

Onboard training for deck officer cadets

Supervised onboard training

With respect to the paragraph 2.2 of Regulation II/1 of the STCW Convention, the supervised onboard training should at least cover the following elements:

1. Familiarization for all ships
 - 1.1 Emergency drills such as abandon ship and firefighting drill etc.
 - 1.2 Safe working practices such as entering enclosed space, hot work practice etc.
 - 1.3 Environmental pollution prevention practice such as garbage handling etc.
2. Navigation at the operational level
 - 2.1 Plan and conduct a passage and determine position

Celestial navigation

 - 2.1.1 Ability to use celestial bodies to determine the ship's position

Terrestrial and coastal navigation

 - 2.1.2 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
 - 2.1.3 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' routing information

Electronic systems of position fixing and navigation

 - 2.1.4 Ability to determine the ship's position by use of electronic navigational aids

Echo-sounders

- 2.1.5 Ability to operate the equipment and apply the information correctly

Compass – magnetic and gyro

- 2.1.6 Knowledge of the principles of magnetic and gyro-compasses
- 2.1.7 Ability to determine errors of the magnetic and gyro-compasses, using celestial and terrestrial means, and to allow for such errors

Steering control system

- 2.1.8 Knowledge of steering control systems, operational procedures and change-over from manual to automatic control and vice versa.
- 2.1.9 Adjustment of controls for Optimum performance

Meteorology

- 2.1.10 Ability to use and interpret information obtained from shipborne meteorological instruments
- 2.1.11 Knowledge of the characteristics of the various weather systems, reporting procedures and recording systems
- 2.1.12 Ability to apply the meteorological information available

3. Maintain a safe navigational watch

Watchkeeping

- 3.1 Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972, as amended
- 3.2 Thorough knowledge of the Principles to be observed in keeping a navigational watch
- 3.3 The use of routing in accordance with the General Provisions on Ships' Routing
- 3.4 The use of information from navigational equipment for maintaining a safe navigational watch
- 3.5 Knowledge of blind pilotage techniques
- 3.6 The use of reporting in accordance with the General Principles for Ship Reporting Systems and with VTS procedures

Bridge resource management

3.7 Knowledge of bridge resource management principles, including:

- .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

3.8 Use of radar and ARPA to maintain safety of navigation

Radar navigation

3.8.1 Knowledge of the fundamentals of radar and automatic radar plotting aids(ARPA)

3.8.2 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
- .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

3.8.3 Principal types of ARPA, their display characteristics, performance standards and the dangers of over-reliance on ARPA

3.8.4 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 analyzing information, critical echoes, exclusion areas and trial manoeuvres

3.9 Use of ECDIS to maintain the safety of navigation

Navigation using ECDIS

3.9.1 Knowledge of the capability and limitations of ECDIS operations, including:

- .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

3.9.2 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 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

3.10 Respond to emergencies

Emergency procedures

3.10.1 Precautions for the protection and safety of passengers in emergency situations

3.10.2 Initial action to be taken following a collision or a grounding; initial damage assessment and control

3.10.3 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

3.11 Respond to a distress signal at sea

Search and rescue:

- 3.11.1 Knowledge of the contents of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual

3.12 Use the IMO Standard Marine Communication Phrases and use English in written and oral form

English language

- 3.12.1 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)

3.13 Transmit and receive information by visual signaling

Visual signaling

- 3.13.1 Ability to use the International Code of Signals
- 3.13.2 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 signaling of single-letter signals as also specified in the International Code of Signals

3.14 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
- .5 proper procedures for anchoring and mooring

4. Cargo handling and stowage at operational level

- 4.1 Monitor the loading, stowage, securing, care during the voyage and the unloading of cargoes

Cargo handling, stowage and securing

- 4.1.1 Knowledge of the effect of cargo, including heavy lifts, on the seaworthiness and stability of the ship
 - 4.1.2 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
 - 4.1.3 Ability to establish and maintain effective communications during loading and unloading
- 4.2 Inspect and report defects and damage to cargo spaces, hatch covers and ballast tanks
- 4.2.1 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
- 4.3 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
- 4.4 Identify those elements of the ship structure which are critical to the safety of the ship
- 4.5 State the causes of corrosion in cargo spaces and ballast tanks and how corrosion can be identified and prevented
- 4.6 Knowledge of procedures on how the inspections shall be carried out
- 4.7 Ability to explain how to ensure reliable detection of defects and damages
- 4.8 Understanding of the purpose of the “enhanced survey programme”

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

- 5.1 Ensure compliance with pollution-prevention requirements

Prevention of pollution of the marine environment and anti-pollution procedures

5.1.1 Knowledge of the precautions to be taken to prevent pollution of the marine environment

5.1.2 Anti-pollution procedures and all associated equipment

5.1.3 Importance of proactive measures to protect the marine environment

5.2 Maintain seaworthiness of the ship

Ship stability

5.2.1 Working knowledge and application of stability, trim and stress tables, diagrams and stress-calculating equipment

5.2.2 Understanding of fundamental actions to be taken in the event of partial loss of intact buoyancy

5.2.3 Understanding of the fundamentals of watertight integrity

Ship construction

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

5.3 Prevent, control and fight fires on board

Fire prevention and fire-fighting appliances

5.3.1 Ability to organize fire drills

5.3.2 Knowledge of classes and chemistry of fire

5.3.3 Knowledge of fire-fighting systems

5.3.4 Knowledge of action to be taken in the event of fire, including fires involving oil systems

5.4 Operate life-saving appliances

Life-saving

5.4.1 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

5.5 Apply medical first aid on board ship

Medical aid

- 5.5.1 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
- 5.6 Monitor compliance with legislative requirements
 - 5.6.1 Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment
- 5.7 Application of leadership and teamworking skills
 - 5.7.1 Working knowledge of shipboard personnel management and training
 - 5.7.2 Knowledge of related international maritime conventions and recommendations, and national legislation
 - 5.7.3 Ability to apply task and workload management, including:
 - .1 planning and co-ordination
 - .2 personnel assignment
 - .3 time and resource constraints
 - .4 prioritization
 - 5.7.4 Knowledge and ability to apply effective resource management:
 - .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
 - 5.7.5 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
- 5.8 Contribute to the safety of personnel and ship
 - 5.8.1 Knowledge of personal survival techniques
 - 5.8.2 Knowledge of fire prevention and ability to fight and extinguish fires
 - 5.8.3 Knowledge of elementary first aid
 - 5.8.4 Knowledge of personal safety and social responsibilities

Training record book

6. The training record book of each task should include following items
 - 6.1 Name of the task
 - 6.2 Related instrument/ equipment /tools /systems etc.
 - 6.3 Date of training
 - 6.4 Name of supervising deck officer or master and his initials after task completion
 - 6.5 Task evaluation and areas for improvement
7. Training record book should also contain the following information:
 - 7.1 Personal information of the candidate for certification, such as name, date of birth, residential address, seaman discharge book no. etc.
 - 7.2 Company(ies) information which the candidate has been served such as company name, company address, service period for the particular training programme etc.
 - 7.3 Ship(s) information which the candidate has been served such as ship's name, ship's major particulars, engine particulars, lifesaving and firefighting equipment, cargo gears, navigational equipment and GMDSS equipment etc.