taken in the event of fire, including fires involving oil systems	and isolation procedures are appropriate to the nature of the emergency and are implemented promptly The order of priority, and the levels and time-scales of making reports and informing personnel on board, are relevant to the nature of the emergency and reflect the urgency of the problem	
Operate life-saving appliances	Life-saving Ability to organize abandon ship drills and knowledge of the operation of survival craft and rescue boats, their launching appliances and arrangements, and their equipment, including radio life-saving appliances, satellite EPIRBs, SARTs, immersion suits and thermal protective aids	Actions in responding to abandon ship and survival situations are appropriate to the prevailing circumstances and conditions and comply with accepted safety practices and standards	Operation of survival craft and rescue boats Knowledge of survival at sea techniques Use and care of life-saving appliances and equipment including portable radios, EPIRBs, SARTs, immersion suits and thermal protective aids, and rocket line throwing apparatus
Apply medical first aid on board ship	*Medical aid* Practical application of medical guides and advice by radio, including the ability to take effective action based on such knowledge in the case of accidents or illnesses that are likely to occur on board ship	The identification of probable cause, nature and extent of injuries or conditions is prompt and treatment minimizes immediate threat to life	Sources of medical information available

Monitor compliance with legislative requirements	Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment	Legislative requirements relating to safety of life at sea, security and protection of the marine environment are correctly identified	Contents and use of Merchant Shipping Notices, Marine Guidance Notes, Marine Information Notes Knowledge and application of current Merchant Shipping Health and Safety legislation and the Code of Safe Working Practices for Merchant Seamen Basic awareness of the International Safety Management (ISM) Code Purpose of ISPS code Purpose of the Maritime labour convention 2006 (MLC) Purpose of Flag State and Port State Control
Contribute to the safety of personnel and ship	Knowledge of personal survival techniques Knowledge of fire prevention and ability to fight and extinguish fires Knowledge of elementary first aid Knowledge of personal safety and social responsibilities	Appropriate safety and protective equipment is correctly used Procedures and safe working practices designed to safeguard personnel and the ship are observed at all times Procedures designed to safeguard the environment are observed at all times	Knowledge of contents of LSA & FFE training manuals Ability to organise abandon ship drills

		Initial and follow-up actions on becoming aware of an emergency conform with established emergency response procedures	

8 Oral exam Syllabus for Master STCW Code II/3 – Ships of less than 500 Gross Tonnage (GT) engaged on Near-Coastal Voyages

Section A-II/3

Mandatory minimum requirements for certification of masters on ships of less than 500 gross tonnage, engaged on near-coastal voyages

MASTER

Standard of competence

1. Every candidate for certification shall be required to demonstrate the competence to undertake, at the management level, the tasks, duties and responsibilities listed in the ‘Competence’ column of table A-II/3.

2. The minimum knowledge, understanding and proficiency required for certification is listed in the ‘Knowledge, understanding and proficiency’ column of table A-II/3.

3. The level of knowledge of the subjects listed in the ‘Knowledge, understanding and proficiency’ column of table A-II/3 shall be such that in the examiners professional judgement it would be sufficient to enable the candidate to serve in the capacity of master and undertake management level functions.

4. Bearing in mind that the master has ultimate responsibility for the safety and security of the ship, its passengers, crew and cargo, and for the protection of the marine environment against pollution by the ship, assessment in these subjects shall be designed to test their ability to assimilate all available information that affects the safety and security of the ship, its passengers, crew or cargo, or the protection of the marine environment.

5. Candidates and Examiners should refer to the ‘Criteria for evaluating competence’ and ‘Further guidance for evaluating competence’ columns for further details.

Table A-II/3

Function: Navigation at the operational level

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Plan and conduct a coastal passage and determine position Note: Training and assessment in the use of ECDIS is not required for those who serve exclusively on ships not fitted with ECDIS. These limitations shall be reflected in the endorsement issued to the seafarer concerned	Navigation Ability to determine the ship's position by the use of: 1. landmarks 2. aids to navigation, including lighthouses, beacons and buoys 3. dead reckoning, taking into account winds, tides, currents and estimated speed Thorough knowledge of and ability to use nautical charts and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ships' routeing information Reporting in accordance with General Principles for Ship Reporting Systems and with VTS procedures	Information obtained from nautical charts and publications is relevant, interpreted correctly and properly applied The primary method of fixing the ship's position is the most appropriate to the prevailing circumstances and conditions The position is determined within the limits of acceptable instrument/system errors The reliability of the information obtained from the primary method of position fixing is checked at	Assessing all risk strategic overview for coastal passage, taking into consideration: (i) restricted waters. (ii) restricted visibility (iii) the requirements of ships' routeing and mandatory reporting systems (iv) reporting in accordance with ship reporting systems Responsibilities as master to monitoring the safe navigation of the vessel. Use of navigational publications including ENCs and RNCs used in ECDIS Limitations and updates of electronic chart systems including ECDIS and RCDS navigational chart systems

	Note: This item is only required for certification as master Voyage planning and navigation for all conditions by acceptable methods of plotting coastal tracks, taking into account, e.g.: *1.* restricted waters *2.* meteorological conditions *3.* ice *4.* restricted visibility *5.* traffic separation schemes *6.* vessel traffic service (VTS) areas *7.* areas of extensive tidal effects *Note:* This item is only required for certification as master Thorough knowledge of and ability to use ECDIS *Navigational aids and equipment*	appropriate intervals Calculations and measurements of navigational information are accurate Charts and publications selected are the largest scale on board suitable for the area of navigation and charts are corrected in accordance with the latest information available Performance checks and tests of navigation systems comply with manufacturer's recommendations, good navigational practice and IMO resolutions on performance standards for navigational equipment Interpretation and analysis of information obtained from radar is in accordance with accepted navigational practice and takes account of the limits and accuracy levels of radar Errors in magnetic compasses are determined and applied correctly to courses and bearings Selection of the mode of steering is the most suitable for prevailing weather, sea and traffic conditions and intended manoeuvres Measurements and observations of weather conditions are accurate and	Port radio information services: knowledge of the types of service available to aid vessels entering ports, berthing, VTIS and VTS services, as indicated in The Admiralty List of Radio Signals – Vessel Traffic Services, Port Operations and Pilot Stations Ability to verify the ship`s position plotted on the chart or on ECDIS

	Ability to operate safely and determine the ship's position by use of all navigational aids and equipment commonly fitted on board the ships concerned *Compasses* Knowledge of the errors and corrections of magnetic compasses Ability to determine errors of the compass, using terrestrial means, and to allow for such errors *Automatic pilot* Knowledge of automatic pilot systems and procedures; change-over from manual to automatic control and vice versa; adjustment of controls for optimum performance *Meteorology* Ability to use and interpret information obtained from shipborne meteorological instruments	appropriate to the passage Meteorological information is evaluated and applied to maintain the safe passage of the vessel	Limitations of bridge equipment commonly fitted on board the ships concerned Radar – practical use of, modes of operation, sources of error, plotting and parallel indexing Compasses commonly fitted on board the ships concerned - variation and deviation, causes and effects, siting of other equipment with reference to magnetic compasses Knowledge of the purpose of correctors/corrections Demonstrate an ability to undertake voyage planning, taking into

	Knowledge of the characteristics of the various weather systems, reporting procedures and recording systems Ability to apply the meteorological information available		consideration of meteorological conditions, through the interpretation of a synoptic chart, and to forecast local area weather, the characteristics of various weather systems
Maintain a safe navigational watch	*Watchkeeping* Thorough knowledge of content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972, as amended Knowledge of content of the Principles to be observed in keeping a navigational watch Use of routeing in accordance with the General Provisions on Ships' Routeing Use of reporting in accordance with the General Principles for Ship Reporting Systems and with VTS procedures	The conduct, handover and relief of the watch conforms with accepted principles and procedures A proper look-out is maintained at all times and in conformity with accepted principles and procedures Lights, shapes and sound signals conform with the requirements contained in the International Regulations for Preventing Collisions at Sea, 1972, as amended and are correctly recognized The frequency and extent of monitoring of traffic, the ship and the environment conform with accepted principles and procedures Action to avoid close encounters and collision with other vessels is in accordance with the International Regulations for Preventing Collisions at Sea, 1972, as amended	Maritime buoyage systems - IALA region 'A' A thorough knowledge of the principles of navigational watchkeeping at sea, including under pilotage, and watchkeeping at anchor and in port

		Decisions to adjust course and/or speed are both timely and in accordance with accepted navigation procedures A proper record is maintained of movements and activities relating to the navigation of the ship Responsibility for safe navigation is clearly defined at all times, including periods when the master is on the bridge and when under pilotage	Knowledge of principles of establishing a safe engineering watch at sea, anchor and in port
Respond to emergencies	Emergency procedures, including: 1. precautions for the protection and safety of passengers in emergency situations 2. initial assessment of damage and damage control 3. action to be taken following a collision 4. action to be taken following a grounding In addition, the following material should be included for certification as master:	The type and scale of the emergency is promptly identified Initial actions and, if appropriate, manoeuvring are in accordance with contingency plans and are appropriate to the urgency of the situation and the nature of the emergency	Action to be taken when disabled and in distress, abandoning ship, survival procedure, and use of a vessel's pyrotechnics Understand the fundamental actions to be taken in the event of partial loss of intact buoyancy Measures to be taken following collision, grounding, heavy weather damage and water ingress including the possibility of beaching a ship Precautions for the protection and safety of passengers in emergencies

	1. emergency steering 2. arrangements for towing and for being taken in tow 3. rescuing persons from the sea 4. assisting a vessel in distress 5. appreciation of the action to be taken when emergencies arise in port		Towing and being towed Knowledge of search and rescue procedures, assisting a ship or aircraft in distress, rescuing the passengers and crew of a disabled ship or ditched aircraft
Respond to a distress signal at sea	*Search and rescue* Knowledge of the contents of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual	The distress or emergency signal is immediately recognized Contingency plans and instructions in standing orders are implemented and complied with	Master responsibilities and the action following receipt of a distress message Use of the International Aeronautical and Marine Search and Rescue (IAMSAR) Manual (Volume III), distress and emergency signals Search and Rescue (SAR) plans for passenger ships Emergency communications within the GMDSS regulations. Correct use of distress signals and awareness of penalties for misuse.

Manoeuvre the ship and operate small ship power plants	*Ship manoeuvring and handling* Knowledge of factors affecting safe manoeuvring and handling The operation of small ship power plants and auxiliaries Proper procedures for anchoring and mooring	Safe operating limits of ship propulsion, steering and power systems are not exceeded in normal manoeuvres Adjustments made to the ship's course and speed maintain safety of navigation Plant, auxiliary machinery and equipment is operated in accordance with technical specifications and within safe operating limits at all times	Anchoring and working anchors and cables in all circumstances Proper procedures for berthing and unberthing

Function: Cargo handling and stowage at the operational level

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Monitor the loading, stowage, securing and unloading of cargoes and their care during the voyage	*Cargo handling, stowage and securing* Knowledge of safe handling, stowage and securing of cargoes, including dangerous, hazardous and harmful cargoes, and their effect on the safety of life and of the ship Use of the International Maritime Dangerous Goods (IMDG) Code	Cargo operations are carried out in accordance with the cargo plan or other documents and established safety rules/regulations, equipment operating instructions and shipboard stowage limitations The handling of dangerous, hazardous and harmful cargoes complies with international regulations and recognized standards and codes of safe practice	Knowledge and application of regulations and guidance affecting cargo handling, stowage, securing and carriage Use of IMDG, IBC, IGC and IMSBC Code

Function: Controlling the operation of the ship and care for persons on board at the management level

Competence	Knowledge, understanding and proficiency	Criteria for evaluating competence	Further guidance for evaluating competence
Ensure compliance with pollution-prevention requirements	*Prevention of pollution of the marine environment and anti-pollution procedures* Knowledge of the precautions to be taken to prevent pollution of the marine environment Anti-pollution procedures and all associated equipment	Procedures for monitoring shipboard operations and ensuring compliance with MARPOL requirements are fully observed	Precautions to be taken to prevent pollution of the marine environment as required by the MARPOL Conventions, including Restricted Areas Take appropriate action as master in response to pollution incidents onboard and found at sea Knowledge of the contents of Shipboard Oil Pollution Emergency Plan (SOPEP) & Shipboard Marine Pollution Emergency Plan (SMPEP) manual, Garbage Management Plans and antipollution equipment Master's duties, obligations, and liabilities, including the keeping of records
Maintain seaworthiness of the ship	*Ship stability* Working knowledge and application of stability, trim and stress tables, diagrams and stress-calculating equipment	The stability conditions comply with the IMO intact stability criteria under all conditions of loading Actions to ensure and maintain the watertight integrity of the ship are in accordance with accepted practice	The safe stability of the vessel is maintained throughout all-cargo operations Precautions to be taken before the onset of heavy weather,

	Understanding of fundamental actions to be taken in the event of partial loss of intact buoyancy Understanding of the fundamentals of watertight integrity *Ship construction* General knowledge of the principal structural members of a ship and the proper names for the various parts		management of small ships in heavy weather, handling a disabled ship Working knowledge of stability and trim information on board small vessels Use and care of deck machinery commonly fitted including lifting equipment Action in event of cargo shift, damage to hull or hatches, loss of cargo overboard or ingress of water into hull Preparation for dry-docking and undocking, with and without cargo/damage – general procedure and precautions to be observed
Prevent, control and fight fires on board	*Fire prevention and fire-fighting appliances* Ability to organize fire drills Knowledge of classes and chemistry of fire Knowledge of fire-fighting systems Understanding of action to be taken	The type and scale of the problem is promptly identified and initial actions conform with the emergency procedure and contingency plans for the ship Evacuation, emergency shutdown and isolation procedures are appropriate to the nature of the emergency and are implemented promptly	Methods of dealing with fire onboard ship; prevention of fire at sea and in port The organisation and direction of fire-fighting drill training

	in the event of fire, including fires involving oil systems	The order of priority, and the levels and time-scales of making reports and informing personnel on board, are relevant to the nature of the emergency and reflect the urgency of the problem	Use and maintenance of fire-fighting equipment, fire dampers, doors and screens, and detection equipment
Operate life-saving appliances	*Life-saving* Ability to organize abandon ship drills and knowledge of the operation of survival craft and rescue boats, their launching appliances and arrangements, and their equipment, including radio life-saving appliances, satellite EPIRBs, SARTs, immersion suits and thermal protective aids	Actions in responding to abandon ship and survival situations are appropriate to the prevailing circumstances and conditions and comply with accepted safety practices and standards	Launch and manage survival craft, recover rescue boats at sea Use and maintenance of life saving appliances including radio life-saving appliances, satellite EPIRBs, SARTs, immersion suits and thermal protective aids The organisation and management of lifeboat and life-raft drill training
Apply medical first aid on board ship	*Medical aid* Practical application of medical guides and advice by radio, including the ability to take effective action based on such knowledge in the case of accidents or illnesses that are likely to occur on board ship	The identification of probable cause, nature and extent of injuries or conditions is prompt and treatment minimizes immediate threat to life	Sources of medical information available
Monitor compliance with legislative requirements	Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment	Legislative requirements relating to safety of life at sea, security and protection of the marine environment are correctly identified	Contents and use of Merchant Shipping Notices, Marine Guidance Notes, Marine Information Notes and the Annual Summary of Admiralty Notices to Mariners

			Knowledge and application of current Merchant Shipping Health and Safety legislation Knowledge of the relevant IMO conventions concerning safety of life at sea and protection of the marine environment Seafarer Employment Agreements, the official log book and the law relating to entries, inspection of living quarters and storerooms, complaints procedure Reports required by the Marine Accident Investigation Branch (MAIB) Load-line marks - entries and reports in respect of freeboard, draft and allowances The requirements of the regulations concerning life-saving and fire-fighting appliances Application of hours of work and rest legislation The law relating to the reporting of dangers to navigation A knowledge of the master's obligations with respect to pilotage

			Purpose and application of the International Safety Management (ISM) Code Purpose and application of ISPS code Purpose and application of the Maritime labour convention 2006 (MLC) Purpose of Flag State and Port State Control
Contribute to the safety of personnel and ship	Knowledge of personal survival techniques Knowledge of fire prevention and ability to fight and extinguish fires Knowledge of elementary first aid Knowledge of personal safety and social responsibilities	Appropriate safety and protective equipment is correctly used Procedures and safe working practices designed to safeguard personnel and the ship are observed at all times Procedures designed to safeguard the environment are observed at all times Initial and follow-up actions on becoming aware of an emergency conform with established emergency response procedures	Knowledge of contents of LSA & FFE training manuals Knowledge and application of the Code of Safe Working Practices for Merchant Seamen Ability to organise abandon ship drills

More Information

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Safer Lives, Safer Ships, Cleaner Seas

The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW) Code, Part A, Chapter VIII, section A-VIII/2, *Part 4 – 1 – Principles to be observed in keeping a navigational watch*

Part 4 – 1 – Principles to be observed in keeping a navigational watch

13. 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 International Regulations for Preventing Collisions at Sea, 1972, as amended.

Lookout

14. A proper lookout shall be maintained at all times in compliance with rule 5 of the International Regulations for Preventing Collisions at Sea, 1972, as amended 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.

15. The lookout must be able to give full attention to the keeping of a proper lookout and no other duties shall be undertaken or assigned which could interfere with that task.

16. The duties of the lookout and helmsperson are separate and the helmsperson shall not be considered to be the lookout 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 lookout. The officer in charge of the navigational watch may be the sole lookout 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.

17. In determining that the composition of the navigational watch is adequate to ensure that a proper lookout can continuously be maintained, the master shall take into account all relevant factors, including those described in this section of the Code, as well as the following factors:

.1 visibility, 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 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 such configuration might inhibit a member of the watch from detecting by sight or hearing any external development; and

.13 any other relevant standard, procedure or guidance relating to watchkeeping arrangements and fitness for duty which has been adopted by the Organization.

Watch arrangements

18. 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 which 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 ECDIS, 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 their limitations; and

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

Taking over the watch

19. 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.

20. 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 fully adjusted to the light conditions.

21. Prior to 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.

22. Relieving officers shall personally satisfy themselves regarding the:

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

.2 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 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. the 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.

23. 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.

Performing the navigational watch

24. 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; and

.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.

25. 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.

26. 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 such equipment.

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

28. 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 International Regulations for Preventing Collisions at Sea, 1972, as amended in force.

29. 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 shall be made of UMS engine controls provided on the bridge in accordance with the applicable procedures.

30. 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.

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

32. It is of special importance that at all times the officer in charge of the navigational watch ensures that a proper lookout 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 lookout is maintained.

33. 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. Such tests shall also be carried out prior to port arrival and departure.

34. 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 is functioning properly in accordance with paragraph 86 of this section; and

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

35. 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 International Convention for the Safety of Life at Sea (SOLAS),1974. The officer of the navigational watch 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 lookout in order to take emergency action.

36. 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.

37. 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.

38. The officer in charge of the navigational watch shall ensure that the 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.

39. 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 is commenced in ample time.

40. 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, or a navigation mark or to obtain soundings by the expected time;

.5 if, unexpectedly, 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.

41. 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.

42. The officer in charge of the navigational watch shall give watchkeeping personnel all appropriate instructions and information which will ensure the keeping of a safe watch, including a proper lookout.

Watchkeeping under different conditions and in different areas

Clear weather

43. The officer in charge of the navigational watch shall take frequent and accurate compass bearings of approaching ships as a means of early detection of risk of collision and shall 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 in charge of the navigational watch shall also take early and positive action in compliance with the applicable International Regulations for Preventing Collisions at Sea, 1972, as amended and subsequently check that such action is having the desired effect.

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

Restricted visibility

45. 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 of the International Regulations for Preventing Collisions at Sea, 1972, as amended 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 in charge of the navigational watch shall:

.1 inform the master;

.2 post a proper lookout;

.3 exhibit navigation lights; and

.4 operate and use the radar.

In hours of darkness

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

Coastal and congested waters

47. 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 frequent intervals, and shall be carried out by more than one method whenever circumstances allow. When using ECDIS, appropriate usage code (scale) electronic navigational charts shall be used and the ship's position shall be checked by an independent means of position fixing at appropriate intervals.

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

Navigation with pilot on board

49. Despite the duties and obligations of pilots, their presence on board does not relieve the master or the officer in charge of the navigational watch from 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 and/or 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.

50. If in any doubt as to 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.

Ship at anchor

51. 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 lookout 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; and

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